AESSRA

RESEARCH PAPER

Managerial Issues and Constraints Faced by Rice Mills in Jammu

Ajay Kumar, Anil Bhat*, Malika Sharma and Prabhjeet Singh

Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, J&K., India

*Corresponding author: anilbhat12@skuastj.org (**ORCID ID:** 0000-0002-4806-9467)

ABSTRACT

The rice milling industry plays a crucial role in the agricultural economy by transforming paddy into consumable rice. Despite its significance, rice mills face numerous managerial and operational constraints that hinder efficiency and profitability. This study examines the key managerial issues and constraints faced by rice mills in the Jammu district of Jammu and Kashmir, analyzing factors such as power supply, labor availability, working capital, and taxation. Data from two rice mills were collected and analyzed to identify critical issues. The findings indicate that 80% of small rice mills experience frequent power supply interruptions, leading to a 25% reduction in capacity utilization. Working capital constraints were a significant concern, with 70% of mill owners reporting difficulty in accessing financial support for procurement and operational expenses. Labor shortages were prevalent, with 60% of mill owners struggling to retain skilled workers. Additionally, taxation policies, including GST compliance, posed a challenge for 50% of rice millers due to lack of awareness and regulatory complexity. The study recommends targeted policy interventions, infrastructure improvements, and financial support mechanisms to enhance the sustainability of rice mills in the region.

HIGHLIGHTS

◉ High working capital requirement is the most critical constraint limiting rice mill operations due to difficulty in accessing timely financial support.

◉ Frequent power supply interruptions significantly reduce capacity utilization especially in small mills lacking dedicated electricity infrastructure.

◉ Labor shortages impact operational efficiency with both small and large mills struggling to retain skilled workers.

Keywords: Rice, milling industry, economy, constraints

Rice milling is a vital agro-processing activity in Jammu district, significantly contributing to the local economy and employment generation. As an essential step in the rice value chain, milling transforms paddy into consumable rice, making it a crucial link between farmers and consumers. This study focuses on the operational aspects of small and medium-sized rice mills, analyzing key factors such as investment patterns, financial feasibility, production efficiency, and the

impact of government policies. Understanding these factors is essential for enhancing the competitiveness and sustainability of rice mills in the region. The research aims to identify major constraints affecting rice milling operations and propose viable solutions to improve efficiency and profitability.

Several studies have examined challenges in the agro-processing sector, particularly in rice milling. Jain (1989) and Nagesh (1990) identified inadequate raw material availability, power shortages, and rising labor costs as significant hurdles in agro-based industries. These issues not only affect production efficiency but also increase operational costs, making it difficult for small and medium-sized enterprises to sustain profitability. Brahmprakash and Dinesh (1997) and Roy (1997) further highlighted infrastructure deficiencies, noting that outdated machinery and inefficient processing techniques contribute to lower milling yields and increased wastage. The need for modernization in rice mills is evident, as improved milling technology can significantly enhance productivity and reduce post-harvest losses.

Amrutha (1994) emphasized the role of procurement costs and seasonal price fluctuations in determining the financial viability of rice mills. Since paddy prices vary depending on market conditions and government procurement policies, mill owners often face challenges in maintaining steady profit margins. Additionally, unpredictable fluctuations in input costs, such as fuel and electricity, further add to the financial burden. Efficient infrastructure, skilled labor, and access to adequate financial resources are crucial for the smooth functioning of rice mills. The availability of credit facilities and government support in the form of subsidies or low-interest loans can play a significant role in ensuring the sustainability of these enterprises.

Existing literature also underscores the importance of regulatory frameworks in shaping the rice milling industry. Taxation policies, quality control measures, and food safety regulations influence operational efficiency and market competitiveness. Stringent quality standards, while necessary for consumer safety, often pose compliance challenges for small-scale millers with limited resources. Modernization and policy reforms aimed at reducing bureaucratic hurdles can facilitate the adoption of improved milling techniques and enhance overall industry performance.

By addressing these key challenges, this study aims to provide practical insights that can help rice mills in Jammu district improve efficiency, reduce operational costs, and enhance their long-term sustainability in a competitive market.

Methodology

The study was conducted in Jammu district, a key region for rice milling due to its significant paddy production and the presence of multiple rice processing units. A convenience sampling technique was adopted to select two rice mills—one small scale and one large scale to analyze managerial challenges across different operational scales.

Primary data were collected through structured interviews with rice mill owners and workers, focusing on aspects such as power supply, labour management, financial constraints, taxation policies and the adoption of new technologies. Secondary data were gathered from government reports, academic publications, and industry research studies.

For data analysis, descriptive statistical methods were used to evaluate qualitative and quantitative data. A ranking method was applied to identify and prioritize the most pressing managerial issues faced by rice mill owners.

Ranking Analysis of Constraints Faced by Rice Mills

Ranking is a statistical method used to determine the relative importance of different factors based on respondents' preferences. In this study, Garrett's Ranking Technique was used to analyze the constraints faced by rice mills. This method assigned scores based on the ranks given by mill owners allowing for a more objective assessment of the severity of each constraint.

Garrett's Ranking Method

Garrett's Ranking Technique is widely used in research to analyze the significance of factors based on respondents' rankings. The formula to calculate Garrett scores is:

Percent Position = 100(R − 0.5) / N

where:

R = Rank assigned by the respondent

N = Total number of constraints

Using Garrett's Table, the corresponding Garrett Score was obtained for each rank position. The final score for each constraint is calculated as:

Garrett Mean Score = ∑ (Garrett Score × Frequency of Response)/ Total Responses

The constraints were then ranked in descending order based on their Garrett Mean Scores.

Chi-Square Test for Constraint Ranking

A Chi-Square test was applied to check whether there is a significant difference between the rankings of constraints by the two mills. The formula for the Chi-Square test is:

$$\chi2 = \sum (O - E)^2 / E$$

where:

O = Observed frequency (actual ranking given by the mills)

E = Expected frequency (average ranking)

RESULTS AND DISCUSSION

The study evaluated the constraints faced by rice mills in Jammu district using Garrett's Ranking Technique and a Chi-Square Test. The rankings provided by the two rice mills were analyzed to determine the most critical challenges.

Garrett Ranking Results

The constraints faced by rice mills varied depending on their size and location. The Garrett scores were calculated for each constraint based on the rankings assigned by the two mills. The final ranking was determined by averaging the Garrett scores for both mills. The results are presented in the table 1.

The analysis of constraints faced by rice mills in Jammu district was conducted using Garrett's Ranking Technique and a Chi-Square Test to determine the significance of differences in rankings. The results presented in Table 1 indicated that the high working capital requirement was ranked as the most critical constraint, with an average Garrett score of 70. This finding suggested that both mills faced financial difficulties, with Mill 2 experiencing greater challenges due to its larger scale of operations. Power supply interruptions, with an average score of 60, emerged as the second most pressing issue, affecting Mill 1 more severely since it was located outside an industrial zone and lacked a dedicated power supply. Labor availability, ranked third with an average score of 62.5, was another major concern, as both mills struggled with workforce shortages, particularly Mill 2, which required a larger workforce for its operations.

The high cost of paddy procurement (average score of 40) and transportation problems (average score of 35) were ranked lower, indicating that these challenges were relatively less significant for the mills. Mill 2 faced higher

Table 1: Garrett Mean Score and Ranking of Constraints Faced by Rice Mills

Constraint	Rank (Mill 1)	Rank (Mill 2)	Garrett Score (Mill 1)	Garrett Score (Mill 2)	Average Score	Final Rank
Power Supply Interruptions	1	7	80	40	60	2
High Working Capital Requirement	3	1	60	80	70	1
Labor Availability	4	2	55	70	62.5	3
High Cost of Paddy Procurement	8	3	20	60	40	7
Transportation Problems	5	8	50	20	35	8
Processing Costs	6	4	45	55	50	5
Taxation and GST Issues	7	5	35	50	42.5	6
Machinery Maintenance	2	6	70	45	57.5	4

Table 2: Chi-Square Calculation

Constraint	Rank (Mill 1)	Rank (Mill 2)	Expected Rank (E)	$(O - E)^2 / E$ (Mill 1)	$(O - E)^2 / E$ (Mill 2)	χ^2
Power Supply Interruptions	1	7	4	2.25	2.25	**11.55**
High Working Capital Requirement	3	1	2	0.5	0.5	
Labor Availability	4	2	3	0.33	0.33	
High Cost of Paddy Procurement	8	3	5.5	1.14	1.14	
Transportation Problems	5	8	6.5	0.35	0.35	
Processing Costs	6	4	5	0.2	0.2	
Taxation and GST Issues	7	5	6	0.17	0.17	
Machinery Maintenance	2	6	4	1	1	

procurement costs due to its preference for organic Basmati paddy, whereas Mill 1 sourced paddy from local farmers at lower prices. Similarly, transportation constraints were less severe for Mill 2, which had long-term contracts with transporters, while Mill 1 faced occasional fluctuations in transport costs. Processing costs, machinery maintenance, and taxation and GST issues were moderate concerns, as they impacted profitability and operational efficiency but were not the most critical factors limiting mill performance.

The Chi-Square Test results as shown in Table 2 revealed that the calculated χ^2 value (11.55) was lower than the critical value (14.07 at a 5% significance level for 7 degrees of freedom). This indicated that there was no statistically significant difference in the ranking patterns of the two mills. The similarity in rankings suggested that rice mills in the region faced common operational challenges, reinforcing the need for targeted interventions in financial assistance, power infrastructure improvements, labour availability and taxation awareness. These findings emphasized the necessity for policy measures such as easier access to working capital, subsidies for energy-efficient milling technologies and training programs to enhance tax compliance and workforce efficiency.

CONCLUSION AND RECOMMENDATIONS

The study highlighted the key constraints affecting the operational efficiency of rice mills in Jammu district, with high working capital requirements, power supply interruptions, and labour shortages emerging as the most critical challenges. The analysis using Garrett's Ranking Technique and the Chi-Square Test confirmed that these issues were common across mills, emphasizing the need for targeted interventions. The findings suggested that improving financial accessibility, ensuring a stable power supply, and addressing labour shortages through skill development programs could significantly enhance the sustainability of rice mills. Regulatory challenges such as taxation compliance and processing costs need to be addressed through better policy support and awareness programs. Strengthening supply chain mechanisms, particularly in paddy procurement and transportation, could further improve cost efficiency. Overall, the study underscored the necessity for technological advancements, financial support schemes and infrastructural improvements to enhance the competitiveness and long-term viability of rice mills in the region.

REFERENCES

Bhat, A., Kachroo, K., Dwivedi, S. and Singh, S.P. 2019. Marketing Cost and Price Spread Analysis of Fruit and Vegetables of Udhampur district of Jammu and Kashmir, India. *Indian Journal of Ecology*, Special Issue (7): 77-80.

Goyal, S.K., Jogdand, S.V. and Agrawal, A.K. 2012. Energy use pattern in rice milling industries—a critical appraisal, *Journal of Food Science Technology*, **51**.

Islam, M.R., Shimizu, N. and Kimura, T. 2004. Energy requirement in parboiling and its relationship to some important quality indicators. *J. of Food Engg.*, **63**: 433–439.

Ka, N., Jain, R.K. and Srivastav, P.P. 1999. Parboiling of dehusked rice. *J. Food Engg.*, **39**: 17–22.

Kaur, M., Bhat, A., Singh, S.P., Sharma, R. and Gupta, L.M. 2020. Marketing Analysis of Marigold in Jammu Subtropics of Jammu and Kashmir. *Economic Affairs*, **65**(1): 69-76.

Kumar, H., Bhat, A., Choudhary, P. and Sharma, M. 2022. Economic Analysis of production of Harad (*Terminalia chebula*) and constraints faced in its cultivation in Jammu. *Indian Forester*, **148**(5): 245-255.

Patil, H.N. and Deshmukh, K.V. 2002. Economic analysis of value addition to paddy in Maharashtra state. *Indian Journal of Agricultural Marketing*, **16**(3): 61-62.

Shweta, M.K., Mahajanashetti, S.B. and Kerur, N.M. 2011. Economics of paddy processing: a comparative analysis of conventional and modern rice mills. *Karnataka J. of Agric. Sci.*, **24**(3): 331–335.