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ANALYSING CHALLENGES IN MAIZE MARKETING IN KATIHAR DISTRICT OF BIHAR USING GARRETT'S RANKING TECHNIQUE

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ABSTRACT

The present study aimed to explore the challenges faced by maize farmers in marketing their crops in the Katihar district of Bihar. Multiple responses were gathered to identify the issues these farmers encounter during the marketing process. The views of selected maize growers were sought to understand their difficulties in selling maize. Garrett's ranking technique was used to rank the constraints based on the responses, and the findings were presented in terms of ranks and total mean scores. The results revealed that the most significant issue was the high fluctuation in prices, which ranked first, followed by the delay in receiving payment for the transaction, which was ranked second. Unauthorized deductions during the weighing process ranked third, while the lack of storage facilities near the village was ranked fourth. High transportation costs were ranked fifth, and the absence of maize processing units was ranked sixth. The lack of market information was ranked seventh, and the involvement of commission agents was ranked eighth by the maize farmers.

Key words : Analysing, Maize, Marketing, Constraints, Bihar.

Introduction

Maize (*Zea mays* L.) is the world's second-largest crop in terms of production, playing a critical role as food, feed, and a raw material for industries like starch and biofuel. It is one of the most vital staple crops globally and is cultivated extensively, outpacing all other grains in annual output. In the 2022-23 period, global maize production reached 1,150.68 million metric tons, exceeding that of other major cereals such as rice (512.49 million metric tons) and wheat (790.20 million metric tons). This remarkable production was achieved by planting maize on approximately 210 million hectares of land, with a global yield of over 5.72 tons per hectare.

In India, maize cultivation reached 9.89 million hectares during the 2021-22 period, with a total production of 31.64 million tons and an average yield of 3,199 kg per hectare (DES, 2022). Bihar is the seventh-largest producer of maize in India, with maize grown in all three seasons-Kharif, Rabi, and Spring/Summer. The highest productivity of maize is observed in the Rabi season, followed by Spring and *Kharif* seasons. In 2021-22, Bihar's maize area covered 0.66 million hectares, producing 3.47 million tons with an average yield of 5,236 kg per hectare (DES, Govt. of Bihar, Patna).

An investigation was conducted to examine the challenges faced by maize farmers in the marketing of maize in Katihar district of Bihar. The findings of this study could help stakeholders develop effective policies to further boost the maize industry.

Materials and Methods

The present study was conducted in Katihar district, which is a leading producer of maize in Bihar. Specifically, the Kadwa developmental block, known for having the largest area dedicated to maize cultivation within the district, was selected as the focal point of the research. Two villages, Kumhari and Nungarha, from this block, were purposively chosen. A total sample of 60 farmers from these two villages was selected with 30 farmers from each village. These farmers were further classified into three categories: marginal (<1.0 ha), small (≥1.0-2.0

ha) and semi-medium (>2 ha) through a process of stratification. In addition to the farmers, the study also included 10 rural traders, 5 wholesalers, 5 retailers, and maize processors to explore various marketing related aspects.

Garrett's Ranking technique

Constraints in marketing of maize were ranked with the help of Garrett's Ranking Technique. In the Garrett's scoring technique, the respondents were asked to rank the constraints in marketing of maize. These ranks were converted into per cent position by using the following formula:

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

Where,

R_{ij} = Ranking given to the i^{th} attribute by the j^{th} individual

N_j = Number of attributes ranked by the j^{th} individual.

By referring to the Garrett's table, the per cent positions estimated was converted into scores. Thus, for each factor, the scores of the various respondents were added and the mean value was estimated. The means thus obtained for each constraint was arranged in descending order. The constraints with the highest mean value were considered as the most important one and the others followed in that order.

Results and Discussion

The details result of investigation found that the maize marketing in the study were suffered from a number of defects and have been presented as follows:

Constraints in marketing of Maize

Garrett's ranking method was utilized to identify the challenges faced by maize farmers and intermediaries in the marketing channels when selling their maize crop. These challenges were assessed by assigning ranks and calculating the overall average scores, which are presented in Table 1.

The analysis of Table 1 and Fig. 1 further highlights the pressing issues faced by maize growers, as indicated by the percentages reported by respondents. The highest-ranking constraint, high price fluctuation (78.8%), reflects the financial instability and uncertainty that farmers experience in determining the profitability of their crops. This volatility in pricing can significantly impact the growers' income and decision-making processes, making it a key area of concern.

The second most significant issue, delayed payment (66.72%), underscores the challenges faced by maize growers in terms of cash flow and financial security. Late payments create a barrier to immediate reinvestment in their farming activities, such as purchasing seeds, fertilizers, and other necessary inputs. This issue can further exacerbate the financial difficulties that growers face and reduce their ability to manage their operations effectively.

Unauthorized deductions during weighment (65.27%) ranked third, which suggests potential exploitative practices within the supply chain, where farmers may be deprived of fair compensation for their produce. This finding highlights a need for more transparent and equitable trading practices, particularly at the point of sale.

The fourth constraint, the lack of nearby storage facilities (63.98%), emphasizes the logistical challenges farmers face in preserving their crops post-harvest. Without adequate storage options, growers may be forced to sell their maize at lower prices immediately after harvesting, or risk spoilage and wastage, leading to further financial losses.

High transportation costs (59.18%), which ranked fifth, are another critical issue affecting maize growers. The cost of transporting crops to markets, processing units, or storage facilities can significantly reduce their margins and further limit profitability. This challenge is particularly pertinent for growers located in remote areas with poor infrastructure or limited access to transportation networks.

The absence of a maize processing unit (55.92%) in the vicinity ranked sixth, highlighting a lack of value-added opportunities for farmers. Without local processing options, maize growers are reliant on selling raw produce, which often fetches lower prices compared to processed products. This constraint emphasizes the importance of developing local processing infrastructure to add value to maize and increase farmers' income.

The seventh constraint, lack of market information (54.68%), points to the need for better communication channels and data sources for farmers to access timely and accurate market trends. Market information is crucial for farmers to make informed decisions about when and where to sell their produce, as well as for negotiating better prices.

Finally, the presence of commission agents (48.92%) ranked eighth, indicating that intermediaries in the supply chain may be perceived as an additional cost or a source

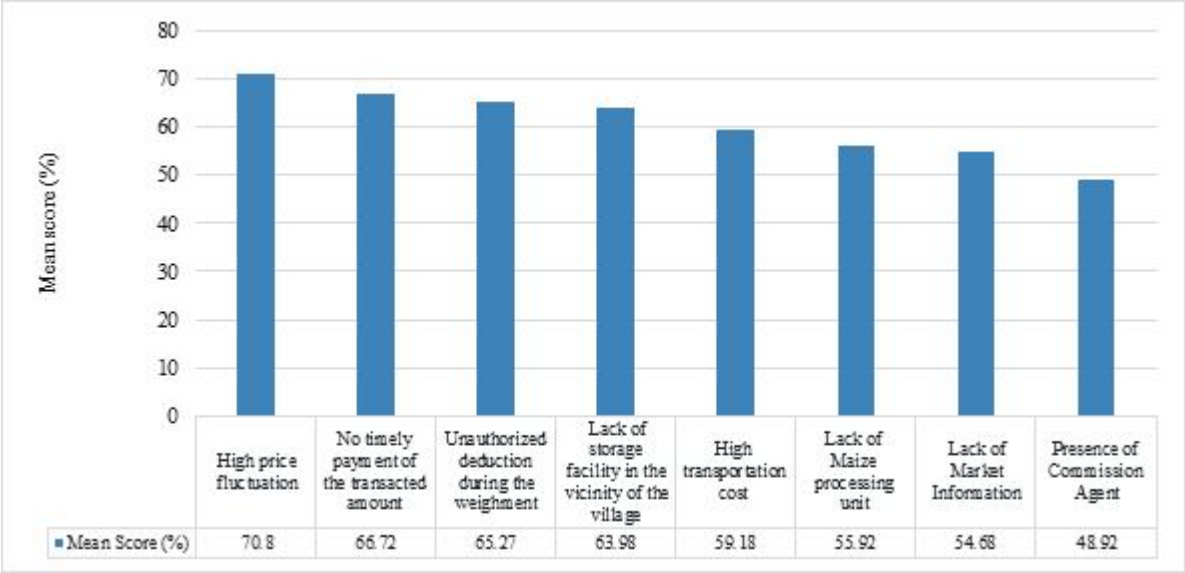

Fig. 1 : Constraint in marketing of maize in Katihar district of Bihar.

Table 1 : Constraint in Marketing of maize in Katihar district of Bihar.

S. no.	Constraints in Marketing of Maize	Mean Score (%)	Rank
1.	High price fluctuation	70.8	I
2.	No timely payment of the transacted amount	66.72	II
3.	Unauthorized deduction during the weighment	65.27	III
4.	Lack of storage facility in the vicinity of the village	63.98	IV
5.	High transportation cost	59.18	V
6.	Lack of Maize processing unit	55.92	VI
7.	Lack of Market Information	54.68	VII
8.	Presence of Commission Agent	48.92	VIII

of exploitation by maize growers. These agents often take a commission on the sale, which may reduce the growers' earnings and create dissatisfaction with the market structure.

These findings resonate with prior research in different regions, including Gopal *et al*. (2012) in Chickaballapur, Karnataka, Dulal *et al*. (2020) in Okhaldhung, Nepal and Srikant *et al*. (2017) in Khamman district, Telangana. In each of these studies, similar constraints were identified, suggesting that the issues faced by maize growers are not unique to a specific region but reflect broader systemic challenges within the agricultural sector. Such consistent findings across diverse locations point to the importance of addressing these constraints on a larger scale through policy reforms, improved infrastructure, and better market access to enhance the sustainability and profitability of maize farming.

Conclusion

The findings of the study indicate that maize marketing in the region is plagued by several significant issues. The most prominent constraint, according to farmers, is the fluctuation of prices, which is ranked as the top concern. This is followed by delayed payments for the maize sold, which holds the second position in terms of severity. Unauthorized deductions during the weighment process were identified as another major issue, ranking third. A lack of nearby storage facilities, which forces farmers to either sell immediately or deal with poor storage conditions, ranks fourth. High transportation costs, which further reduce profits, rank fifth. Additionally, the absence of processing units for maize in the area, which could add value to the crop, ranks sixth. The seventh issue highlighted by farmers is the lack of timely and accurate market information, which leaves them at a disadvantage when making sales decisions. Finally, the presence of commission agents, who often act as intermediaries and may charge high fees, ranked eighth.

Given these challenges, the study suggests that it is critical to implement strategies that address these issues. This includes stabilizing prices through better market regulation, ensuring timely payments for transactions,

curbing unauthorized deductions during weighment, establishing more local storage facilities, reducing transportation costs, promoting the creation of maize processing units, improving access to market information, and addressing the role of commission agents. By addressing these constraints, it is likely that the economic situation for farmers in the study area could improve significantly.

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