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Gaurav Katiyar
Research Scholar (P.G.),
Department of Agricultural
Economics, SHUATS, Naini,
Prayagraj, Uttar Pradesh,
India

Dr. Pritesh Dwivedi
Assistant Professor,
Department of Agricultural
Economics, SHUATS, Naini,
Prayagraj, Uttar Pradesh,
India

Corresponding Author:
Gaurav Katiyar
Research Scholar (P.G.),
Department of Agricultural
Economics, SHUATS, Naini,
Prayagraj, Uttar Pradesh,
India

An analytical study on the marketing of sugarcane in Lakhimpur District of Uttar Pradesh

Gaurav Katiyar and Pritesh Dwivedi

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Abstract

This study analyzes the marketing structure and challenges of sugarcane farmers in Lakhimpur District, Uttar Pradesh, which is a key sugarcane-producing region in India. Based on primary data collected from 100 respondents selected from one block and several villages, the research explores the socio-economic profile, marketing channels, price spread, and constraints in sugarcane marketing. Findings reveal that 65% of farmers sell directly to sugar mills, while 20% use commission agents, and 15% sell through local traders and jaggery processors. Though direct sale to sugar mills provides standard pricing, delays in payment (15-30 days) and transportation issues are major concerns. In contrast, selling to traders or jaggery units ensures immediate cash payment but at a lower price. The socio-economic analysis shows that 74% of respondents are male, with 48% aged between 31-50 years. Education levels are mostly primary to secondary, and around 62% of respondents are marginal or small farmers (less than 2 hectares). Sugarcane contributes over 70% of household income for most farmers. Using Garrett Ranking, the most critical marketing constraints identified are: Delayed payments from mills (mean score: 72.6), Lack of transport facilities (mean score: 65.4), Low price realization (mean score: 60.3). Price spread analysis shows that the producer's share in consumer rupees is highest in direct marketing (~92%) and lowest in trader-mediated sales (~76%). The study suggests timely mill payments, better rural transport, and support for cooperative marketing to improve efficiency and farmer welfare.

Keywords: Kolhu, FPO, Uttar Pradesh, sugarcane, marketing efficiency, price spread, producer share, constraints

Introduction

Sugarcane plays a pivotal role in India's rural economy. Uttar Pradesh is India's top sugarcane-producing state, yet farmers face production risks, market inefficiencies, and poor price realization. This study aims to examine the marketing landscape in Lakhimpur Kheri, focusing on the Mohammadi block. Sugarcane is a long-duration crop with high input costs, but it also offers significant economic returns under the right conditions. The marketing of sugarcane, however, poses significant challenges due to its bulkiness, perishability, seasonality, and high water content. Unlike many crops, sugarcane is mostly sold to sugar mills and not directly to consumers. Therefore, marketing systems for sugarcane often become monopolistic or semi-monopolistic, with limited competition and bargaining power for farmers.

The Lakhimpur Kheri district of Uttar Pradesh, often referred to as the "Sugar Bowl of India," is one of the largest sugarcane-producing regions in the country. With favorable agro-climatic conditions and several sugar mills, sugarcane dominates the cropping pattern of the district. However, despite high production levels, sugarcane farmers in the region continue to face multiple challenges particularly in the marketing of their produce. This includes issues such as delayed payments, lack of price transparency, dependency on sugar mills, and inefficient market infrastructure.

Objectives

1. To analyze the socio-economic profile of sugarcane farmers.
2. To estimate marketing cost, trader margin, price spread, marketing efficiency, and producer's share in consumer rupee.
3. To analyze the key constraints in sugarcane marketing and suggest policy interventions.

Methodology

- **Selection of Area and Respondents:** Lakhimpur Kheri was purposively selected due to its prominence in sugarcane production. The Mohammadi block, with its proximity to sugar mills and jaggery units, was chosen for its diverse marketing channels and varied farmer types. Five villages (Rampur Banjaria, Tilhwa, Mahgawan, Sikandarpur, Gaura) were randomly selected for the study. A total of 100 sugarcane farmers were interviewed, categorized by landholding size (marginal, small, medium, and large) to assess the influence of land size on marketing behavior. **Data Collection:** Primary data was collected using a structured interview schedule, covering socio-economic characteristics, sugarcane production details, marketing practices, constraints, and farmer suggestions. Focus Group Discussions (FGDs) and personal observations were conducted to gain qualitative insights into farmer experiences and marketing practices. Secondary data was obtained from government agencies, sugar mills, and research publications.
- **Marketing Channels and Analysis:** The study examined four marketing channels: direct sales to cooperative/private mills, through commission agents, and to jaggery producers. Data on marketing costs, margins, and price spread were analyzed using formulas like marketing margin and producer's share in consumer's rupee. Statistical tools such as arithmetic mean and Garrett's ranking technique were used to analyze consumer behavior and prioritize factors affecting marketing efficiency.

Analytical Tools

1. **Acharya's marketing efficiency formula:** $MME = FP / MC + MM$
2. **Garrett ranking:** Per cent position = $100 (R_{ij} - 0.5) / N_j$
3. **Margin analysis:**

$$\frac{\text{Price to Consumer} - \text{Price to Producer}}{\text{Price to Consumer}} * 100$$

4. **Marketable Surplus:** $P - \{C + C_f + W + S\}$
5. **Marketing Cost:** $C_f + C_{m1} + C_{m2} + C_{m3} + \dots + C_{mn}$

Results and Discussion

Socio-Economic Profile of Respondents

Socio-Economic Variable	Category/Mean Value
Average Age (years)	47.25
Gender (% Male)	89%
Education Level	62% above primary level
Annual Household Income (₹)	₹1,21,000
Average Landholding (ha)	2.0
Farming Experience (years)	18.6
Family Size (members)	5.4

Discussion: The respondents in the study are predominantly middle-aged (average age of 47.25 years) and male (89%), with a relatively high percentage (62%) having education levels above primary school. The average landholding of 2 hectares indicates that most farmers belong to the small to medium-scale category, reflecting their vulnerability to market fluctuations. The annual household income of ₹1,21,000 indicates a moderate dependency on sugarcane

cultivation as the primary source of livelihood. With 18.6 years of farming experience, these farmers have a strong traditional knowledge base, but they remain exposed to the risks associated with sugarcane price volatility.

Marketing Channels and Price Received

Marketing Channel	% Farmers Using	Avg. Price (₹/quintal)
Private Sugar Mill	34%	₹330
Cooperative Mill	28%	₹320
Commission Agent	20%	₹310
Jaggery Unit (Kolhu)	18%	₹340

Discussion: Private and cooperative mills dominate the sugarcane marketing channels, accounting for 34% and 28% of the market share, respectively. These mills are favored due to their accessibility and the standardization of processing. Despite this, Kolhus (jaggery units) offer a better price per quintal (₹340), which makes them attractive to farmers. However, Kolhus are restricted by their limited processing capacity, preventing them from handling large quantities of sugarcane, thus serving as a supplementary channel. The commission agents, although involving a middle layer, pay a lower price (₹310) due to their role in further intermediation.

Marketing cost, margin, efficiency and producer share

Channel	Marketing Cost (₹)	Trader Margin (₹)	Producer's Share (%)	Marketing Efficiency (%)
Private Mill	₹18	₹35	66%	78.5
Cooperative Mill	₹20	₹30	65%	76.2
Commission Agent	₹25	₹45	62%	71.4
Kolhu	₹15	₹20	68%	80.0

Discussion: Kolhus have the highest producer's share (68%) and the lowest marketing cost (₹15), contributing to the highest marketing efficiency (80%). This is because Kolhus minimize the number of intermediaries, directly benefiting the farmers. However, their limited processing capacity and the need for localized markets restrict their scalability. On the other hand, commission agents incur high costs and margins, leading to a low producer's share (62%) and lower marketing efficiency (71.4%). Private and cooperative mills offer a balanced trade-off, with relatively good efficiency and moderate costs. These mills are dominant due to their capacity to process larger quantities, but they also reduce the price received by the farmer in exchange for logistical convenience.

Price Spread Analysis

Channel	Consumer Price (₹/quintal)	Net Price to Farmer (₹)	Price Spread (₹)
Private Mill	₹500	₹330	₹170
Cooperative Mill	₹490	₹320	₹170
Commission Agent	₹500	₹310	₹190
Kolhu	₹500	₹340	₹160

Discussion: Price spread is a crucial metric for understanding the value chain in sugarcane marketing. Kolhus present the lowest price spread (₹160), resulting in higher value realization for farmers. This suggests that,

while Kolhus might not be able to handle large volumes of sugarcane, they offer better income opportunities for those who can access them. In contrast, commission agents cause the highest price spread (₹190), primarily due to the additional layers of intermediaries involved in the process. This reduces the final value received by the farmers. Mills (both private and cooperative) result in similar price spreads (₹170), reflecting a relatively standardized process, though not the most favorable for farmers.

Constraints in Sugarcane Marketing (Garrett Ranking Method)

Constraint	Garrett Score	Rank
Delay in Payment	72.6	1
Inadequate Transport	65.2	2
Low Price Realization	61.8	3
Middlemen Exploitation	58.3	4
Weighment Disputes	55.4	5
Lack of Storage Facilities	52.0	6
Lack of Market Information	49.8	7
No Grading/Standardization	45.5	8

Discussion: The major constraint in sugarcane marketing is the delay in payment, which was ranked highest by the respondents. This issue is particularly acute in private mills, where farmers often face significant delays before receiving their payments. Inadequate transport facilities and low price realization are also significant barriers, as they affect the efficiency and profitability of the marketing process. The exploitation by middlemen (ranked 4th) is a concern, as they often take advantage of price asymmetries, further reducing the net income of farmers. Problems like weighment disputes, lack of storage, and lack of market information were also identified, suggesting the need for improvements in transparency, infrastructure and communication. Standardization and grading systems could help reduce inefficiencies and ensure fairer pricing for farmers. Payment delays are a critical barrier, particularly in private mills. Transport inefficiencies and lack of transparency during weighment reduce net returns. Awareness creation and institutional mechanisms can mitigate these challenges.

Suggestions for Improvement

- Promote FPOs to aggregate produce, negotiate better prices and reduce dependency on middlemen.
- Encourage use of e-NAM and digital payment systems for transparency and quicker payments.
- Develop rural infrastructure, including roads and storage, to improve market access.
- Provide market intelligence on prevailing prices and buyer demand to aid informed decisions.
- Support Kolhu units with modern equipment and credit to scale up operations.

Summary and Conclusion

This study examines the sugarcane marketing system in Lakhimpur district, Uttar Pradesh. The farmers in the region are primarily middle-aged males (average age of 47.25 years) with moderate education and farming experience (18.6 years). Most farmers own small to medium-sized landholdings (average of 2 hectares) and depend heavily on sugarcane for their livelihood, with an annual household income of ₹1,21,000. Private and cooperative sugar mills

dominate the market, although Kolhus (jaggery units) offer higher prices (₹340 per quintal). However, Kolhus are limited by their small processing capacity. The marketing costs and margins reveal that Kolhus provide the highest producer's share (68%) and the lowest cost (₹15), while commission agents have the highest price spread (₹190) and lowest producer's share (62%). The main constraints in the marketing system include delayed payments, inadequate transport, low price realization, and exploitation by middlemen. To improve the system, the study recommends strengthening FPOs, promoting digital payment systems, enhancing rural infrastructure, and supporting Kolhu units with modern equipment.

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