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## To assess the knowledge level of beneficiary and non-beneficiary dairy farmers about improved milk production techniques in Udaipur district of Rajasthan

**Devendra Singh, RS Rathore, SS Sisodia, Laksheeta Chauhan and Ramesh Chand Bunkar**

### Abstract

India is an agriculture prone country but somehow the earning of the farmer is very less to compensate this farmer opt for additional income source such as livestock, poultry etc. Among them livestock sector is well developed sector. Farmer sell the milk directly or by sending it to the dairy. There are some milk collection centres farmer send the milk there after processing the milk were sent to sell. However, the updated knowledge of dairy farmers about improved milk production practices is very important for getting good economic returns. The major objective of study was to determine dairy farmers knowledge about improved milk production practices. The knowledge of dairy farmers on five major areas of improved milk production practices (feeding, breeding, healthcare, general management and Marketing) was determined using a standardized Knowledge Test. The study sample comprised 120 dairy farmers (60 beneficiary and 60 non- beneficiary) spread across six milk collection centres was selected from two Panchayat samitis of Udaipur division. Data was collected using structured interview schedule, and the respondents were personally interviewed by the researcher. The researcher chose this because it has highest milk collection centres in Udaipur district of Rajasthan.

**Keywords:** Agriculture, dairy farming, livestock, Saras dairy

### Introduction

India is vast country with diversified agro-climate conditions. Agriculture is the main occupation of majority of Indians. Most of the farmers are engaged in agricultural operations for 8-9 months of a year. Under such conditions, it is customary to rear livestock as a source of extra income. Preferably, it is useful to keep cattle or goats or sheep which is an additional source of regular employment and income. The evolution of the dairy sector in India and the stellar role played by dairy cooperatives since the launch of Operation Flood form an integral part of the country's remarkable growth story after Independence.

Today, India is the largest producer of milk in the world, contributing 23 percent of global milk production. During the 1950s and 1960s, the situation was radically different. India was a milk-deficit nation dependent on imports, and the annual production growth was negative for several years. The annual compound growth rate in milk production during the first decade after independence was 1.64 percent, which declined to 1.15 percent during the 1960s. In 1950-51, per capita consumption of milk in the country was only 124 grams per day. By 1970, this figure had dropped to 107 grams per day, one of the lowest in the world and well below the minimum recommended nutritional standards. India's dairy industry was struggling to survive. The country produced less than 21 million tonnes of milk per annum despite having the largest cattle population in the world.

In addition to the production estimates, it also contains data of secondary information like livestock population as per latest 20<sup>th</sup> Livestock Census, total milk production in the country during 2021-22 is 221.06 million tonnes. In the current year 2021-22, the milk production has registered an annual growth rate of 5.29%. Top 5 major milk producing States are Rajasthan (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.06%), Gujarat (7.56%) and Andhra Pradesh (6.97%). Hence, Rajasthan is the highest milk producing state in India. Producing milk is not sufficient reaching the consumer is important for that dairy cooperatives work. Undoubtedly, dairy cooperatives are the most professionally managed sector of the Indian co-operatives. It also provides basic dairy services such as supply of cattle feed, fodder seed, animal health services, artificial insemination for both cattle and buffaloes to the members of

dairy co-operative societies.

Milk collection centres (MCC) plays an important role between the dairy farms and the dairy industry. In order to supply the high-quality, safe and adequate raw milk required by dairy processing firms, MCCs in the milk supply chain act as a bridge between the dairy farms and dairy processing industry. MCCs are also of small and medium size, therefore raw milk analyses cannot be fully achieved for the absence of qualified personnel and for equipment inadequacies. To understand the role of dairy cooperative societies in milk production techniques the investigation was conducted on saras dairy milk collection centers in Udaipur district of Rajasthan.

**Methodology**

The present investigation was conducted purposely in Rajasthan state. Rajasthan is India’s largest state by area as well as water scare condition is there farmers try there level best for the production but as we all know Indian agriculture is the gambler of Indian monsoon hence, the production is not up to the level for compensate this farmer’s adopt milk production. The present investigation was conducted in Udaipur district of southern Rajasthan. Udaipur district was selected purposely for the present investigation because Udaipur district comes under the service area of Maharana Pratap University of Agriculture and Technology, Udaipur and the investigator was studied there. Udaipur district comprises of twenty panchayat samitis, out of these two Panchayat samitis had been selected on the basis of highest number of Milk Collection Center (MCC). A list was taken from MCC incharge, in this list panchayat samitis having highest MCCs were selected, out of them three MCC were selected from each Panchayat Samiti. From Bhinder panchayat samiti Varni, Nimdi and Chargadi where as in Salumber panchayat samiti Salawat, Lodha and Uthardha milk centres were selected for this investigation. Thus, total six MCCs were selected for the present investigation from two identify Panchayat Samities. Keeping in view the nature of this investigation, two types of respondents were selected i.e. beneficiary and non-beneficiary respondent. Beneficiary are those respondents who are registered in saras dairy and non-beneficiary are those who aren’t registered. For the selection of beneficiaries and non-beneficiaries respondent, a comprehensive list of farmers were prepared from each selected milk collection centre 10 farmers (beneficiary) and 10 farmers (non-beneficiary) were selected with the help of MCC incharge. Thus total 120 dairy farmers (60 beneficiary and 60 non-beneficiary) were selected for the investigation. For measuring the knowledge level of farmers knowledge index were used for calculating it this formula is used

$$K.I. = \frac{K \times 100}{P}$$

Where:

K.I. = Knowledge Index  
 K = Knowledge Score Obtained  
 P = Possible Maximum Score

To determine the extent of knowledge, mean percent score for each sub-aspect was also worked out and to find out the difference in knowledge of the respondent’s Z test was also applied.

**Results and Discussion**

**Distribution of beneficiary and non-beneficiary dairy farmers on the basis of their level of knowledge**

Knowledge level of beneficiary and non-beneficiary farmers regarding improved milk production practices were presented in the table 1.

Three categories low (<63.08), medium (63.08 to 70.08) and high (>70.08) were made on the basis of S.D and mean of the total obtained score of the respondents.

It was observed that 71.67 percent of beneficiary at high level of knowledge and 40.00 percent of non-beneficiary had medium level of knowledge, whereas 25.00 percent of beneficiary at medium and 31.67 percent of non-beneficiary had low level of knowledge regarding improved milk production practices. Remaining 3.33 percent of beneficiary at low level and 28.33 percent of non-beneficiary had high level of knowledge regarding improved milk production practices.

**Table 1:** Distribution of beneficiary and non-beneficiary dairy farmers on the basis of their level of knowledge

S. No.	Knowledge level	n=120			
		Beneficiary (n=60)		Non-Beneficiary (n=60)	
		f	%	f	%
1.	Low (< 63.08)	2	3.33	19	31.67
2.	Medium (63.08-70.94)	15	25.00	24	40.00
3.	High (>70.94)	43	71.67	17	28.33
Total		60	100	60	100

f=frequency, %=percentage, n=number of respondents

**Aspect-wise knowledge of the respondents regarding improved milk production practices**

The data presented in table 2 shows that the knowledge possessed by beneficiary respondents regarding Breeding is 66.48 MPS and 53.61 MPS by non-beneficiary respondents. The beneficiary farmers had more knowledge about breeding practices as they accorded first rank whereas the non-beneficiary farmers accorded fifth rank to the same practice. The knowledge possessed by beneficiary respondents and non-beneficiary respondents regarding Marketing were 61.59 MPS with second rank and 55.33 MPS with third rank accordingly. Whereas the knowledge regarding harvesting and Management practices were 59.22 MPS and 60.62 MPS with third rank possessed by beneficiary respondents and first rank possessed by non-beneficiary respondents respectively. In Feeding practices knowledge possessed by beneficiary respondents and non-beneficiary respondents were 59.08 MPS and 56.63 MPS with fourth and second rank respectively. In case of Health care practices knowledge possessed by beneficiary respondents and non-beneficiary respondents were 57.66 MPS and 54.13 MPS with fifth and fourth rank, respectively.

**Table 2:** Major aspect-wise knowledge of the respondents regarding improved milk production practices

S. No.	Aspect	n= 120			
		Beneficiary (n=60)		Non-Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1	Breeding	66.48	I	53.61	V
2	Feeding	59.08	IV	56.63	II
3	Management	59.22	III	60.62	I
4	Health care	57.66	V	54.13	IV
5	Marketing	61.59	II	55.33	III

MPS= Mean Percent Score

### Knowledge of beneficiary and non-beneficiary respondents regarding breeding

Analysis of data presented in table 3 It was observed that knowledge about “Appropriate time for mating during oestrus

cycle” practice ranked first with 91.66 MPS by the beneficiary followed by “Calving interval in cattle”, and “Cultural Practices” both practices ranked second with 85.41 MPS in breeding aspect of knowledge.

**Table 3:** Distribution of respondents on the basis of knowledge about Breeding

S. No.	Statement	Beneficiary (n=60)		Non-Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1.	Important Indigenous breeds of Cow for higher milk production	61.11	XIV	55.55	XIV
2.	The important Indigenous breeds of Buffalo for higher milk production	68.75	XI	67.08	VI
3.	Cultural Practices	85.41	II	74.16	III
4.	Important exotic breeds of cow for milk production	62.22	XIII	61.11	XIII
5.	Age of puberty in Cow	81.25	VII	63.33	X
6.	Age of first calving in Buffalo	82.77	IV	65.55	VII
7.	Age of first calving of the cow	83.33	III	65.00	VIII
8.	Symptoms of animal in heat	82.08	VI	63.75	VIV
9.	Appropriate time for mating during oestrus cycle	91.66	I	89.44	I
10.	The time taken in discharge of the placenta by animals is 10-14 hours	73.33	VIV	63.33	XI
11.	Need of sire or breeding bull in village even the Artificial Insemination is Practiced	82.66	V	81.66	II
12.	Which type of bull should be used for breeding	65.00	XII	61.66	XII
13.	Pregnancy diagnosis time of animals	68.79	X	67.08	V
14.	Calving interval in cattle	85.41	II	73.75	IV

MPS= Mean percent Score, n= number of respondents

### Knowledge of beneficiary and non-beneficiary respondents regarding feeding practices

From the table 4 it was found that “Type of ration should be feed to a cow/buffalo just after calving” and Common method of fodder conservation in your area ranked first (85.41MPS)

followed by “Good ration for dairy animals” ranked second (76.25) ranked third and “Fodder crops grown in your area” (68.75 MPS) by the beneficiary farmers among feeding practices.

**Table 4:** Distribution of respondents on the basis of knowledge about Feeding

S. No.	Statement	Beneficiary (n=60)		Non-Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1.	Good ration for dairy animals	76.25	II	72.50	II
2.	Fodder crops grown in your area	68.75	III	67.08	III
3.	Type of ration should be feed to a cow/buffalo just after calving	85.41	I	74.16	I
4.	When a newly born calf should be allowed for suckling its mother’s milk	61.66	IV	60.00	IV
5.	Common method of fodder conservation in your area	85.41	I	74.16	I

MPS= Mean percent Score, n= number of respondents

### Knowledge of beneficiary and non-beneficiary respondents regarding Management practices

From the table 5 it was found that “How all the cattle are kept in housing system” and Clean milk production ranked first (85.41MPS) followed by “Stage of pregnancy one should stop milking of a cow” ranked second (84.58) and “At what age male calf should be castrated” ranked third (83.33 MPS) by the beneficiary farmers among management practices.

While non-beneficiary farmers had more knowledge on “Flooring should be provided for animals in a shed” ranked first (75.55), “At what age male calf should be castrated” ranked second (74.16 MPS) and “Clean milk production” ranked third (73.74 MPS).

Management practices like “Flooring should be provided for animals in a shed” ranked fourth with 82.22 MPS, “Days after the colostrum free milk is available from dairy animals” ranked fifth with 68.33 MPS and “Housing is most appropriate for animals” ranked sixth with 65.00 MPS and Correct method of milking ranked seventh 61.66 MPS accorded by the beneficiary farmers.

Non-beneficiary farmer having medium to low extent of knowledge regarding management practices like “How all the cattle are kept in housing system” ranked fourth with 73.33

MPS, “Days after the colostrum free milk is available from dairy animals” ranked fifth with 66.25 MPS and “Housing is most appropriate for animals” ranked sixth with 61.11 MPS and Correct method of milking ranked seventh with 58.75 MPS.

### Knowledge of beneficiary and non-beneficiary respondents regarding Health Care practices

From the table 6 it was found that “Judge that animal is sick” ranked first (88.66 MPS) followed by “Contact with Milk collection agencies” ranked second (85.00) and “where do you sell your calf” ranked third (81.66 MPS) by the beneficiary farmers among Health Care practices.

While non-beneficiary farmers had more knowledge on “Judge that animal is sick” ranked first (79.33), “Contact with Milk collection agencies” ranked second (77.50MPS) and “Clean milk production” ranked third (71.14 MPS).

Health Care practices like “Best time for vaccinating animals against H.S. and B.Q. diseases” and “Treatment when they suffer from external parasites (i.e. ticks)” ranked fourth with 68.33 MPS, Importance diseases of animals ranked fifth with 63.33 MPS accorded by the beneficiary farmers.

Non-beneficiary farmer having medium to low extent of

knowledge regarding management practices like “Where do you sell your milk” ranked fourth with 69.44 MPS, “Best time for vaccinating animals against H.S. and B.Q. diseases” and

Treatment when they suffer from external parasites (i.e. ticks) ranked fifth with 66.25 MPS and “Importance diseases of animals” ranked sixth with 62.91MPS.

**Table 5:** Distribution of respondents on the basis of knowledge about Management

n= 120

S. No.	Statement	Beneficiary (n=60)		Non- Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1.	How all the cattle are kept in housing system	85.41	I	73.33	V
2.	Housing is most appropriate for animals	65.00	VI	61.11	VII
3.	At what age male calf should be castrated	83.33	III	74.16	II
4.	Stage of pregnancy one should stop milking of a cow	84.58	II	73.75	IV
5.	Flooring should be provided for animals in a shed	82.22	IV	75.55	I
6.	Correct method of milking	61.66	VII	58.75	VIII
7.	Days after the colostrum free milk is available from dairy animals	68.33	V	66.25	VI
8.	Clean milk production	85.41	I	73.74	III

MPS= Mean percent Score, n= number of respondents

**Table 6:** Distribution of respondents on the basis of knowledge about Health care

n= 120

S. No.	Statement	Beneficiary (n=60)		Non- Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1.	Importance diseases of animals	63.33	VII	62.91	VII
2.	Treatment when they suffer from external parasites (i.e. ticks)	68.33	V	66.25	VI
3.	Judge that animal is sick	88.66	I	79.33	I
4.	Best time for vaccinating animals against H.S. and B.Q. diseases	68.33	V	66.25	V
5.	Where do you sell your milk	79.44	IV	69.44	IV
6.	Contact with Milk collection agencies	85.00	II	77.50	II
7.	where do you sell your calf	81.66	III	71.14	III

MPS= Mean percent Score, n= number of respondents

**Knowledge of beneficiary and non-beneficiary respondents regarding Marketing practices**

From the table 7 it was found that “Proper transport facilities available” ranked first (90.00MPS) followed by “what you know about Saras dairy products” ranked second (89.16) and “proper Market facilities in the area” ranked third (85.83 MPS) by the beneficiary farmers among marketing practices. While non-beneficiary farmers had more knowledge on “proper Market facilities in the area” ranked first (80.83), “Proper transport facilities available” ranked second (80.00MPS) and “what you know about Saras dairy products”

ranked third (79.16 MPS).

Marketing practices like “Milk price based to fat content” ranked fourth with 83.33 MPS and “what you know about the processing of milk” ranked fifth with 82.50 MPS, accorded by the beneficiary farmers.

Non beneficiary farmer having medium to low extent of knowledge regarding management practices like “Milk price based to fat content” ranked fourth with 78.33 MPS, “what you know about the processing of milk ranked fifth with 75.00 MPS.

**Table 7:** Distribution of respondents on the basis of knowledge about Marketing

n= 120

S. No.	Statement	Beneficiary (n=60)		Non- Beneficiary (n=60)	
		MPS	Rank	MPS	Rank
1.	Milk price based to fat content	83.33	III	78.33	IV
2.	Proper transport facilities available	90.00	I	80.00	II
3.	Proper Market facilities in the area	85.83	IV	80.83	I
4.	What you know about the processing of milk	82.50	V	75.00	V
5.	What you know about SARAS dairy products	89.16	II	79.16	III

MPS= Mean percent Score, n= number of respondents

**Comparison of knowledge between Beneficiary and Non-beneficiary respondents**

In terms of knowledge of farmers regarding improved milk production practices, it was found important to study the difference between beneficiary and non-beneficiary farmers. To find out the difference in knowledge of the respondent’s Z test was applied. The result was given in table 8.

**Hypotheses**

**H<sub>01</sub>:** There is no significant difference between beneficiary and non-beneficiary respondent knowledge regarding improved milk production practices.

**H<sub>02</sub>:** There is significant difference between beneficiary and non-beneficiary respondent knowledge regarding improved milk production practices.

**Table 8:** Comparison of knowledge between Beneficiary and Non-beneficiary respondents n=120

S. No.	Category of sample	Mean	S.D.	‘Z’ value
1.	Beneficiary	73.92	6.12	1.99*
2.	Non-beneficiary	67.97	8.88	

\*Significant at 5 percent level of significance

It was found from the table 8 that calculated 'Z' value was found to be greater than tabulated value at 1 percent level of significance. Thus, null hypothesis was rejected and alternate hypothesis was accepted. So, there is a significant difference between beneficiary and non-beneficiary farmers regarding knowledge about improved milk production techniques.

Further it was found that the mean value of beneficiary respondents was higher than non-beneficiary respondents. It shows that beneficiary respondents had more knowledge than non-beneficiary respondents regarding milk production practices.

### Conclusion

In conclusion, our results show a significant difference between beneficiary and non-beneficiary farmers regarding knowledge about improved milk production techniques. The knowledge level of beneficiary dairy farmers high about breeding practices, feeding, Management, Health care, Marketing practices. The present investigation show that the knowledge level of beneficiary dairy farmers is High (>70.94%) and non-beneficiary dairy farmers is medium (63.08%) about improved milk production techniques. We need to undertake intensive efforts with relevant media strategies to improve the knowledge level and awareness about scientific milk production techniques by all categories of dairy farmers. Therefore, government department must periodically conduct trainings and awareness programmes on various aspects of dairy farming, especially on feeding, breeding, healthcare management and clean milk production practices etc to update their knowledge. Consequently, India can improve milk productivity and production efficiency of its large livestock population and contribute more in nation's GDP.

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