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STUDY ON MARKETING OF MAKHANA IN MADHUBANI DISTRICT OF BIHAR

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ABSTRACT

A study was conducted in the Madhubani district of Bihar, India, from 2020 to 2024. It analyzed the marketing of Makhana using a descriptive research approach. It involved over a hundred farmers from different fields and traditional pond systems. It also analyzed the various marketing channels and their efficiency. The study indicated that the field system resulted in greater yields and higher net returns compared to the pond system, underscoring the necessity for developing processing machinery. Furthermore, it highlighted the critical need to tackle issues such as the absence of pond ownership, the significant role of human labor in processing, and the need for advancements in processing, packaging, and market infrastructure to boost the demand and value of Makhana products.

Keywords: Research, Tradition, Pond, Machinery, Processing

INTRODUCTION

The economic landscape of rural India is predominantly characterized by agriculture and allied activities, which form the backbone of its socio-economic structure. Among various agricultural products, makhana, also known as fox nut or gorgon nut, has gained prominence due to its nutritional value and economic potential. Makhana cultivation and marketing play a crucial role in the livelihood of many farmers, particularly in regions like Madhubani district of Bihar, which is renowned for its extensive and traditional cultivation of this unique aquatic crop. Madhubani district, situated in the northern part of Bihar, offers a conducive environment for makhana cultivation due to its numerous water bodies and favourable climatic conditions. The district is not only a significant producer of makhana but also a pivotal player in its marketing and distribution. However, despite its importance, the marketing strategies and practices associated with makhana in this region have not been extensively studied, leaving a gap in understanding the full economic impact and potential of this crop.

Uses of Makhana: Makhana, or fox nut, is valued for its nutritional benefits, being rich in protein, fibre, and antioxidants. It is used as a healthy snack, in traditional Indian sweets and dishes, and for medicinal purposes, including managing diabetes, heart health, and weight loss. Its versatility enhances its market appeal.

NEED FOR STUDY

The research on Makhana marketing in the Madhubani district of Bihar is crucial for comprehending the local market dynamics, identifying challenges, and exploring opportunities. Makhana, a significant agricultural product, holds economic importance for the region. Analyzing marketing strategies, distribution channels, and consumer behaviour can help improve market efficiency, enhance farmer incomes, and promote sustainable agricultural practices. This research aims to provide actionable insights for stakeholders, fostering economic development and strengthening the Makhana supply chain in Madhubani.

RESEARCH METHODOLOGY

Sampling Procedure

Both purposive and random sampling techniques were employed to select the district, farmers, and market functionaries.

Selection of District

The study was carried out in the Madhubani district of Bihar due to its significant number of Makhana growers. A total of 38 **districts in Bihar** from which Madhubani district was purposively selected to study about marketing of makhana.

Selection of Subdivisions

In the Madhubani district, there are five sub-divisions: Madhubani, Benipatti, Jainagar, Jhanjharpur, and Phulparas. Makhana is cultivated in all of these sub-divisions. Consequently, all five sub-divisions were selected for conducting the study.

Selection of Villages

The villages for the study were selected randomly from each subdivision. Three villages were chosen from each of the five subdivisions, as detailed below:

Table 1: Selected sub division and villages for the study

S. No	Sub Division	Villages
1.	PHULPARAS	Laukhai, Khutauna, Ghoghordiha
2.	JHANJHARPUR	Madhepur, Lakhnaur, Naruar
3.	BENIPATTI	Bisfi, Harlakhi, Madhwapur
4.	JAINAGAR	Kalna, Ladania, Basopatti
5.	MADHUBANI	Rajnagar, Babubarhi, Pandaul

COLLECTION OF DATA

Primary data

Primary data was gathered from selected Makhana growers and market intermediaries through a pre-structured questionnaire containing pertinent variables crucial for drawing conclusions. Additionally, data were collected regarding the constraints experienced by both farmers and market intermediaries. Following the data collection process, information was classified and tabulated in alignment with the study's objectives.

Secondary data

Secondary data pertaining to area, production, and productivity was sourced from various sources such as articles, newspapers, the district horticulture office or marketing secretariat, and relevant websites.

TOOLS OF ANALYSIS

Chi-Square Test

$$x^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where,

$\mathbf{X^2}$ = chi squared
$\mathbf{O_i}$ = observed value
$\mathbf{E_i}$ =expected value

Tabular Analysis

The analysis involved computing simple averages and percentages. Simple averages were employed to determine the cost of Makhana cultivation, average quantity sold, marketing expenses, profit margin, and margins of different intermediaries across various marketing channels. Comparisons were then made based on the calculated percentages.

Marketing Costs

C = Cf + Cm1 + Cm2 + Cm3 + ……. Cmn

Where,

C as the total cost of marketing of the commodity, Cf as the cost paid by the producer from the time the produce leaves the farm until sale, and Cmn as the cost incurred by the *n*th middleman in the process of buying and selling the product.

Market Margins

The profit margin of the *i*th middleman. (Ami)

(Ami) = PRi – (Ppi + Cmi)

Where,

T Let's denote: PRi as the total value of receipts per unit (sale price), Ppias the purchase value of goods per unit (purchase price), and Cmi as the cost incurred on marketing per unit.

Price Spread

Price spread refers to the variance between the price paid by the consumer and the price received by the producer. This differential was calculated using the following method:

Price spread = Pp - Pf

Where,

Pp as the price paid by the consumer
Pf as the price received by the farmer

Marketing Efficiency

Total marketing costs (MC) represent the overall expenses incurred in marketing, Net marketing margins (MM) denote the profit margins generated from marketing activities,

Net prices received by the farmer (FP) signify the amount received by the farmer after deducting marketing costs, and Price paid by the consumer (CP) refers to the amount paid by the consumer for the product.

Here the **MME** is calculated using the following formula,

MME = FP/ (MC+ MM)

Where, MME is modified marketing efficiency.

Garrett Ranking Technique

$$\text{Percent Position} = \frac{100 * (\text{Rif} - 0.50)}{\text{Nf}}$$

Where,
Rif tells you the specific rank an item received from a particular individual, while Nj tells you how many items that individual ranked in total.

RESULT AND DISCUSSION

Marketing Channels of Makhana in Study Area

To identify the various marketing channels for Makhana in the study region.

Table 2: Marketing Cost, Marketing Margin, and Marketing Efficiency in Channel -I

S. No.	Particulars	Per Kg of makhana pop	% of consumer price
	FARMERS		
1.	Gross price received by farmer	300	67.22
2.	Packaging cost	9.75	2.18
3.	Transportation cost	11.25	2.5
4.	Market cost by farmer (2+3)	21.00	4.7
5.	Net price received by farmer	279.00	62.51
	PROCESSOR		
6.	Sale price of farmers/purchase price of Processor	300	67.22
7.	Processing cost	48.70	10.91
8.	Transportation cost + storage	32.15	7.20
9.	Market cost by processor (7+8)	80.85	18.11
10.	Margin of processor {11-(6+9))	19.29	4.32
	RETAILER		
11.	Sale price of processor/purchase price of retailer	400.14	89.65
12.	Market fee@1%	4.00	0.89
13.	Loading and unloading charges	7.20	1.61
14.	Transportation cost	9.80	2.19
15.	Market cost by retailer (12+13+14)	21.00	4.70
16.	Margin of retailer	25.29	5.66
17.	Purchase price of consumer	446.29	100
18.	Total marketing cost (4+9+15)	122.85	
19.	Price spread (17-1)	146.29	
20	Marketing efficiency (5/18+16+10)	1.66	

In channel I, the farmer receives Rs 300/kg of makhana pop, which is 67.22% of the consumer price. The processor's margin is Rs 19.29/kg, and the retailer's margin is Rs 25.29/kg. Total marketing cost is Rs 122.85, with a price spread of Rs 146.29/kg and a marketing efficiency of 1.66.

Table 3: Marketing Cost, Marketing Margin, and Marketing Efficiency in Channel II

S. No.	Particulars	Per kg of makhana pop	Percentage of Consumer price
		FARMER	
1.	Gross price received by farmer	300.00	55.29
2.	Packaging cost	9.75	1.79
3.	Transportation cost	11.25	2.07
4.	Market cost by farmer (2+3)	21.00	3.8
5.	Net price received by farmer	279.00	51.42
		PROCESSOR	
6.	Purchase price of processor	300	55.29
7.	Processing cost	48.70	8.97
8.	Transportation cost+storage	32.15	5.92
9.	Market cost by processor (7+8)	80.85	14.90
10.	Margin of processor {11-(6+9))	17.11	3.15
		WHOLESALER	
11.	Purchase price of wholesaler	397.96	73.3
12.	Marketfee@1%	3.97	0.73
13.	Loading and unloading	8.35	1.53
14.	Grading	6.74	1.24
15.	Packaging	8.21	1.51
16.	Storage	11.00	2.02
17.	Rottage and shrinkage	5.54	1.02
18.	Transportation cost	11.90	2.19
19.	LocaltaxorVAT@0%	0	0
20.	Market cost by wholesaler	55.71	10.26
21.	Margin of wholesaler {22-(11+20).	28	5.1
		RETAILER	
22.	Purchase price of retailer	481.67	88.6
23.	Marketfee@1%	4.81	0.88
24.	Loading and unloading charges	8.35	1.53
25.	Transportation cost	12.11	2.23
26.	Market cost by retailer (23+24+25)	25.27	4.65
27.	Margin of retailer (28-(22+26))	36.28	6.68
28.	Purchase price of consumer	542.55	100
29.	**Total marketing cost (4+9+20+26)**	182.83	
30.	**Price spread (28-1)**	242.55	
31.	**Marketing efficiency**	1.05	

In channel II, the farmer gets Rs 300/kg, comprising 55.29% of the consumer price. The wholesaler's margin is Rs 28/kg, and the retailer's margin is Rs 36.28/kg. Total marketing cost is Rs 25.27, with a price spread of Rs 242.55/kg and a marketing efficiency of 1.05.

Table 4: Marketing Cost, Marketing Margin, and Marketing Efficiency in Channel III

S. No.	Particulars	Per kg of makhana pop	Percentage of Consumer rupee
		FARMERS	
1.	Gross price received by farmer	300	45.55
2.	Packaging cost	9.75	1.48
3.	Transportation cost	11.25	1.70
4.	Market cost by farmer (2+3)	21.00	3.18
5.	Net price received by farmer	279.00	42.36
		PROCESSOR	
6.	Purchase price of processor	300	45.55
7.	Processing cost	48.70	7.39
8.	Transportation cost + storage	32.15	4.88
9.	Market cost by processor (7+8)	80.85	12.27
10.	Margin of processor	16.24	2.46
		LOCAL WHOLESALER	
11.	Sale price of processor/purchase price of wholesaler	397.09	60.29
12.	Marketfee@1%	3.97	0.60
13.	Transportation charges up to Delhi market	70.84	10.75
14.	Loading and unloading	14.10	2.14
15.	Grading	9.89	1.50
16.	Packaging	10.50	1.59
17.	Storage	9.28	1.40
18.	Rottage and shrinkage	5.58	0.84
19.	Local tax (VAT)@0%	0	0
20.	Commission agent's share@4% of wholesale selling price	22.42	3.40
21.	Central sale tax@0%	0	0
22.	Market cost borne by local wholesaler	146.58	22.25
23	Margin of wholesaler {24-(11+22)	16.83	2.55
		DISTANT WHOLESALER	
24.	Selling price of local wholesaler/purchase price of distant wholesaler	560.50	85.10
25.	Transportation charge	9.81	1.48
26.	Storage charge	10.05	1.52
27.	Market fee	5.60	0.85
28.	Market cost by distant wholesaler (25+26+27)	25.46	3.8
29.	Margin of distant wholesaler {30-(24+28))	17.77	2.69
		DISTANT RETAILER	
30.	Purchase price of retailer	603.73	91.6
31.	Marketfee@1%	6.03	0.91
32.	Loading and unloading	10.21	1.55
33.	Transportation cost	11.11	1.68
34.	Market cost by retailer (31+32+33)	27.35	4.15

35.	Margin of retailer {36-(30+34))	27.50	4.17
36.	Purchase price of consumer	658.58	100
37.	Total marketing cost	301.24	
38.	Price spread (36-1)	358.58	
39.	Marketing efficiency approach (5/37+35+29+23+10)	0.73	

In channel III, the farmer receives Rs 300/kg, making up 45.55% of the consumer price. The local wholesaler's margin is Rs 16.83/kg, and the distant wholesaler's margin is Rs 17.77/kg. The retailer's margin is Rs 27.50/kg. Total marketing cost is Rs 27.35, with a price spread of Rs 358.58/kg and a marketing efficiency of 0.73. The marketing efficiency of Channel-I is 1.66, surpassing that of the other two channels. Therefore, Channel-I exhibits greater efficiency compared to the other two channels.

Garrett Ranking Technique

Table 5: Challenges in Makhana Production in Madhubani District, Bihar

S. No.	Constraints	Number of farmers giving different ranks							*G. S	Overall Rank
		I	II	III	IV	V	VI	VII		
1.	Lack of scientific Knowledge of cultivation	12	10	90	10	3	17	8	54.8	III
2.	No ownership of pond or land	100	10	10	10	5	5	10	68.33	I
3.	Lack of improved Variety seed	8	10	12	98	7	5	10	50.56	IV
4.	Highly skilled operation	15	95	13	10	5	10	2	62.12	II
5.	Lack of credit facility	7	9	12	0	99	12	17	45.96	V
6.	Short lease period	4	6	7	11	9	98	15	38.76	VI
7.	Labour intensive cultivation	0	7	8	12	17	8	97	31.14	VII

The primary constraints in makhana production include lack of land ownership, requiring farmers to lease ponds or lands with poor maintenance. Skilled labour is scarce, particularly for activities like pond maintenance and harvesting. Additionally, there's a lack of scientific knowledge, improved seed varieties, and access to credit, exacerbating challenges in cultivation.

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