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### Milk producers perceptions on constraints in milk production in South Gujarat region

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#### Abstract

Dairying has been a longstanding tradition rural households, providing food, income, and employment, particularly for marginal and small farmers. Understanding the constraints that dairy households face in the milk production is crucial. With these considerations in mind, the current study set out to determine the primary problems encountered by dairy household improvement of the milk sector especially in South Gujarat region of Gujarat State. A field survey was conducted in Valsad, Navsari, Surat and Tapi districts of South Gujarat region in Gujarat to identify various constraints perceived by dairy households in adoption of improved dairy husbandry practices. Information was collected from randomly selected 320 dairy households through personal interview with the help of structured interview schedule. The study revealed that in feeding constraints high cost of cattle and buffalo feed and mineral mixture was a very important constraint and least important constraint was an irregular and inadequate availability of grazing lands with Garrett's mean score 62.02 and 34.97, respectively. In breeding constraints, unavailability of Indian bulls of high genetic merit was important and the least constraint was poor knowledge about breeding practices with Garrett's mean score of 61.08 and 40.75, respectively. Poor knowledge about health care practices (with Garrett's mean score of 65.25 was important health constrains. As well as in marketing constraints low price for milk was the most important with mean score 61.53 and Irregular sale of milk was the least important with mean score 32.81. Shortage of capital was an important financial constraint with mean score of 63.09. Some other constraints faced by dairy households was lack of knowledge about government scheme with mean score 63.16. It was suggested that simultaneous and cumulative efforts be made by the govt. and related agencies to overcome these constraints.

**Keywords:** Constraints, milk producers, dairy households, milk production, dairy husbandry, practices

#### Introduction

Dairying has been a longstanding tradition rural households, providing food, income, and employment, particularly for marginal and small farmers. India's dairy industry, bolstered by the Operation Flood project, has grown significantly, making India the world's largest milk producer. In 2022-23, India produced 759.96 MT of milk, with per capita availability at 459.63 grams per day. Dairy cooperatives have been key to this success, with regions like Uttar Pradesh, Rajasthan, Andhra Pradesh, Gujarat, and Punjab contributing the most. The Indian Council of Medical Research (ICMR) recommends an individual to consume 240 grams of milk daily for a healthy life. Gujarat surpasses this with a per capita milk availability of 670 grams per day, which is quite satisfactory.

The state boasts 17 cooperative dairy milk unions and 25

private dairy plants, collecting 3.45 billion liters of milk from over 30 lakh producers associated with more than 15,000 primary milk cooperative societies. Milk production contributes 22 per cent to Gujarat's agricultural GDP and is a crucial sector for supporting livelihoods. According to state census data, out of 102 lakh households in Gujarat, 43 lakh households are engaged in dairy and animal husbandry as a primary or secondary income source.

The South Gujarat region, known for its successful dairy and agriculture cooperatives, encompasses seven districts: Bharuch, The Dangs, Narmada, Navsari, Surat, Valsad and Tapi. In terms of milk production, Surat leads with 502.67 lakh kg, followed by Navsari with 357.15 lakh kg, Tapi with 331.52 lakh kg and Valsad with 279.95 lakh kg.

In addition, this industry has the potential to significantly contribute to the promotion of a redistributive effect on

income in favour of disadvantaged groups. In order to provide economic information that can be used for forecasting development operations in the dairy sector, understanding the constraints that dairy households face in the milk production is crucial. With these considerations in mind, the current study set out to determine the primary problems encountered by dairy households so that the results might be used for the improvement of the milk sector especially in South Gujarat region of Gujarat State.

### Materials and Methods

Methodology outlines the study area profile, the nature and sources of data collected and the analytical tools and techniques employed to achieve the study's objectives. The selection of the study area mainly based on the highest milk production in the South Gujarat, four districts viz, Surat, Navsari, Valsad and Tapi were the significant contributors of milk production in the South Gujarat. Multistage random sampling technique was adopted for the sampling. At first stage 4 districts were selected purposively, then 2 talukas from each districts at second stage, then 2 dairy cooperatives from each selected taluka at third stage and at the last stage 20 respondents from each dairy cooperative were selected and finale sample was 320 respondents. Primary data were collected from 320 respondents with the pretested interview schedule in August to December 2023. Garrett ranking technique was employed for the identification of constrains face by dairy households in milk production.

### Garrett's ranking technique

The study utilized Garrett's ranking technique, as proposed by Garrett and Woodworth in 1969, to assess the constraints hindering milk production. Respondents were requested to rank the constraints in availing inputs and services that were limiting milk production. The ranks provided by each individual for the identified factors were then transformed into scores using the following formula:

$$\text{Percent position} = 100 \left[ \frac{R_{ij} - 0.50}{N_j} \right] \quad (1)$$

Where,

$R_{ij}$  = Rank given for the  $i^{\text{th}}$  factor by the  $j^{\text{th}}$  individual.

$N_j$  = Number of factors ranked by the  $j^{\text{th}}$  individual.

The percentage position was subsequently converted into scores using a reference table provided by Garrett and Woodworth (1969) [2]. For each factor, the scores assigned by each individual were aggregated and the total value of scores and mean values of scores were calculated. Factors with the highest mean value were considered the most significant constraints.

### Results and Discussion

Dairy households face challenges in the study area were identified through observation and discussion. Dairy households have difficulties with dairy farming and operations. Dairy farming in the region had a lot of challenges. The Garret rating system was used to prioritize the constraints in order to determine their relative importance. Constraints are the things that limit or restrict to perform some action. In dairying, the constraints are social,

economic and psychological, that hinders the milk producers to improve the dairying. The constraints which are faced by dairy households are classified under the following heads (1) Feeding constraints (2) Breeding constraints (3) Health constraints (4) Marketing constraints (5) Financial constraints (6) Others Constraints. The major constraints faced by dairy households in dairy farming were ranked with the help of their Garrett's mean score has been shown in Table 1.

### Feeding constraints faced by dairy households

The results presented in Table 1 revealed that in feeding constraints, the high cost of cattle and buffalo feed and mineral mixture was a very important constraint and ranked first with the highest Garrett's mean score of 62.02, high cost of fodder seeds ranked second constraint (Garrett's mean score of 59.23), unavailability of green fodder through the year ranked third constraints (Garrett's mean score of 43.76) and constraint was an irregular and inadequate availability of grazing lands (with the least Garrett's mean score of 34.97). Similar types of findings have been reported by Gayathri *et al.*, (2023) [3], Narnaware *et al.* (2023) [4] and Virani (2023) [7].

### Breeding constraints faced by dairy households

The results presented in Table 1, showed that in breeding constraints, unavailability of Indian bulls of high genetic merit was the first and foremost constraint (with Garrett's mean score of 61.08). Infertility problem was the second important constraint perceived by dairy households (with Garrett's mean score of 51.97) and lower quality animal breed was the third important constraint (with Garrett's mean score of 46.18) and the least and fourth constraint was poor knowledge about breeding practices (with Garrett's mean score of 40.75).

### Health constraints faced by dairy households

The results presented in Table 1, showed that in health constraints, poor knowledge about health care practices (with Garrett's mean score of 65.25) was ranked as the first and most important constraint in health management. Frequently animal become sick (with Garrett's mean score of 57.69), costly veterinary and aid (with Garrett's mean score of 47.59), irregular visit of veterinary staff (with Garrett's mean score of 46.22) and higher rate of calf mortality (with Garrett's mean score of 32.22) were ranked as second, third, fourth and fifth constraints, respectively.

### Marketing constraints faced by dairy households

The results presented in Table 1, revealed that in marketing constraints, low price for milk was the most important constraint (with the highest Garrett's mean score of 61.53). Similarly, the finding was also reported by Raj (2022) [6], Agarkar *et al.*, (2023) [1], Narnaware *et al.*, (2023) [4] and Patel and Sabapara (2023) [5]. Irregular sale of milk was the least important constraint with the lowest Garrett's mean score of 32.81. While, lack of market information (with Garrett's mean score of 59.42), non-remunerative price for milk (with Garrett score of 52.66), no market for milk in the immediate vicinity (with Garrett's mean score of 50.27) and distance of dairy from dairy producers home (with Garrett's mean score of 44.40) was ranked as second, third and fourth and fifth constraints, respectively.

**Table 1:** Identification of the Constraints faced by dairy households

Sr. No.	Particulars	Garrett's Mean Score	Rank
<b>Feeding constraints</b>			
1	Inadequate availability of grazing lands	34.97	IV
2	Unavailability of green fodder all over the year	43.76	III
3	High cost of cattle/buffalo feed and mineral mixture	62.02	I
4	High cost of fodder seeds	59.23	II
<b>Breeding constraints</b>			
1	Lower quality animal breed	46.18	III
2	Unavailability of Indian bulls of high genetic merit	61.08	I
3	Infertility problem	51.97	II
4	Poor knowledge about breeding practices	40.75	IV
<b>Health constraints</b>			
1	Higher rate of calf mortality	32.22	V
2	Irregular visits of veterinary staff	46.22	IV
3	Frequently animal become sick	57.69	II
4	Poor knowledge about health care practices	65.25	I
5	Costly veterinary treatment and aid	47.59	III
<b>Marketing constraints</b>			
1	Irregular sale of milk	32.81	VI
2	No market for milk in the immediate vicinity	50.27	IV
3	Low price for milk	61.53	I
4	Lack of market information	59.42	II
5	Non-remunerative price for milk	52.66	III
6	Distance of dairy from production home	44.40	V
<b>Financial constraints</b>			
1	Less availability of subsidies on bank loan	40.61	V
2	Shortage of capital	63.09	I
3	High investment	57.48	II
4	Insufficient loan	47.06	III
5	Insurance cover not available	40.79	IV
<b>Other constraints</b>			
1	Lack of infrastructure facility	38.72	VI
2	Lack of training facility	54.49	III
3	Lack knowledge of Government scheme	63.16	I
4	Non availability of labour	55.45	II
5	Family responsibilities	47.31	IV
6	Unsuitable for the prevailing climatic condition	40.73	V

### Financial constraints faced by dairy households

The results presented in Table 1, revealed that in financial constraints, shortage of capital was a important constraint and ranked first with the highest Garrett's mean score of 63.09, high interest rate ranked second constraint (Garrett's mean score of 57.48), insufficient loan ranked third constraints (Garrett's mean score of 47.06), Insurance cover not available was the fourth constraints (Garrett's mean score of 40.79) and Less availability of subsidies on bank loan was the least constraint with the lowest Garrett's mean score of 40.61. Similarly, the finding was also reported by Patel and Sabapara (2023) <sup>[5]</sup> and Virani (2023) <sup>[7]</sup>.

### Other constraints faced by dairy households

There was some other constraints face by dairy households which were not classified under the above heading, so these constraints were considered as an other constraints in milk production. The results presented in Table 1 reveals that in other constraints, lack of knowledge about government scheme (with Garrett's mean score of 63.16) were the first and foremost constraint and lack of infrastructure facility (with Garrett's mean score of 38.72) was the least constraint. Whereas, non availability of labour (with Garrett's mean score of 55.45), lack of training facility (with Garrett's mean score of 54.49), family responsibilities (with

Garrett's mean score of 47.31) and unsuitable for the prevailing climatic condition (with Garrett's mean score of 40.73), were ranked as second, third, fourth and fifth constraints, respectively. Similarly, the finding was also reported by Narnaware *et al.*, (2023) <sup>[4]</sup>, Patel and Sabapara (2023) <sup>[5]</sup> and Virani (2023) <sup>[7]</sup>.

### Conclusion

According to the study's findings, the biggest problems for milk producers in the South Gujarat regions of Gujarat State were in feeding constraints high cost of cattle and buffalo feed and mineral mixture was a very important constraint and least important constraint was an irregular and inadequate availability of grazing lands with Garrett's mean score 62.02 and 34.97, respectively. In breeding constraints unavailability of Indian bulls of high genetic merit was important and the least and fourth constraint was poor knowledge about breeding practices with Garrett's mean score of 61.08 and 40.75, respectively. Poor knowledge about health care practices (with Garrett's mean score of 65.25) was important health constraints. As well as in marketing constraints low price for milk was the most important with mean score 61.53 and Irregular sale of milk was the least important with mean score 32.81. Shortage of capital was an important financial constraint with mean

score of 63.09. Some other constraints faced by dairy households was lack of knowledge about government scheme with mean score 63.16. Addressing constraints like high feed costs, breeding challenges, and financial limitations, alongside improving market access and awareness of government schemes, were essential for sustainable dairy farming development. Strengthen extension services to provide timely advice, training, and technical support to farmers and institutions that support dairy farming, including research institutions, veterinary services, and cooperative societies. Introduce measures to stabilize milk prices and protect farmers from price fluctuations.

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