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### Study on marketing of Mazie (Corn) in Gorakhpur district of Uttar Pradesh

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#### Abstract

The present study entitled “Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh” was undertaken to analyze the existing marketing system of maize in the study area with a focus on socio-economic characteristics of farmers, marketing channels, marketing costs, price spread, marketing efficiency, and constraints faced by maize growers. The study was based on both primary and secondary data. Primary data were collected from 100 randomly selected maize growers as well as other market participants including village traders, wholesalers, retailers, and commission agents, while secondary data were obtained from published reports, government records, and relevant literature. The data were analyzed using statistical tools such as averages, percentages, and ratios. The results revealed that the majority of maize growers belonged to small and marginal farm categories, with small farmers constituting 45 percent and marginal farmers 35 percent of the sample. The average family size was 6.72 members, and most respondents (48 percent) had secondary-level education. Agriculture was the primary occupation, although several farmers also engaged in dairy, business, and service activities for additional income. The majority of farmers (52 percent) belonged to the middle-age group (30–50 years), and the average area under maize cultivation was 0.92 hectares. Three major marketing channels were identified in the study area: Producer → Consumer, Producer → Village Trader → Retailer → Consumer, and Producer → Wholesaler → Retailer → Consumer. Among these, the village trader channel was the most commonly used, while the direct marketing channel was found to be the most efficient due to the lowest marketing cost and highest producer share in the consumer's rupee. The study further revealed that marketing costs and price spread increased with the number of intermediaries, reducing farmers' net returns. Major constraints faced by maize farmers included price fluctuations, high transportation costs, inadequate storage facilities, dependence on middlemen, and lack of timely market information. The study concludes that improving market infrastructure, strengthening storage and transportation facilities, promoting direct marketing and Farmer Producer Organizations (FPOs), and ensuring timely market information can significantly enhance marketing efficiency and increase farmers' income in the study area.

**Keywords:** Maize, marketing channels, price spread, marketing efficiency, socio-economic characteristics, Gorakhpur, Uttar Pradesh, agricultural marketing, farmers' income, constraints

#### Introduction

Maize (corn) is one of the most important cereal crops cultivated in India and has gained significant importance due to its diverse uses in food, feed, industrial processing, and commercial trade. It is widely consumed as human food in various forms and serves as a major ingredient in the livestock, poultry, and starch industries because of its high nutritional value and versatility. Maize is rich in carbohydrates, vitamins, minerals, dietary fiber, and bioactive compounds that contribute to its increasing demand in domestic and international markets. In recent years, maize cultivation has emerged as a profitable agricultural enterprise, providing employment opportunities and income generation for farmers, traders, processors, transporters, and other stakeholders involved in the

agricultural marketing system. India is one of the leading producers of maize in the world, with major production concentrated in states such as Karnataka, Madhya Pradesh, Maharashtra, Bihar, Uttar Pradesh, and Rajasthan. Besides direct consumption, maize is processed into starch, corn flour, corn oil, animal feed, glucose, ethanol, and several other value-added products, creating extensive market opportunities. However, due to fluctuations in production, inadequate storage facilities, transportation challenges, and market uncertainties, an efficient marketing system is essential to ensure fair prices, reduce losses, and enhance profitability for producers and other market participants. In Uttar Pradesh, maize cultivation occupies an important position in the agricultural economy, and the state is recognized as one of the significant maize-producing

regions of the country. Gorakhpur district, in particular, is well known for its considerable maize production and active participation in agricultural trade and marketing activities. The district possesses favorable agro-climatic conditions, fertile soils, adequate rainfall, and a large farming community engaged in maize cultivation, making it an important center for maize production and distribution. A substantial quantity of maize produced in Gorakhpur is marketed through local markets as well as supplied to major consumption and processing centers within and outside the state. The district also contributes to the supply of maize for feed industries, food processing units, and other commercial purposes through various marketing channels. Despite its production potential and market significance, maize marketing faces several challenges, including inadequate storage facilities, high transportation costs, market price fluctuations, lack of timely market information, grading and quality issues, and the involvement of multiple intermediaries. These constraints affect the efficiency of the marketing system and reduce the share of farmers in the consumer's rupee. The marketing of maize involves a series of interconnected activities ranging from harvesting, cleaning, grading, packaging, storage, transportation, and market transactions to final consumption and industrial utilization. Since maize is often stored by farmers and traders to obtain favorable market prices, proper storage and market management play a crucial role in maintaining grain quality and minimizing quantitative and qualitative losses. The marketing system generally consists of producers, village traders, commission agents, wholesalers, processors, retailers, feed manufacturers, and consumers. Maize is usually packed in gunny bags or polypropylene bags and transported through road networks to regulated markets, wholesale markets, processing industries, feed mills, and retail outlets. The effectiveness of coordination among different stakeholders directly influences the overall performance of the marketing system. Therefore, understanding the structure and functioning of maize marketing is essential for identifying inefficiencies and improving market performance. The present study entitled "Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh" aims to analyze the existing marketing system of maize and assess the efficiency of various marketing channels operating in the study area. The study also examines the socio-economic characteristics of maize growers, such as age, education, farming experience, landholding size, production level, access to storage facilities, market orientation, and annual income, which influence marketing decisions and participation in different market channels. These factors play an important role in determining the adoption of improved post-harvest practices, access to market information, bargaining power, and overall marketing efficiency. The study further investigates the various marketing channels, movement of produce, marketing costs, price spread, market margins, value addition, and operational efficiency associated with maize marketing in Gorakhpur district. It highlights major issues such as inadequate warehousing facilities, lack of scientific storage practices, transportation constraints, price volatility, delayed dissemination of market information, quality deterioration during storage, and dependence on intermediaries. The study also evaluates the role of farmers,

traders, commission agents, wholesalers, retailers, processors, feed manufacturers, and consumers in ensuring the smooth flow of maize from producers to end users. By analyzing these aspects, the study seeks to identify bottlenecks in the existing marketing system and suggest appropriate measures to improve marketing efficiency, reduce post-harvest losses, strengthen market integration, enhance farmers' income, increase value addition, and promote the sustainable development of maize cultivation and marketing in Gorakhpur district of Uttar Pradesh.

**Objectives:**

1. To study about the socio-economic profile of the respondents in the study area.
2. To identify the existing marketing channel involved in marketing of maize (corn) in the study area.

## **Research Methodology**

### **Sampling Design**

For the present study titled "Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh", a multistage sampling design was adopted. Gorakhpur district was selected purposively due to its significant contribution to maize production and marketing activities in the region. Selected blocks and villages were chosen based on the area under maize cultivation and the extent of marketing activities. Finally, maize growers and key market functionaries such as village traders, commission agents, wholesalers, retailers, processors, and feed manufacturers were selected as respondents. The sampling design was used to collect representative data for analyzing marketing channels, marketing costs, price spread, market margins, marketing efficiency, and constraints in the maize marketing system.

### **Selection of District**

The study was conducted in Gorakhpur District, purposively selected because it is an important maize-producing region of Uttar Pradesh with significant marketing activities. The district has well-established agricultural markets, active trading centers, and a functional marketing network connecting maize producers with wholesalers, processors, feed industries, retailers, and consumers across local, regional, and inter-state markets.

### **Selection of Blocks**

Gorakhpur district comprises several development blocks, including Sahjanwa, Campierganj, Pipraich, Khajni, Khorabar, Bhathat, Chargawan, Brahmpur, and Bansgaon. Among these, Pipraich and Campierganj were identified as important maize-growing blocks due to their comparatively larger area under maize cultivation and the presence of a substantial number of maize farmers. For the present study, Pipraich block was selected purposively because of its higher concentration of maize growers and its significant contribution to maize production and marketing activities in the district.

### **Selection of Villages**

A list of maize-growing villages in Pipraich block was obtained from the District Agriculture Office, Gorakhpur. From this list, six villages, namely Jangal Dhushar, Jangal Nandlal Singh, Khorabar Tola, Bargadwa, Mahui

Sugharpur, and Pipraich Khas, were selected randomly for the study. From these selected villages, a total of 100 maize growers were chosen through random sampling for detailed investigation. The selected respondents were surveyed to collect information on maize production, marketing channels, marketing costs, price spread, market margins,

and marketing efficiency.

### Selection of Respondents/Farmers

A list of maize growers in the selected villages was obtained from the District Agriculture Office and village records. From this list, 100 maize farmers were selected randomly.

| Sr. No. | Type of farmers     | Area in hec                                     |
|---------|---------------------|-------------------------------------------------|
| 1       | Marginal farmers    | Farmers having land holding less than 1 hectare |
| 2       | Small farmers       | farmers having land holding 1 to 2 hectares.    |
| 3       | Semi Medium farmers | farmers having land holding 2 to 4 hectares.    |
| 4       | Medium farmers      | farmers having land holding 4 to 10 hectare     |
| 5       | Large farmers       | farmers having land holding above 10hectares    |

This classification helped in analyzing differences in production, marketing practices, marketing cost and profitability among different categories of maize farmers.

### Analysis of data/ analytical tools used

The present study titled “Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh” was based on both primary and secondary data. The primary data were collected from maize growers, village traders, commission agents, wholesalers, retailers, processors, feed manufacturers, and other stakeholders involved in maize marketing, while secondary data were obtained from published reports, government records, research journals, agricultural statistics, and relevant literature.

The collected data were compiled, tabulated, and analyzed using suitable statistical tools such as averages, percentages, and ratios. For examining the efficiency of maize marketing, indicators such as marketing channels, marketing costs, transportation facilities, storage infrastructure, market margins, price spread, marketing efficiency, and constraints faced by market participants were used to assess the overall performance of the maize marketing system in the study area.

### Analytical techniques employed

$$\text{Arithmetic Mean} = \text{AM} = \frac{1}{n} \sum_{i=1}^n a_i$$

Where, AM = Arithmetic Mean

n = Number of values

$a_i$  = Data set values

$$\text{Weighted Mean} = W = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i}$$

Where, W = Weighted average

n = number of terms to be averaged

$w_i$  = Weight applied to x values

$X_i$  = Data values to be averaged

### • Chi-Square Test

The Chi-Square Test as a goodness of fit has been used to analyze the magnitude of difference in opinion of respondents between observed outcome and the expected outcome under the assumption that it is equally distributed on a 5-point scale.

$$\text{Formula used: } \chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Formula used:

Where,  $\chi^2$  = chi squared

$O_i$  = Observed value

$E_i$  = Expected value

### Results and Discussion

The socio-economic characteristics of maize growers influence production decisions, post-harvest management practices, marketing behavior, and income generation. Factors such as age, education, family size, farming experience, landholding size, and investment capacity affect maize cultivation, storage, and marketing decisions.

Therefore, the present study on “Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh” examined the socio-economic profile of respondents to understand their role in maize production and their participation in various marketing channels operating in the study area.

### Socio-Economic Characteristics of Sample Maize Growers

| Particulars        | Category               | Number/Value | Percentage |
|--------------------|------------------------|--------------|------------|
| Family Composition | Male Members           | 2.96         | 44.05      |
|                    | Female Members         | 2.41         | 35.86      |
|                    | Children               | 1.35         | 20.09      |
|                    | Average Family Size    | 6.72         | 100.00     |
| Education          | Illiterate             | 7            | 7.00       |
|                    | Primary                | 20           | 20.00      |
|                    | Secondary              | 48           | 48.00      |
|                    | College                | 25           | 25.00      |
|                    | Total                  | 100          | 100.00     |
| Occupation         | Agriculture Only       | 40           | 40.00      |
|                    | Agriculture + Dairy    | 30           | 30.00      |
|                    | Agriculture + Business | 18           | 18.00      |
|                    | Agriculture + Service  | 12           | 12.00      |
|                    | Total                  | 100          | 100.00     |

### Explanation

The average family size of maize growers was 6.72 members, with male members constituting the largest share (44.05%). About 48% of respondents had secondary education, indicating a reasonable level of literacy among farmers. Agriculture was the principal occupation, with 40%

depending solely on farming, while the remaining farmers supplemented their income through dairy, business, or service activities.

### Age Distribution and Farm Size of Sample Farmers

| Particulars                   | Category         | Number/Area | Percentage |
|-------------------------------|------------------|-------------|------------|
| Age Group (Years)             | Below 30         | 18          | 18.00      |
|                               | 30–50            | 52          | 52.00      |
|                               | Above 50         | 30          | 30.00      |
|                               | Total            | 100         | 100.00     |
| Farm Size Category            | Marginal Farmers | 35          | 35.00      |
|                               | Small Farmers    | 45          | 45.00      |
|                               | Medium Farmers   | 20          | 20.00      |
|                               | Total            | 100         | 100.00     |
| Average Cultivated Area (ha)  | Overall          | 2.25        | -          |
| Average Area under Maize (ha) | Overall          | 0.92        | -          |

### Explanation

The majority of farmers (52%) belonged to the middle-age group (30–50 years), indicating active participation in farming and marketing activities. Small and marginal farmers constituted 80% of the sample, showing that maize cultivation is largely practiced by small landholders. The average cultivated area was 2.25 ha, while the average area under maize was 0.92 ha.

### Major Marketing Channels of Maize in the Study Area

| Channel     | Marketing Channel                               |
|-------------|-------------------------------------------------|
| Channel I   | Producer → Consumer                             |
| Channel II  | Producer → Village Trader → Retailer → Consumer |
| Channel III | Producer → Wholesaler → Retailer → Consumer     |

### Explanation

Three major marketing channels were identified in the study area. Channel I represents direct sales from producer to consumer and provides the highest producer share due to the absence of intermediaries. Channel II was the most commonly used channel because village traders purchase maize directly from farmers and provide immediate payment. Channel III involves wholesalers and retailers and is generally used for larger market transactions, although it increases marketing costs and price spread due to the involvement of multiple intermediaries.

### Conclusion

The study on “Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh” concludes that maize cultivation is mainly practiced by small and marginal farmers and plays an important role in their livelihood. Three marketing channels were identified, with the village trader channel being most commonly used, while the direct marketing channel was found to be the most efficient due to lower marketing cost and higher producer share. The study highlights that marketing costs and price spread increase with more intermediaries, reducing farmers’ income. Major constraints include price fluctuations, high transportation costs, lack of storage facilities, inadequate market

information, and dependence on middlemen. It is suggested that improving storage and transportation facilities, strengthening regulated markets, promoting FPOs and direct marketing, enhancing market information systems, and establishing processing units can significantly improve marketing efficiency and increase farmers’ income in the study area.

### Summary

The present study entitled “Study on Marketing of Maize (Corn) in Gorakhpur District of Uttar Pradesh” revealed that small farmers constituted the largest proportion (45%) of maize growers, followed by marginal (35%) and medium farmers (20%). The average family size was 6.72 members, and most farmers (48%) had secondary-level education. Agriculture was the primary occupation of the respondents, while many supplemented their income through dairy, business, or service activities. The majority of farmers (52%) belonged to the middle-age group (30–50 years), and the average area under maize cultivation was 0.92 hectares. The study identified three marketing channels, among which Producer → Village Trader → Retailer → Consumer (Channel II) was the most commonly used. Marketing cost and price spread increased with the involvement of intermediaries, while the producer’s share in the consumer’s rupee decreased. Channel I (Producer → Consumer) was found to be the most efficient marketing channel, providing the highest producer share and lowest marketing cost. Major constraints faced by maize farmers included price fluctuations, high transportation costs, lack of storage facilities, exploitation by middlemen, and inadequate market information. The study concluded that improving market infrastructure, storage facilities, transportation, and access to timely market information can enhance marketing efficiency and increase farmers’ income.

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