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Price spread and marketing efficiiency in marketing of Bamboo shoots in Dimapur district of Nagaland

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Abstract

Bamboo shoots are considered a delicacy in Nagaland and are eaten regularly round the year. A study was undertaken to determine the production and marketing of bamboo shoots in Dimapur district of Nagaland. In the study area, two marketing channels were identified for the marketing of bamboo shoots viz; Producer - Consumer (Channel - I) and Producer - Commission Agent - Consumer (Channel - II). The Marketing efficiency and Producer's share in consumer's price was found to be higher on Channel - I. The most prominent problem in production and marketing of Bamboo shoots viz; inadequate transportation facilities, absence of extraction road, non-availability of credit facilities in time, lack of modern technology and equipments for processing bamboo shoots.

Key words: Marketing efficiency, price spread, marketing channels, bamboo shoot, cost and price.

Introduction

Bamboo shoots are young and tender culms of bamboo that grow from the lower-leaf axils of young plants. Bamboos are perennial evergreen plants in the grass family *Poaceae*, belonging to the sub-family of *Bambu oideae*. There are about 75 genera and 1,250 species of bamboo worldwide (Upreti and Sundriyal, 2002; Muller and Rebelo, 2010) with 136 species under 23 genera in India (Zhu, 2003; Bhatt et al, 2003; ERG, 2005). The most important used as vegetables are chiefly species from the genera *Bambusa*, *Dendrocalamus* and *Phyllostachys*. (Salanki et al, 2004).

Bamboo shoots form a traditional delicacy and have been eaten as a vegetable for thousands of years in many Asian countries. They are not only delicious but are also rich in nutrients and rank among the 5 most popular healthcare foods in the world (NMBA, 2010). Bamboo shoots are very seasonal, short-lived and perishable in nature. The peak availability period is June to October. Many farmers already grow and harvest bamboo shoots for their own consumption but the global markets for fresh and processed shoots are very large (Chongtham et al, 2011). Consumption of bamboo shoots is mainly concentrated in South-East Asia, where they are a popular ingredient in the local cuisine. Worldwide, more than 2 million tons of bamboo shoots are consumed annually of which about 1.3 million tons are produced in China alone (Gao et al, 2002; Kant and Chin, 2002).

India has the largest bamboo area and second largest reserve of bamboo in the world today and accounts for 136 species of bamboo spread over a geographical area of 11.36 million hectares. Within India, NEH, region possesses largest species diversity. Out of 136 plant species available in India, nearly half of the variability is available in NEH Region (Manas and Singh, 2007; Rivera, 2008).

Bamboo shoots are traditionally consumed more often as a fresh vegetable during their season of availability and are preserved conventionally as salted, fermented and dried products in the NE regions of India and as salted and pickled products in the Western Ghats in Karnataka. The average consumption of bamboo shoots in the north eastern states of India is 1979 tonnes, 2188 tonnes, 442 tonnes, 433 tonnes, 442 tonnes and 201 tonnes in Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura, respectively (Satosh et al, 2010; NMBA, 2010; Nimachow et al, 2010).

Bamboo is found extensively in Nagaland. Twenty species have been identified in Nagaland. About 5% of the growing stock of bamboo of the country is in Nagaland which is about 4, 48,000 hectares. The dominant species in Nagaland are Kako (*Dendrocalamus hamiltonii*), Dolo (*Teinostachyum*

dulloa) and Jati (*Bambusa tulda*). Bamboo is an important resource in the socio-economic-ecological-climatic-functional context for Nagaland and the State has now taken a step in the initiative to harness the potential of bamboo and its benefits. Bamboo shoots are a major source of income to communities adjacent to bamboo forests. Bamboo shoots are considered as a delicacy in Nagaland and are eaten regularly round the year. In order to understand the production and marketing of bamboo shoots in Nagaland, a careful and detailed study is essential. Hence the present study is needed for the study of efficiency of marketing channels in the marketing of bamboo shoots. Also, this paper examines the price spread and the relative efficiency of different marketing channels, price spread, marketing efficiency and to analyze the constraints during the marketing of bamboo shoot (Caasi-Lit et al, 2010).

Materials and Methods

The study was conducted in Dimapur district of Nagaland, which comprises of Medziphema and Chumukedema blocks, a sample of 60 bamboo shoots was selected by following the multi stage random sampling technique method. In the first stage two developed blocks were selected, while in the second stage, five villages from each block were selected randomly. Then in the third stage a list of farmers of those villages was prepared separately. Finally, six farmers from each village were selected for the present study. The primary data regarding cost and constraints of marketing and channels used was collected from the bamboo shoots farmers through the pre-tested structured schedules. The secondary data was obtained from the offices of relevant government departments. The data thus collected was analyzed for price spread and Shepherd's Marketing Efficiency Index method was used to examine the efficiency of different marketing channels. Frequency, simple percentage and ranking were used to analyze the problems encountered by the farmers.

Results and Discussion

Table 1 reveals that the present study was stratified into three groups viz; Group I (1.01- 2.00 ha) with 12 farmers, Group II (2.01- 4.00 ha) with 34 farmers and Group III (4.01 and above) with 14 farmers respectively, based on the area under bamboo shoots land holding of the respondents.

Table 1: Sample farmers of bamboo shoots on different farm size groups

S. No.	Group	Class (ha)	Total number of farmers	Selected sample farmers
1	Small	1.01-2.00	49(19.92)	12(20.00)
2	Medium	2.01-4.00	139(56.50)	34(56.67)
3	Large	4.01 & above	58(23.58)	14(23.33)
Total			246(100.00)	60(100.00)

Agricultural commodities are produced by various cultivators in their farms. But the produce is consumed by people throughout the country at various places. The path followed by these commodities till they reach to final consumer is known as marketing channels. The length of channels varies from commodity to commodity and also depends on the quantity to be moved, the nature and degree of specialization in production.

Marketable surplus refers to the residual quantity left with the producer after meeting his requirements for family consumption, farm needs and payments in kind to casual and permanent labourer the landlord, artisans and others. The quantity of the produce; which can be made available to the non-farm population is simply known as Marketed surplus. It is the actual amount of produce which the producer sold out of their year's production irrespective of his requirements, family consumption, wastage and other payments. On the other hand, marketable surplus is that quantity of the produce which is left with the producer after meeting his consumption and other farm requirements.

Table 2: Production, marketable and marketed surplus of bamboo shoots for different farm size groups (in quintals)

S No.	Farm Size groups	Production of bamboo shoots	Requirement for family consumption + non market transaction	Marketable surplus	Marketed surplus
1.	Small	90	12	84	78
2.	Medium	229	45	200	184
3.	Large	107	20	98	87
	Overall	426	77	382	349

Table 3: Estimates of marketing efficiency in different marketing channels

Channels	Small		Medium		Large		Average	
	Qty(qtl)	%	Qty(qtl)	%	Qty(qtl)	%	Qty(qtl)	%
I	570	70.37	860	65.15	710	64.78	2,140	66.34
II	240	29.63	460	34.85	386	35.22	1,086	33.66
Total	810	100.00	1,320	100.00	1,096	100.00	3,226	100.00

Table 2 reveals that the production, non-market transaction, marketable surplus and marketed surplus of bamboo shoots, the marketable surplus is more than the marketed surplus. Most farmers usually do not sell their potential surplus right after harvest but they process it for fermentation in anticipation of higher prices from fermented bamboo shoots with a view to earn more returns. Sometimes due to financial obligations small farmers sell their produce even at a lesser price than the prevailing prices. Deficiencies and difficulties of transportation, communication and other defective marketing conditions affect adversely the size of marketable surplus.

In the present study, two marketing channels of bamboo shoots in Dimapur district are identified. The two channels are as follows:

CHANNEL I: Producer - consumer.

CHANNEL II: Producer -commission agent - consumer.

The commission agents bought the product from the farmer and then deliver it to the final consumer. The amount of quantity sold through the two channels. The channel - I was more effective channel through which small, medium and large farmers transacted 70.37, 65.15 and 64.78 per cent of their marketed surplus respectively. 66.34 per cent of the total marketed surplus of the selected bamboo growers was sold through this channel, whereas only 33.66 per cent of the total produce was sold through channel - II.

Marketing costs are the actual expenses incurred for bringing goods and services from the producer to the consumer. The difference between the final price paid by the consumer for a commodity or a product and the price received by a grower of a crop or a primary producer may be taken roughly to represent the costs of marketing of that commodity. Marketing costs would include handling charges at local points, assembling, transport and storage, financing, risk taking, market intelligence, and profit margin taken out by different agencies (Afzal, 1997).

Table 4 represents the marketing costs incurred by different intermediaries in different marketing channels. From the table, the higher marketing cost is observed in Channel - II, the amount being Rs. 300/- per quintal. While for channel - I where the farmer sale their product directly to the consumer, the marketing cost is Rs.120/- per quintal.

Table 4: Marketing cost of intermediaries in Bamboo shoots marketing system in different marketing channels (Rs./q)

S. No.	Intermediaries	Marketing cost	
		Channel I	Channel II
1.	Producer	120	120
2.	Commission agent	0.00	180
3.	Total marketing cost	120	300

Table 5: Marketing margins of intermediaries in Bamboo shoots marketing system in different marketing channels (Rs./ q)

S. No.	Intermediaries	Marketing cost	
		Channel I	Channel II
1.	Producer	0	0
2.	Commission agent	0	270
3.	Total marketing margins	0	270

Margin refers to the difference between the price paid and received by a specific marketing agency. As table 5 represents the marketing margins earned by the intermediaries in the two marketing channels identified. The commission agent earned Rs. 270/- per quintal in channel II where they purchase from the producer and sell it to the consumer. The price which the farmer gets for his produce is known as producer's price and the price which the consumer pays is known as consumer's price. The price includes distribution of market cost on various items of cost, the cost taken away by the middleman, traders, transporters, brokers, and other functionaries. The price spread varies from place to place and commodity to commodity.

A study of price spread involves not only the ascertainment of the actual prices at various stages of

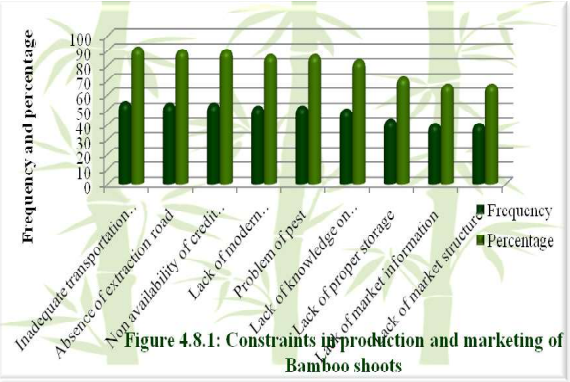

Figure 4.8.1: Constraints in production and marketing of Bamboo shoots

marketing channel, but also the cost incurred in the process of the movement of the produce from the farm to the consumer and the margin of various intermediaries. Greater the number of intermediaries, higher is the value of gross margins. Higher is the value of gross margins, higher the value of price spread. And higher is the price spread, lower is the marketing efficiency as the producers share in the consumer rupee becomes lower.

Table 6: Price spread analysis for different marketing channels

S. No.	Items	Channel I	Channel II
1.	Consumer's price (Rs/q)	1,200	1,400
2.	Total marketing cost (Rs/q)	120	300
3.	Total marketing margin (Rs/q)	0.00	270
4.	Producer's share in consumer price (%)	90.00	59.29

Table 6 represents the price spread analysis of the two marketing channels identified. The table shows that the producer's share in consumer price is higher in channel I (90 per cent), where no intermediaries are involved. This indicates that, out of the total money paid by the consumers, the producers in channel I received 90 per cent. The lower amount of producer's share in consumer rupee (59.29 per cent) is observed in channel II, which was due to involvement of intermediatories.

In order to know the degree of the market performance, it is important to know the marketing efficiency. Marketing efficiency can be defined as the maximization of consumer's satisfaction with the least cost incurred in providing that satisfaction through the system of marketing. It is defined as having the following two major components:

i) The effectiveness with which a marketing service would be performed and
ii) The effect on the cost and the method of performing the service on production and consumption.

These are the most important because the satisfaction of the consumer at the lowest possible must go hand in hand with the maintenance of a high volume of farm output.

Table 7: Estimates of marketing efficiency in different marketing channels

S. No.	Items	Channel I	Channel II
1.	Consumer's price (Rs/q)	1200.00	1400.00
2.	Total marketing cost (Rs/q)	120.00	300.00
3.	Marketing efficiency	9.00	3.67

Table 7 reveals that the estimates of marketing efficiency of bamboo shoots through various channels by using Shepherd's formula. The table shows that the marketing efficiency is higher in Channel I (9.00) than in channel II (3.67). This proved that higher is the price spread, lower is the marketing efficiency as the producers share in the consumer rupee becomes lower.

Table 8 reveals that an attempt is made to identify the problems faced by the farmers in production and marketing of bamboo shoots. The problems of production and marketing of bamboo shoots were presented in the descending order of their relative importance with the help of frequency, simple percentage and ranking (Sharma, 2002). The ranking of various problems of bamboo shoots production and marketing is found to be similar across various size groups of farmers. Therefore, problems are not discussed according to different size group of farmers. The table represents the problems of the sample farmer as a whole. Some of the problems prevailing in the study area are inadequate transportation facilities, lack of modern technology and equipments for processing bamboo shoots, lack of knowledge on agro management practices for better shoot production, lack of proper storage, lack of market structure, lack of market information and non availability of credit facilities. There is also problem of moths which affects the yield and quality of bamboo shoot production. Most of the people depend on wild bamboo and few grow in their homestead in small quantity. The bamboo forests are located 2-4 km from the village and there is no proper road to the extraction sites. There is also problem of snakes and mosquitoes in the bamboo

Table 8. Problems in production and marketing of bamboo shoots

Sl. No.	Problems	Frequency	Percentage	Rank
1	Inadequate transportation facilities	55	91.67	I
2	Absence of extraction road	54	90.00	II
3	Non availability of credit facilities	54	90.00	II
4	Lack of modern technology and equip-ments for processing bamboo shoots	52	86.67	III
5	Problem of pest	52	86.67	III
6	Lack of knowledge on agronomic management practices	50	83.33	IV
7	Lack of proper storage	43	71.67	V
8	Lack of market information	40	66.67	VI
9	Lack of market structure	40	66.67	VI

grooves during harvesting period.

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