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Marketing system of summer tomato in Jashore district of Bangladesh

Pradip Hajong*, Md. Hafijur Rahman and Md. Shahriar Kobir

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A B S T R A C T

The study was conducted for the assessment of marketing system of summer tomato in Jashore. Summer tomato had high demand and high value crop in summer season among the consumers. Data were collected from 30 randomly selected tomato farmers and 60 traders from different market of Jashore district of Bangladesh during July-October, 2019. Farmer, faria, bepari, wholesaler, commission agents and retailer were involved in marketing of summer tomato. Marketing cost of farmar, faria, bepari, wholesaler, retailer (urban) and retailer (rural) were 430.00, 691.00, 2184.00, 2443.00, 1857.00 and 1074.00 Tk ton^{-1}, respectively. Net margin or profit of the faria, bepari, wholesaler and retailer were 1300.00, 817.00, 557.00 and 2143.00 Tk ton^{-1}, respectively. There were seven marketing channel exist in tomato marketing. Total marketing cost of all intermediaries was 7604.00 Tk ton^{-1} and net margin was 4826.00 Tk ton^{-1}. Marketing efficiency was 2.25. Price spread between consumer paid and producer received was 8000.00 Tk ton^{-1}. On the other hand, producer share was 78 percent. Spoilage and damage, transportation and packaging were the main marketing problem of summer tomato.

Keywords: Marketing system, Marketing margin, Marketing channel, Summer tomato, Bangladesh

Scientific Officer, Regional Agricultural Research Station, Bangladesh Agricultural Research Institute, Jashore, Bangladesh

*Corresponding author's email: pradip.hajong@gmail.com (Pradip Hajong)

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Introduction

Bangladesh is an agro-based country where agriculture is considered as backbone of her economy. Agriculture plays a vital role through employment generation, poverty alleviation, food security, enhance standard of living by increasing income level of rural population. Many developing countries like Bangladesh benefited from the green revolution in cereal production in the past but were not able to substantially reduce poverty and malnutrition. Vegetable production can help farmers to generate income, which eventually alleviate poverty. Among the vegetables, tomato is one of the most important vegetables in terms of acreage, production, yield, commercial use and consumption. In Bangladesh 1.27% area cultivated summer vegetable and among total vegetable 6.52 % land was under tomato cultivation (BBS, 2019). Summer vegetables are pumpkin, brinjal, lady's finger, ridge gourd, bitter gourd, arum, ash gourd, cucumber, long bean, Indian spinach, snake gourd, sponge gourd, green papaya, and green banana. Area and production of vegetables in the country are increasing substantially in recent years (Hasan *et al*., 2020). Tomato mainly winter vegetable but now a days it cultivated at summer and rainy season. Tomato cultivation was risk averse and most of the farmer facing in risk in cultivating tomato specially summer tomato (Mitra and Sharmin, 2019). Cultivating summer tomato in Bangladesh considered as a profitable enterprise in which farmers can augmented with the existing cropping pattern with small amount of land (Rahman and Acharjee, 2020). Bangladesh Agricultural Research Institute (BARI) had developed some hybrid tomato varieties for summer season. Although tomato plants can grow under a wide range of climatic conditions, they are extremely sensitive to hot and wet growing conditions, the weather which prevails in the summer to rainy season in Bangladesh. However, limited efforts have been given so far to overcome the high temperature barrier preventing fruit set in summer-rainy (hot-humid) season. Its demand for both domestic and foreign markets has increased manifold due to its excellent nutritional and processing qualities (Hossain *et al*., 1999). Considering the growing demand and importance of tomato, Bangladesh Agricultural Research Institute (BARI) has taken initiative to develop off-season summer and rainy season tomatoes. Among the summer tomato varieties BARI hybrid tomato-4 cultivated seventy-five percent farmers in Jashore district, which was profitable crops (Hajong *et al*., 2018). Among the vegetables grown in summer and

rainy season summer tomato was profitable than panikachu (aroid) (Hajong *et al.*, 2015) and bitter gourd (Hajong *et al.*, 2020) which were demandable vegetables in summer and rainy season.

Marketing is necessary for transaction the product from producer to consumer. In marketing system, their involved different intermediaries and value added in different level. An efficient marketing system is essential for sustained agricultural development. It affects both producers' income (through prices received by the producers for their products) and consumers' welfare (through prices consumers pay for agricultural commodities). There are several factors, which influence the efficiency of tomato marketing including perishability, seasonality, quality, prices and location of the products. So that it effect on the prices of tomato. Almost 90% of the total fresh tomatoes are supplied to city/district wholesale markets and the rest 10% of the produce is consumed locally (Uddin, 2010). Production influenced by many post-harvest issue such as storage, price fluctuation, demand etc. which done by marketing facilitator. A well-developed supply system is helpful to reduce the post-harvest loss of vegetable (Akter *et al.*, 2022). In that case, it needs to assess the marketing system, marketing channel, marketing cost and margin, prices spread in different level and marketing constraints and their solution of summer tomato at different level. Based on problem confrontation index farmer seems that tomato had low market price (Haque *et al.*, 2019) but in case of summer tomato it had high demand and high price. Very little research was taken on summer tomato at farm level but not on marketing system. Karim *et al.* (2009) studied on the profitability of BARI hybrid summer tomato cultivation at Jashore district. Hajong *et al.* (2018) stated that there had no marketing problem at farm level due to high demand of summer tomato. However, marketing system of all intermediaries need to study. Keeping all these factors in consideration the present study was undertaken to provide information through fulfillment of the following objectives:

(i) To examine the nature of marketing system and marketing channel of summer tomato.
(ii) To estimate the marketing cost, margin and marketing efficiency at different levels of intermediaries.
(iii) To identify the marketing problems and their solution.

Methodology

Sample size and sampling technique

The present study was conducted at three upazilla namely Bagherpara, Jashore sadar and Jhikorgacha upazilla of Jashore district. The study area was purposively selected considering the higher concentration of summer tomato cultivation during summer season. The study was carried out by using formal survey method. A total of 30 farmers out of which 10 from each upazila was randomly selected for interview. For the marketing information, 60 traders selected of which 20 from each upazila from different market of Jashore district. Necessary information regarding this study was collected based on marketing costs, price, marketing margin etc.

Method of data collection

Data were collected through pre-designed interview schedule during the period of July-October, 2019. Field investigators under the direct supervision of the researcher collected field level data using pre-tested interview schedule. Although some of the selected farmers continued to harvest the crop up to November but marketing information were taken up to last week of October considering summer period. Marketing data were collected from different market in the summer season when the products available at the market for collect information and observe properly.

Analytical techniques

The marketing margins and net margins of intermediaries were estimated by using the following formula:

i) Gross marketing margin (Tk ton^{-1}) = Sale price (Tk ton^{-1}) - purchase price (Tk ton^{-1})

ii) Net margin (Tk ton^{-1}) = Gross marketing margin (Tk ton^{-1}) - marketing cost (Tk ton^{-1})

In the present study, the efficiency of marketing was investigated by examining price spread, producers share and marketing efficiency. The methods for studying these estimates are given in the following:

Price spread = Price paid by the consumers – Price received by the producer

Producer share (%) = (Price received by the producer/ Price paid by the consumers) *100

In the present study, marketing efficiency were estimated,

ME= [FP/(MC+MM)]

Where,

ME = Marketing efficiency
FP = Net price received by farmers
MC = Total marketing cost
MM = Total net marketing margin of intermediaries.

Results and Discussion

The results were presented and discussed below regarding marketing related information of summer tomato in the study areas specifically.

Marketing channel

Marketing channel is the alternative root of products flow from producers to consumers. Market chain analysis aims to provide information on profitability for the various agents along the market chain. Market value chain describes the range of activities, which are required to bring a product or services from conception, different phases of production, delivery to final consumers and final disposal after use (Kaplinsky and Morris, 2000). The producer and market actors benefited monetarily in the production and marketing system of vegetables are well-managed (Rayhan *et al.*, 2019). In the tomato, marketing channel there involved different market actors, such as farmer, faria, bepari, wholesaler, commission agent, retailer and finally consumer. There were seven marketing channel found in the tomato marketing. Among them channel II was the largest marketing channel.

The following major marketing channels were found in the study areas:

Channel I: Farmer > Faria > Bepari > Wholesaler > Retailer(urban) > Consumer
Channel II: Farmer > Faria > Bepari > Commission agents > Retailer(urban) > Consumer
Channel III: Farmer > Bepari >Wholesaler > Retailer(urban) > Consumer
Channel IV: Farmer > Faria > Bepari> Retailer(urban) > Consumer
Channel V: Farmer > Bepari > Retailer(urban) > Consumer
Channel VI: Farmer > Retailer(rural) > Consumer
Channel VII: Farmer > Consumer

Marketing cost of different actors involved in the summer tomato marketing

The cost of marketing represents the cost of performing the various marketing functions and operations by various agencies involved in the marketing process. In other words, the costs items, which were needed to move the product from producers to consumers, were ordinarily known as marketing cost. Tomato value chain actors are input suppliers, tomato producers, collectors, small traders, big traders, processors and consumers (Sarma and Ali, 2019).

Marketing cost of tomato farmer

Farmer was the first actor involved in the marketing channel. However, he was not the intermediaries. He sold his product at the market and involved in the total system. In many cases farmer directly did not sold his product to the consumer. He sold grossly his product to the traders at local market. Sometimes traders bought tomato from farmer's field by his own cost as summer tomato was high value crops. Transportation, market toll, sweeper and personal cost were the main cost involved in the marketing of a farmer. Total marketing cost of farmer was 430.00 Tk ton^{-1}. Among the cost item, transportation cost is the highest and its 69.77 percent (Table 1).

Table 1. Marketing cost of farmer.

Marketing cost	Unit price (Tk ton^{-1})	Percentage of cost
Transportation	300.00	69.77
Market toll	40.00	9.30
Sweeper	26.00	6.05
Personal cost	64.00	14.88
Total	430.00	100.00

Source: Field survey, 2019.

Marketing cost of summer tomato by faria

Faria was the first actor involved in the marketing intermediaries directly. They bought the products from farmer fields and sometimes from local market and sold to the paiker (wholesaler). Marketing cost of local traders (Faria) for tomato marketing were transportation, loading and unloading, market toll, possession rent, personal expenses and mobile cost. Total marketing cost of faria was 691.00 Tk ton^{-1} (Table 2). Among the cost item, transportation cost was the highest and its 46.31 percent.

Table 2. Marketing cost of local traders (faria).

Marketing cost	Cost (Tk ton^{-1})	Percentage of cost
Transportation	320.00	46.31
Loading and unloading	130.00	18.81
Market toll	78.00	11.29
Rent	102.00	14.76
Personal expenses	36.00	5.21
Telephone/mobile	25.00	3.62
Total	691.00	100.00

Source: Field survey, 2019.

Marketing cost of Bepari

Bepari was another and important market actor involved in the summer tomato marketing system. Bepari bought the products from local traders and sold it to aratdar and or wholesaler. Marketing cost of bepari for tomato marketing was transportation, loading and unloading, market toll, possession rent, personal expenses, mobile cost, packaging, spoilage and damage, commission, electricity and subscription. Total marketing cost of bepari was 2184.00 Tk ton^{-1} (Table 3). Among the cost item, transportation cost is the highest and its 52.67 percent. Bepari bear transport cost because they transact products from one place to far away another place.

Table 3.Marketing cost of Bepari.

Marketing cost	Cost (Tk ton^{-1})	Percentage of cost
Transportation	1150.00	52.67
Loading and unloading	153.00	7.01
Market toll	89.00	4.08
Rent	142.30	6.52
Personal expenses	134.80	6.17
Telephone/mobile	44.80	2.05
Packaging	175.00	8.01
Spoilage and damage	222.00	10.17
Electricity	3.20	0.15
Subscription	69.40	3.18
Total	2184.00	100.00

Source: Field survey, 2019.

Marketing cost of wholesaler/aratdar

Wholesaler and/or aratdar were the large intermediaries who were act as a medium or linkage of intercity transaction of products. Wholesaler bought the products from local market and sold it to aratdar to big city specially capital city or other city corporation wholesale market. Aratdar especially local aratdar act as a commission agent. They sold their productions by a fixed amount of commission (Tk. 2.00 kg^{-1}) to wholesaler. Far away, wholesaler bought their required products from aratdar over mobile phone with fixed amount of commission. Marketing cost of wholesaler/aratdar were loading and unloading, weight loss, shop rent, donation, salary and wages, mobile cost, personal expenses and commission were the major cost item of the wholesaler. Total marketing cost of wholesaler was 2443.00 Tk ton^{-1} (Table 4). Among the cost item commission was the highest and its 81.88 percent.

Table 4. Marketing cost of wholesaler/aratdar.

Marketing cost item	Cost (Tk ton^{-1})	Percent of cost
Loading unloading	135.00	5.53
Weight loss	80.00	3.28
Shop rent	67.50	2.76
Donation	5.00	0.20
Salary and wages	126.20	5.17
Mobile cost	6.50	0.27
Personal expenses	22.50	0.92
Commission	2000.00	81.88
Total cost	2443.00	100.00

Source: Field survey, 2019.

Marketing cost of retailer

Retailer was the last market intermediaries who were directly sold the products to the consumer. Retailer was the last intermediaries involved at the marketing system of summer tomato. Consumers buy directly from this retailer. Therefore, its price was the highest price of the product. Transportation, loading and unloading, electricity, possession rent, personal expenses, telephone/mobile cost, shopping bag, spoilage and damage were the main cost of a retailer. Total marketing costs of urban and rural retailer were 1857.00 and 1074.00 Tk ton^{-1}, respectively. Marketing cost among rural and urban retailer were vary in different item and cases because its placement and other function. Among the cost item, transportation cost was the highest for the urban retailer as it was 34.20 percent whereas rural retailer transportation cost thirteen percent. Among the cost item spoilage and damage was the highest for the rural retailer as it was 33.54 and 32.32 percent for urban retailer.

Table 5. Marketing cost of Retailer.

Marketing cost	Rural retailer		Urban retailer	
	Cost (Tk ton^{-1})	% of cost	Cost (Tk ton^{-1})	% of cost
Transportation	140.00	13.04	635.00	34.20
Loading and unloading	140.00	13.04	160.00	8.62
Electricity	6.50	0.61	8.80	0.47
Rent	84.00	7.82	100.00	5.39
Personal expenses	23.20	2.16	32.50	1.75
Telephone/mobile	5.80	0.54	6.00	0.32
Shopping bag	314.00	29.25	314.40	16.93
Spoilage and damage	360.00	33.54	600.00	32.32
Total	1074.00	100.00	1857.00	100.00

Source: Field survey, 2019.

Marketing margin of summer tomato

Marketing margin is the difference between the price paid by the consumer and price received by the producers. Marketing margin has two components- marketing cost and net margin or profit. In broad sense, marketing margin is the difference between what the consumer pays and what does the producer receive. It is the price of all utility adding activities and functions that are performed by the intermediaries. Net margin or profit of the faria, bepari, wholesaler and retailer were 1309.00, 817.00, 557.00 and 2143.00 Tk ton^{-1}, respectively (Table 6). Net margin was the highest for the retailer (Rahman and Neena, 2018), but retailer total transaction in daily basis was fewer amounts than other intermediaries. Total marketing cost of all intermediaries was 7604.00 Tk ton^{-1} and net margin was 4826.00 Tk ton^{-1}. Marketing efficiency was 2.25 that means farmer get good price. Price spread was 8000.00 Tk ton^{-1} that means the difference between consumer price paid for the summer tomato and the producer received the price to sale the summer tomato. It was huge gap between price paid by consumer and producer received from seller. In another case, producer share was 78 percent that means 78 percent of the price received by the producer, which indicate its profitable crops.

Table 6. Marketing margin (Tk ton^{-1}).

Types of intermediaries	Sales price	Purchase price	Marketing margin	Marketing cost	Net margin
Farmer	28000.00	-	-	430.00	-
Faria	30000.00	28000.00	2000.00	691.00	1309.00
Bepari	33000.00	30000.00	3000.00	2183.50	816.50
Wholesaler	36000.00	33000.00	3000.00	2442.70	557.30
Retailer	40000.00	36000.00	4000.00	1856.70	2143.30
Total				7603.90	4826.10
Marketing efficiency					2.25
Price spread (Tk ton^{-1})					8000.00
Producer share (%)					78%

Source: Field survey, 2019.

Constraints on summer tomato marketing

However, there were no marketing problem at farm level though there was some problem faced by the traders. Summer tomato had high demand and high value crops in summer season among the consumers. Due to summer season crops it was perishable crops and traders faced that it easily perished and cracking when transport from one place to another. Spoilage and damage of products was the top most marketing problem. Summer tomato transport on plastic crate due to its perishable nature. So that it effect on transport cost and packaging cost, which was another marketing problem. However, it is noted that packaging in plastic crate reduced the mechanical damage by seventy nine percent over the jute sack packaging (Rahman *et al*., 2019). At earlier harvest time, its price remains high and decrease at later, but it had no price instability. Summer tomato did not required storage because its high demands.

Conclusion

The study was conducted for the assessment of marketing system of summer tomato in Jashore district which was most concentrated area of summer tomato. Farmer, faria, bepari, wholesaler, commission agents and retailer were involved in marketing of summer tomato. There were seven marketing channel exist in the summer tomato marketing. It had highly demandable crop that it can used as a vegetable at the summer and rainy season. Perishability, spoilage and damage, transportation and packaging were the main marketing problem of summer tomato. Though there had some marketing problem, summer tomato was a profitable crop among the traders due to its high demand to consumers at summer and rainy season.

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