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# Major constraints in dairy production and marketing

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**Abstract**
Milk production plays a pivotal role in India's rural economy by providing nutrition, employment, and supplementary income to around 70 million households. This study was conducted in Udaipur and Bhilwara districts of Rajasthan, which have the highest bovine population in the region. A total of 100 respondents, including 80 dairy farmers and 20 market functionaries, were surveyed through personal interviews. Constraints in milk production and marketing were analyzed using Garrett's ranking technique. The most critical production constraint identified was the high input cost and low milk price (Garrett score 65.98), followed by inadequate storage and transport facilities (56.85) and high veterinary expenses (Garrett score 55.00). In marketing, irregular payments from buyers were the most pressing issue (Garrett score 61.61), followed by unremunerative milk prices (54.83) and exploitation by middlemen (52.84). Other challenges included limited access to market information, long distances to dairies and lack of value addition opportunities. The study concludes that unfavourable cost-price dynamics and inconsistent payments significantly hamper dairy farmers' profitability and sustainability. It recommends reforms in milk pricing, reduction in input costs and improvement in organized marketing systems to support dairy livelihoods.

**Keywords:** Garrett ranking and value addition, milk production, dairy farmer, constraints

## Introduction

Milk production holds a pivotal place in India's agricultural economy, serving as a crucial source of nutrition, employment and supplementary income. Around 70 million rural households are engaged in milk production, most of them being landless or small and marginal farmers (DAHD 2018) [3]. The livestock sector demonstrated a strong Compound Annual Growth Rate (CAGR) of 7.38 per cent between 2014-15 and 2022-23, measured at constant prices. The share of livestock in the Gross Value Added (GVA) of agriculture and allied sectors increased from 24.32 per cent in 2014-15 to 30.38 per cent in 2022-23 (Economic Survey 2023-2024). A significant portion of the dairy by-products is processed, though much of it is stored as powder with the expectation of future use in food or animal feed. Approximately 80 per cent of the proteins in milk are phosphoproteins known as caseins, with molecular weights ranging from 20,000 to 30,000 (Ubaydullaeva *et al.* 2024) [4]. In 2023-24, the state produced an impressive 34.73 million tonnes of milk, with a per capita availability of 1,171 grams per day, significantly above the national average (National Dairy Development Board).

## Methodology

The current study was carried out in the Udaipur and Bhilwara districts of Rajasthan, as they have the maximum number of bovines (Excluded mithun and yak) in the MPUAT (University) service area. In Udaipur district, the total number of bovines is 14, 28, 624, which is the highest, followed by Bhilwara district with 11, 82, 695 bovines. From these two districts, four tehsils were selected. In Udaipur district, two tehsils, namely Gogunda and Vallabhnagar, were selected, while in Bhilwara district, Shahpura and Banera tehsils were selected randomly. From each tehsil, two gram panchayats were selected. In Gogunda tehsil, Modi and Jhadoli gram panchayats were selected and in Vallabhnagar tehsil, Tarawat and Menar were selected.

Similarly, in Bhilwara district, Sardarnagar and Bamniya were selected from Banera tehsil and Mata Ji Ka Khera and Daulatpura from Shahpura tehsil. Within each gram panchayat, 10 farmers were selected, accounting total of 80 farmers from the 8-gram panchayats. For the marketing aspect, 5 wholesalers, 5 retailers, 4 milk vendors, 4 sweet seller and 2 processing units were selected from the study area, making the total sample size 100. The data was based on primary data which was collected from the sample dairy farmers through personal interview method with the help of a set of schedules which was specifically prepared.

## Garretts Ranking technique

The Garrett ranking technique was employed to calculate the challenges experienced by milk farmers. The respondents provided their preferences, which were then converted into rankings using a formula. To identify the most influential factor among respondents, Garrett's ranking technique was applied. In this approach, respondents ranked all the factors and the resulting rankings were transformed into score values using the following formula:

$$\text{Per cent position} = \frac{100(R_{ij} - 0.50)}{N_j}$$

Where,

$R_{ij}$ = Rank given for the $i^{th}$ constraint (i=1,2,3…. n) by the $j^{th}$ farmer (j= 1,2,3…. n)

$N_j$ = Number of constraints ranked by the $j^{th}$ individual farmer.

## Results and Discussion

Constraints are the various factors or limitations that obstruct in the process of agricultural production, ultimately leading to reduced yields and lower returns for farmers. The study focuses on the constraints faced by farmers in milk production as well as in the marketing of milk and milk products.

## Production Constraints

The constraints faced by dairy farmers, as presented in the Table 2, highlight multiple challenges that affect milk production efficiency. Among these, the issue of low milk prices combined with high input costs ranked the highest with a Garrett score of 65.98, indicating it as the very serious concern for farmers. This was followed by weak milk storage and transport infrastructure (Garrett score 56.85) and high veterinary and medicine costs (Garrett score 55.00), both of which significantly affect milk quality and the milk production. Other constraints included the lack of improved equipment (Garrett score 51.85), low average milk yield of animals (Garrett score 49.10) and unavailability of high genetic merit bulls (Garrett score 46.63). Additionally, dairy farmers also reported a lack of proper dairy management knowledge (Garrett score 45.93), Competition from organized sector (Garrett score 44.24), High perishability of products (Garrett score 38.16) and shortage of skilled labor (Garrett score 38.05).

These findings reflect the multifaceted nature of the milk production related difficulties in dairy farming and point to the urgent need for targeted efforts in infrastructure development, genetic improvement, animal health services, training and economic support systems.

**Table 1:** Constraints faced by respondents in the production of milk and milk products

| S. No. | Production Constraints | Garrett score | Rank |
|---|---|---|---|
| 1 | High veterinary & medicine costs | 55.00 | III |
| 2 | Unavailability of high genetic merit bull | 46.63 | VI |
| 3 | High input costs | 65.98 | I |
| 4 | Low average milk yield of the milk animals | 49.10 | V |
| 5 | Lack of dairy management knowledge | 45.93 | VII |
| 6 | Lack of skilled labour | 38.05 | X |
| 7 | Lack of milk storage/transport infrastructure | 56.85 | II |
| 8 | Lack of improved equipment's | 51.85 | IV |
| 9 | High perishability of products | 38.16 | IX |
| 10 | Competition from organized sector (Large dairies and brands) | 44.24 | VIII |

## Marketing constraints

The marketing related constraints faced by dairy farmers, as shown in Table 2 reveal several factors limiting profitability and efficiency of the milk and milk products. The most critical constraint reported by respondents was irregular payment from buyers, which secured the highest Garrett score of 61.61 that shows the financial uncertainty farmers face in milk marketing.

**Table 2:** Constraints faced by respondents in the marketing of milk and milk products

| S. No. | Marketing Constraints | Garrett score | Rank |
|---|---|---|---|
| 1 | Un remunerative price for the milk | 54.83 | II |
| 2 | Inability to market for value-added products | 48.13 | VII |
| 3 | Irregular payment from buyer | 61.61 | I |
| 4 | Inadequate market information & price discovery | 49.23 | V |
| 5 | High dependence on unorganized middlemen | 51.51 | IV |
| 6 | Irregular sale of milk | 39.36 | X |
| 7 | Exploitation by middlemen | 52.84 | III |
| 8 | High and uneven Intermediary Margins | 48.64 | VI |
| 9 | Problems of transportation | 40.55 | IX |
| 10 | Distance to the milk dairies | 45.09 | VIII |

This was followed by the issue of unremunerated milk prices (Garrett score 54.83) and exploitation by middlemen (Garrett score 52.84), highlighting the weak bargaining power of producers in the supply chain. Other significant problems included a high dependence on unorganized middlemen (Garrett score 51.51), inadequate market information and price discovery (Garrett score 49.23) and high and uneven intermediary margins (Garrett score 48.64). Respondents also reported challenges such as the inability to market value-added products (Garrett score 48.13), long distances to milk dairies (Garrett score 45.09) and transportation difficulties (Garrett score 40.55). The least severe issue was the irregular sale of milk, which scored the lowest Garrett score value of 39.36.

These findings stress the need for improving payment systems, establishing fair pricing mechanisms, developing structured marketing channels and enhancing logistics and information flow in the dairy sector.

Overall, the analysis identified that the most critical production constraint in milk and milk product was low milk prices and high input costs, which significantly reduce farmers profitability. In marketing, the major challenge was irregular payment from buyers, creating financial instability for respondents. These two key issues unfavourable cost-price dynamics in production and inconsistent payment in marketing pose serious threats to the economic sustainability of dairy farming, highlighting the urgent need for pricing reforms, input cost management and secure timely payment systems.

## Conclusion

The study revealed that the most critical constraint in milk production was the combined burden of low milk prices and high input costs, severely affecting farmers' profitability. In marketing, irregular payments from buyers emerged as the most pressing issue, causing financial instability. These findings underscore the urgent need for input cost reduction, fair milk pricing and secure and timely payment systems to ensure the economic sustainability of dairy farming in the study area.

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