



International Journal of Research in Agronomy

E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
NAAS Rating (2026): 5.20
www.agronomyjournals.com
2026; SP-9(6): 105-108
Received: 14-03-2026
Accepted: 19-04-2026

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Economic evaluation of the marketing system of Naga king chilli in Kohima District, Nagaland

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DOI: <https://www.doi.org/10.33545/2618060X.2026.v9.i6Sb.5712>

Abstract

The present study entitled “Economic Evaluation of the Marketing System of Naga King Chilli in Kohima District, Nagaland” was undertaken to examine the marketing system of Naga King Chilli in the study area. The study was conducted using primary data collected from sample farmers comprising marginal, small, and medium farm categories through a structured interview schedule. Secondary data was also collected through various published sources such as government reports, articles, journals, statistical handbooks etc. The objectives of the study were, to analyze the prevailing market channels for Naga King Chilli in the selected study area and to assess marketing costs, marketing efficiency, price spread, and the producer's share in the consumer's rupee in the marketing of Naga King chilli. The study identified three major marketing channels in the study area, namely Producer → Consumer, Producer → Retailer → Consumer, and Producer → Wholesaler → Retailer → Consumer. The findings revealed that marketing cost and price spread increased with the increase in the number of intermediaries involved in the marketing channel. The marketing cost was found to be lowest in Channel I and highest in Channel III. Similarly, producer's share in consumer's rupee was highest in Channel I and lowest in Channel III, indicating that the involvement of intermediaries reduced the share received by farmers. Marketing efficiency was estimated using Shepherd's method, and the results indicated that Channel I was the most efficient marketing channel, followed by Channel II and Channel III. The higher efficiency of direct marketing channels was mainly due to lower marketing costs and absence of intermediaries. Based on the findings, the study suggests strengthening market infrastructure, promoting direct marketing channels, developing storage and transportation facilities, improving access to market information, and encouraging farmer producer organizations (FPOs) is needed to enhance marketing efficiency and farmers' income from Naga King Chilli cultivation.

Keywords: Naga king chilli, marketing channels, marketing efficiency, price spread

Introduction

Naga King Chilli (*Capsicum chinense*), also widely known as Bhut Jolokia or ghost pepper, is one of the hottest chili varieties in the world. Indigenous to the North- Eastern states of India—particularly Nagaland, Manipur, and Assam—it is renowned for its extreme pungency, smoky aroma, and deep cultural significance in local cuisine. Recognized for exceeding one million Scoville Heat Units (SHU), Naga King Chilli gained international attention in the early 21st century and has since been used in culinary dishes, food products, and even defense- grade irritant formulations.

Naga King Chilli (*Capsicum chinense*) plays a vital role in the rural economy of Northeast India, where its high pungency and limited geographic distribution allow it to fetch premium prices in both domestic and export markets. Farmers benefit from its high market demand, since even small harvests generate substantial income, and value-added products such as pickles, powders, and sauces significantly expand revenue potential. The Chilli has strong export demand in the United States, Europe, and Southeast Asia. Beyond food markets, its capsaicin-rich composition has also found use in defense technologies and natural pest repellents, further diversifying its economic importance. In Nagaland, Naga King Chilli is widely cultivated across many districts, including leading areas such as Peren district, Dimapur district, Mon district and Kohima district, where the agro- ecological conditions favour its growth. Nagaland produces around 4,000 metric tonnes (MT) of Naga King Chilli annually, indicating its continued importance as a

spice crop for the region. This study is important because it will help to identify the existing marketing channels that are used to supply the products from producer to consumer. This research is essential in order to understand the economic challenges as well as give useful information about the market opportunities.

Objectives of the Study

1. To analyse the prevailing market channels for Naga King Chilli in the selected study area.
2. To assess marketing costs, marketing efficiency, price spread, and the producer's share in the consumer's rupee in the marketing of Naga King chilli.

Research Methodology

The study was conducted in Kohima district of Nagaland. The district was purposively selected because Naga King Chilli (*Capsicum chinense*) is widely cultivated in the area and plays an important role in the livelihood of rural farmers. The agro-climatic conditions of the district are highly suitable for the cultivation of Naga King Chilli.

Sampling Procedure

A multistage sampling technique was adopted for the selection of respondents. In the first stage, villages having considerable area under Naga King Chilli cultivation were selected purposively. In the second stage, farmers cultivating Naga King Chilli were selected randomly from the identified villages. A total of 60 farmers were selected for the study and categorized into three farm size groups as follows:

Table 1: No. of households with different farm sizes

S. N.	Farm size groups	No. of households
1	Marginal (<1ha)	26
2	Small (1-2 ha)	19
3	Medium (2-4 ha)	15
	Total	60

Analytical Tools Used

1. Marketing Margin

Marketing margin is the amount added to the price of a commodity by intermediaries to cover marketing costs and their profit.

$$MM_i = SP_i - (PP_i + MC_i)$$

Where,

MM_i = Marketing margin of the i th middlemen. SP_i = Selling price of the i th middlemen.

PP_i = Purchase price of the i th middlemen.

MC_i = Marketing cost incurred by the i th middlemen.

$$\text{Marketing Efficiency, ME} = \frac{V}{I} \times 100$$

Where,

ME = Index of Marketing Efficiency V = Consumer's price

I = Total Marketing Cost

$$\text{Producer's Share in Consumer Rupee (PSCR)} = \frac{\text{Producer Price}}{\text{Consumer Price}} \times 100$$

Producer's Price is the net price of farmers after calculating Marketing costs and margins

$$\text{Price Spread} = \text{Consumer's price} - \text{Producer's Price}$$

The price spread of an agricultural commodity refers to the gap between the amount paid by the final consumer and the price received by the primary producer (farmer). It reflects the overall marketing costs—such as handling, transportation, storage, and processing—along with the margins or profits earned by intermediaries involved in the marketing chain.

Results and Discussion

In the study area, three major marketing channels were identified for the marketing of Naga King Chilli. These are:

Channel I: Producer → Consumer

Channel II: Producer → Retailer → Consumer

Channel III: Producer → Wholesaler → Retailer → Consumer

Table 2: Marketing costs across different channels

S. N.	Particulars	Channel I	Channel II	Channel III
1	Producer Cost			
2	Transportation	8.5	9.2	10.5
3	Packaging	3.8	4	4.2
4	Loading & unloading	2.6	3	3.4
5	Market fee	1.8	2.2	2.5
6	Miscellaneous expenses	1.3	1.6	1.8
7	Total Producer Cost	18	20	22.4
8	Retailer Cost	—	5.8	6.5
9	Wholesaler Cost	—	—	7.2
10	Total Marketing Cost	18	25.8	36.1

The results from table 2 indicate that the total marketing cost increases with the length of the marketing channel. Channel I, which involves direct sale from producer to consumer, recorded the lowest marketing cost (₹18.00/kg). This is because the produce passes through no intermediaries and therefore avoids intermediary costs and margins.

Channel II, involving a retailer, showed a higher marketing cost of ₹25.80/kg. The increase in cost is mainly due to the expenses incurred by retailers in transportation, storage, and market handling.

Channel III recorded the highest marketing cost (₹36.10/kg) as the produce passes through both wholesalers and retailers. Each intermediary incurs marketing expenses and adds their margin, which significantly increases the overall cost.

Thus, the study indicates that shorter marketing channels help reduce marketing costs and increase the producer's share in the consumer's rupee. Encouraging direct marketing, farmers' markets, and producer cooperatives can help reduce the number of intermediaries and improve marketing efficiency.

Table 3: Price spread across different marketing channels (Rs/kg)

S. N.	Particulars	Channel I	Channel II	Channel III
1	Price received by producer	360	330	300
2	Marketing cost incurred by producer	18	20	22
3	Retailer purchase price	—	330	360
4	Retailer marketing cost	—	6	7
5	Retailer margin	—	84	63
6	Wholesaler purchase price	—	—	300
7	Wholesaler marketing cost	—	—	7
8	Wholesaler margin	—	—	53
9	Consumer price	360	420	430
10	Total marketing cost	18	26	36
11	Total intermediaries margin	—	84	116
12	Price spread	18	90	130

Understanding the price spread across different channels and producers' share in consumer rupee.

The analysis from Table 3 shows that price spread varies significantly across marketing channels. Channel I, where producers sell directly to consumers, recorded the lowest price spread (₹18/kg) since no intermediaries are involved. This channel allows farmers to retain a larger share of the consumer price.

In Channel II, the involvement of a retailer increases the price spread to ₹90/kg, mainly due to retailer marketing costs and margins. Channel III shows the highest price spread (₹130/kg) because both wholesalers and retailers are involved in the marketing process.

The results clearly indicate that as the number of intermediaries increases, the price spread also increases. This reduces the share of the producer in the consumer's rupee and lowers marketing efficiency.

Therefore, promoting direct marketing channels, farmer cooperatives, and producer markets could help reduce price spread and improve farmers' income in the study area.

Table 4: Producers' share in consumer rupee across different marketing channels

S.N.	Marketing Channel	Price received by producer (₹/kg)	Consumer price (₹/kg)	Producer's share (%)
1	Channel I	360	360	100
2	Channel II	330	420	78.57
3	Channel III	300	430	69.77

The results from Table 4 show clear variation in the producer's share across the different marketing channels. Channel I recorded the highest producer's share (100%), as the farmer sells directly to the consumer without the involvement of intermediaries. This allows the farmer to receive the entire consumer price.

In Channel II, where a retailer is involved, the producer's share declined to 78.57 percent due to the marketing costs and profit margin taken by the retailer.

Channel III recorded the lowest producer's share (69.77 percent) because both wholesalers and retailers participate in the marketing process. Each intermediary adds marketing costs and margins, which increases the consumer price but reduces the share received by the farmer.

Thus, the study indicates that shorter marketing channels result in higher producer shares, whereas longer channels with more intermediaries reduce the farmer's share in the consumer's rupee.

Table 5: Marketing Efficiency across different channels

Marketing Channel	Consumer Price (₹/kg)	Marketing Cost (₹/kg)	Marketing Efficiency
Channel I (P → C)	360	18	20
Channel II (P → R → C)	420	26	16.15
Channel III (P → W → R → C)	430	36	11.94

Analysing the marketing efficiency across different channels

The results from Table 5 clearly show that Channel I is the most efficient marketing channel, with the highest marketing efficiency value of 20.00. This is because the channel involves direct sale from producer to consumer, thereby eliminating intermediaries and minimizing marketing costs. As a result, farmers receive a higher share of the consumer's price.

Channel II exhibits moderate efficiency (16.15) due to the involvement of a retailer. The presence of a single intermediary increases the marketing cost and reduces the efficiency compared to Channel I.

Channel III is the least efficient channel (11.94), as it involves both wholesalers and retailers. The participation of multiple intermediaries increases the marketing cost significantly and reduces the efficiency of the marketing system. Each intermediary adds their own cost and margin, which increases the consumer price but does not proportionately benefit the producer. Table 5: Marketing efficiency across different channels

Conclusion

The present study identified three major marketing channels, namely Producer → Consumer, Producer → Retailer → Consumer, and Producer → Wholesaler → Retailer → Consumer. The analysis revealed that marketing cost and price spread increased with the increase in the number of intermediaries involved in the marketing process. Channel I, involving direct sale from producer to consumer, recorded the lowest marketing cost and highest producer's share in consumer's rupee, whereas Channel III recorded the highest marketing cost and lowest producer's share due to the involvement of multiple intermediaries.

The marketing efficiency analysis using Shepherd's method indicated that Channel I was the most efficient marketing channel, followed by Channel II and Channel III. The higher efficiency of direct marketing channels was mainly attributed to lower transportation, handling, and intermediary charges. The findings clearly indicate that reduction in intermediaries can significantly improve farmers' income and marketing efficiency. Based on the findings, the study suggests the development of efficient market infrastructure, establishment of storage and cold storage facilities to reduce post-harvest losses and price distress, improvement in transportation networks to reduce marketing costs, dissemination of timely market information, and promotion of direct marketing practices. Formation of Farmer Producer Organizations (FPOs) and strengthening cooperative marketing can also help farmers reduce dependence on intermediaries and enhance their share in the consumer's rupee. Overall, the study concludes that although Naga King Chilli possesses high market potential and profitability, improving the existing marketing system and addressing marketing constraints are essential for ensuring better returns and sustainable livelihood opportunities for farmers in Kohima district of Nagaland.

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