



Production and Marketing Efficiency of Spices in Peren District of Nagaland

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ABSTRACT

Spices known as the cash crop has an important impact in the lives of farmers to generate income and employment. This study includes three spices Naga King Chilly, Turmeric and Ginger cultivated in Peren district of Nagaland. The study has been carried out to understand the marketing efficiency under three channels i.e. **Channel-I** Producer to Local Marketing, **Channel-II** Producer to Small Traders and **Channel-III** Producer to Wholesalers. The study has analyzed by using Shepherds and Acharya-Agarwal methods to test the marketing efficiency. The study also shows farmers landholding size, production, distribution of production to different channels and analyzing of marketing efficiency index.

HIGHLIGHTS

- Different marketing Channels and marketing efficiency plays an important role to the farmers overall returns of their production.
- Shepherds and Acharya-Agarwal Methods were used to test the market efficiency of the three spices Naga King Chilly, Turmeric and Ginger.

KEYWORDS:

Market efficiency, spices, Market channel, price spread



INTRODUCTION

India has been amongst the largest producer, consumer and exporter of spices across the world. Species adds flavor to the taste of food and it is also used in cosmetic and in medicinal purposes. According to Spice Board of India, the production of spices for 2022-2023 stood at 11.14 million tones comparatively to 11.12 million tons in 2021-2022. India also exported 3.73 billion in 2022-2023 and 3.46 billion in 2021-2022. In which maximum production of spices includes of chilly, turmeric, ginger, cumin and coriander to 76 percent in production.¹ According to the Nagaland Economic Survey 2021-2022 the area of spices was of 124358 in hectares and production was 59073.67 MT where in 2022-2023 it had an area of 12903.74 hectares with production of 62792.78 MT which shows an increase of production.² The Department of Horticulture Nagaland stated that the State exported 42265 MT of spices resulting of rupees 14.907 lakh in 2021-2022.³

METHODOLOGY

The study was conducted in Peren district Nagaland with 200 sample respondent farmers to study the marketing efficiency under three marketing channels. Snow bowl sampling method was used to collect the primary respondents' questionnaires and secondary sources were collected from various journals. The first marketing channel is from producer to local marketing, the second marketing channel is from producer to small traders and the third marketing channel is from producer to wholesalers. Two methods were used to find the marketing efficiency from the marketing channels;

a. Shepherds Market Efficiency Method: $ME = \frac{V}{I} - 1$

Where,

¹ Spice Board of India

² Nagaland Economic Survey 2022-2023

³ Department of Horticulture Nagaland



ME= Marketing Efficiency

V= Price Paid by Consumer

I= Total Marketing Cost

b. Acharya –Agarwal modified Method: $MME = \frac{NNp}{MC+MM} - 1$

Where,

MME= Modified Measure of Marketing Efficiency

NNp= Net price received by the producer

MC= Marketing cost

MM= Marketing Margin

RESULTS AND DISCUSSION

Farm Holding Size of the Farmers

The Land holding size of the farmers were categorized by marginal farmer with land holding size of below 1 hectare, small farmers with land holding size of 1-2 hectares, semi-medium farmers with the land holding size of 2-4 hectares and medium farmers with land holding size of 4-10 hectares. Table 1 explains about the farm holding size of the farmers in Peren district cultivating Naga king chilly, turmeric and ginger with four categorizes land size i.e., marginal farmer, small farmer, semi-medium farmer and medium farmer. It shows that the total farm size in Naga King Chilly with 237.4 hectares, turmeric with 72.1 hectares and ginger with 25.7 hectares.

Table 1: Farm Holding Size of the farmers in Peren District

Farm Size	Naga King Chilly	Turmeric	Ginger
Marginal Farmer	--	37.5	18.7
Small Farmer	67	34.6	7
Semi-Medium Farmer	85.5	--	--
Medium Farmer	84.9	--	--
Total	237.4	72.1	25.7

Sources: Primary data collected from field work

Note: Farm size in hectares

Production of spices in Peren district

The production of the three spices i.e. Naga king chilly, turmeric and ginger production were acquainted for four years 2019, 2020, 2021 and 2022. During 2020-2021, Peren district has produce ginger of 5395 MT with an area of 429 hectares, turmeric of 3142 MT with an area of 260 hectares and Naga king chilly of 1696 MT with an area of 282 hectares.⁴

Table 2 explains about the production of spices in Peren district where the total production of Naga king chilli was 1921330, turmeric of 54955 and ginger of 24605.

⁴ Statistical Handbook 2021

Table 2: Production of the farmers in Peren District

Farm Size	Naga King Chilly (Kg.)	Turmeric(Kg.)	Ginger(Kg.)
Marginal Farmer	--	26615	19115
Small Farmer	53540	28340	5490
Semi-Medium Farmer	69100	--	--
Medium Farmer	69490	--	--
Total	1921330	54955	24605

Sources: Primary data collected from field work

Note: Production in Kilograms

Marketing Channels

Marketing channel also plays an important role for the farmers to distribute their production in the market to generate the revenue of their production. The marketing channels of Peren district were distributed into three channels

- Channel I: Producer to Local Market
- Channel II: Producer to Small traders
- Channel III: Producer to Wholesalers

Table 3 explains about the distribution of marketing channels of the farmers in Peren district. It shows that in Naga King Chilly that producers to local marketing were of 32, small traders were 21 and wholesalers were 44. Turmeric farmers to local marketing were of 30, small traders were 19 and wholesalers were 25. Ginger farmers to local marketing were 07, small traders were 11, and wholesalers were 11.

Table 3: Distribution of marketing channels of the farmers in Peren District

Channel	Naga King Chilly	Turmeric	Ginger
Local Marketing	32	30	07
Small Traders	21	19	11
Wholesalers	44	25	11
Total	97	74	29

Sources: Primary data collected from field work

Table 4 explains about the production distribution to marketing of the farmers in Peren district. Farmers distributed a total production distribution from 2019, 2020, 2021 & 2022 Naga King Chilly to local marketing was 52200, small traders was 44270 and wholesalers was 95660. Therefore, total of 192130 total distributions to different channels of Naga King Chilly. Turmeric producers distributed to local marketing of 21235, small traders of 12650, and wholesalers of 24270. Therefore, total of 58155 to different channels of turmeric. Ginger producers distributed to local marketing of 9635, small traders of 9830, and wholesalers of 8130. Therefore, total of 27595 to different of turmeric.

Table 4: Production distribution to marketing channels of the farmers in Peren District from 2019-2022

Channel	Naga King Chilly (Kg)	Turmeric(Kg)	Ginger(Kg)
Local Marketing	52200	21235	9635
Small Traders	44270	12650	9830
Wholesalers	95660	24270	8130
Total	192130	58155	27595

Sources: Primary data collected from field work **Note:** Production distribution in Kilograms



Marketing Efficiency

According to Fama (1970) market efficient means in which prices always fully reflect.⁵ The greater a given ratio the higher the efficiency of the marketing channel.⁶ The Marketing Efficiency can be checked by using Shepherds Market Efficiency and Acharya –Agarwal modified Method. The producer's net price is the amount received by the farmers excluding costs. Marketing cost is the cost incurred by the farmers to sell the product. Marketing margin is the selling price taken by each channel of the marketing chain. Consumer price is the sum amount of producers' price, marketing cost and marketing margin. Price spread is the difference of consumer price and producer price for their equivalent produce.

Table 4 explains about the marketing efficiency index of the three spices Naga King Chilly, turmeric and ginger with three marketing channels in the Peren district. The particulars includes of Producers Net price, marketing cost, marketing margin, value added by marketing system, consumer price and price spread.

In Channel 1 the producers net price of Naga King Chilly was 208800 with marketing cost 981900, 320725 value added by marketing system, 2408725 consumer price which results in 13.32 price spread. The producers' net price of turmeric was 444607.81 with marketing cost 383230, 334725 values added by marketing system, 779332.81 consumer prices which results in 42.95 prices spread. The producers' net price of ginger was 216787.5 with marketing cost 183400, 583375 values added by marketing system, 800162.5 consumer prices which results in 72.907 prices spread.

⁵Jarrow R & Larsson M, February 23,2011, 'The meaning of Market Efficiency'

⁶ M.A Safi, Y.Amkekawa, H.Isoda,N.Hassanzoy&S.Ito, 2018, 'Cost-Benefit Efficiency and factors influencing farmers choice of Marketing Channel in Grape Value Chain: Evidence from Kabul, Afghanistan'



In channel II the producers net price of Naga King Chilly was 1770800 with marketing cost 803300, 221350 marketing margin, 632680 value added by marketing system, 2403480 consumer price which results in 26.32 price spread. The producers' net price of turmeric was 264859.38 with marketing cost 214770, 19765.63 marketing margin, 77658.13 values added by marketing system, 342517.51 consumer prices which results in 22.67 prices spread. The producers' net price of ginger was 221175 with marketing cost 166000, 24575 marketing margin, 129100 values added by marketing system, 350275 consumer prices which results in 36.86 prices spread.

In channel III the producers net price of Naga King Chilly was 3826400 with marketing cost 17424800, 478300 marketing margin, 524150 value added by marketing system, 4350550 consumer price which results in 12.05 price spread. The producers' net price of turmeric was 508153.13 with marketing cost 384500, 37921.88 marketing margin, 85421.88 values added by marketing system, 593575.01 consumer prices which results in 14.39 prices spread. The producers' net price of ginger was 182925 with marketing cost 99100, 20325 marketing margin, 45100 values added by marketing system, 228025 consumer prices which results in 19.78 prices spread.

Table 4: Marketing Efficiency Index of Peren District

Particulars	Channel I			Channel II			Channel III		
	Naga King Chilly	Turmeric	Ginger	Naga King Chilly	Turmeric	Ginger	Naga King Chilly	Turmeric	Ginger
Producers Net Price	2088000	444607.81	216787.5	1770800	264859.38	221175	3826400	508153.13	182925
Marketing Cost	981900	383230	183400	803300	214770	166000	17424800	384500	99100
Marketing Margin	--	--	--	221350	19765.63	24575	478300	37921.88	20325
Value added by marketing system	320725	334725	583375	632680	77658.13	129100	524150	85421.88	45100
Consumer Price	2408725	779332.81	800162.5	2403480	342517.51	350275	4350550	593575.01	228025
Price Spread	13.32	42.950	72.907	26.32	22.67	36.86	12.05	14.39	19.78

Sources: Primary data collected from field work

Table 5 explains the marketing efficiency results from Shepherds market efficiency and Acharya-Agarwal modified method. Shepherds market efficiency method for Naga King Chilly in channel I 7.51, 3.80 for channel II and 8.30 for channel III which indicates that channel III is the most efficient marketing channel. Similarly, in Acharya-Agarwal modified method channel I was 6.51, 2.80 for channel II and 7.30 in Channel III which again indicates that channel III is the most efficient marketing channel. Shepherds market efficiency method for Turmeric in channel I 2.33, 4.41 for channel II and 6.95 for channel III which indicates that channel III is the most efficient marketing channel. Similarly, in Acharya-Agarwal modified method channel I was 1.33, 3.41 for channel II and 5.95 in Channel III which again indicates that channel III is the most efficient marketing channel. Shepherds market efficiency method for Ginger in channel I 1.37, 2.71 for channel II and 5.06 for channel III which indicates that channel III is the most

efficient marketing channel. Similarly, in Acharya-Agarwal modified method channel I was 0.37, 1.71 for channel II and 4.06 in Channel III which again indicates that channel III is the most efficient marketing channel.

Table 5: Marketing Efficiency results from the methods

Method	Channel	Naga King Chilly	Turmeric	Ginger
Shepherds Market Efficiency Method	I	7.51	2.33	1.37
	II	3.80	4.41	2.71
	III	8.30	6.95	5.06
Acharya–Agarwal modified Method	I	6.51	1.33	0.37
	II	2.80	3.41	1.71
	III	7.30	5.95	4.06

Sources: By using the methods of the Primary data collected from field work

CONCLUSION & SUGGESTION

Spices have been an integral cash crop for the horticulture sector to generate revenue to the government and also create opportunity for employment. The above study by using Shepherd and Archarya-Agarwal method found that channel III where producers to wholesalers have greater marketing efficiencies for the spice cultivators for greater income generation. However, the farmers also had problems in production and marketing the products at times. The results revealed low price spread and that farmers faced internal and external factors to significantly market their production. The farmers were almost unskilled and lack of much knowledge in marketing their products. For which farmers had high possibilities to be manipulated in price by the small traders and wholesalers. Thus the study suggest that the farmers should be aware of the market information's to sell their products at a given price to abstain from incurring losses and trainings to be provided for enlarging production and about the market price to be sold to small traders, wholesalers and in local marketing.



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