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Factors Affecting Banana Agricultural Value Chain in Bangladesh

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Abstract

Agriculture accounts for 17% of total Bangladeshi GDP. Bananas represent 20% of all fruits crops produced in Bangladesh, with a domestic market share of 36%. This study analyzes banana production, marketing, distribution, and value chain functions and relationships. The study focused on the major banana producing area of Bangladesh. Our results show that the major problems are lack of good agricultural practices, which affects overall quality, distribution, and marketing of this important fruit.

Keywords: banana, distribution, marketing, production, quality, value chain

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Introduction

Agriculture accounts for 17% of total Bangladeshi GDP. While the country produces over 118 different fruit crops, bananas are the only fruit crop available year round and have the highest per capita consumption (Bangladesh Bureau Statistics and Information, 2014). This study investigates the factors affecting banana agricultural value chain in Bangladesh, from producers to end users (Fonsah et al., 2007a).

Material and Methods

Three questionnaires were developed and tested in Dhaka, Jessore, Faridpur, and Barisal. Production questionnaires were designed to determine growers' present agricultural practices, production trends, and willingness to adopt new technology (Fonsah and Chidebelu, 2012). The second questionnaire, aimed at intermediaries, asked about market- and distribution-level channels, wholesaler price determination, and wholesalers' willingness to pay (WTP) premium prices for high-quality bananas (Fonsah and Chidebelu, 2012; Fonsah et al., 2007b). The third survey was for customers or end users and asked about consumer WTP for quality bananas, preferences for different banana cultivars/varieties, and preferences for various quality attributes (Fonsah, 2002; Fonsah et al., 2007c).

Data Collection

A total of 177 survey questionnaires were distributed among the three groups of key value chain (VC) participants, of which 130 were usable. Of 41 production survey questionnaires distributed to farmers in Jessore, Jdeniada, Harinakunda, Jhinaidah Sadar, Sailkupa, Kinshargoni, Narayangoni, Shyllet, Barisal, and Faridpur, 26 were usable. Of 33 questionnaires distributed to intermediaries, wholesalers, and retailers in Khamarmundia, Kaligonji, Jhedaideh, Shinhutola Bazar, Hakimpur, Chaugacha, Jessore, and Dhaka, 25 were usable. Of 103 surveys sent to consumers in Dhaka, Barisal, and Faridpur, 79 were usable.

Data Analysis

The data collected from the three different segments of the Bangladesh banana VC were entered into an Excel spreadsheet. Basic statistics were used to analyze the data.

Results

Production Survey Results and Analysis

Growers were asked to define their professions. The majority (77%) were strictly farmers, while 19% were farmers and retailers and 3.8% of them were farmers and wholesalers (Figure 1).

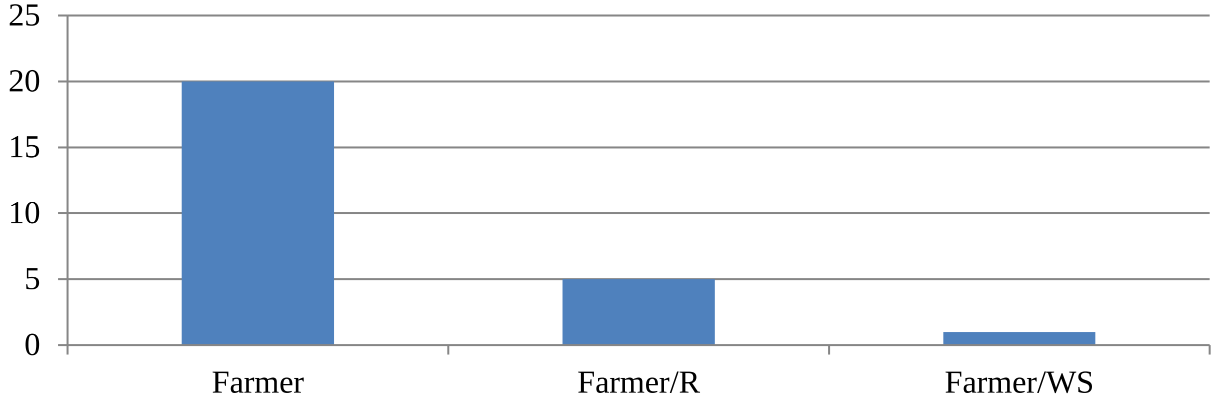

Figure 1. Growers' Professions

Respondents were asked about the size of their farms. Most farms (30.8%) were 26–50 decimals,[1] while 19.2% were 51–75 and 23.1% were 1 acre. Interestingly, a sizable minority (22.3%) of farms were over 1 acre in size (up to 13 acres). The number of new farmers and expanded farm size observed in the production farmer's survey was a clear indication that farmers were gradually switching from jute plant to banana cultivation. The 3.8% of respondents with farms smaller than 25 decimals were likely new entrants (Figure 2).

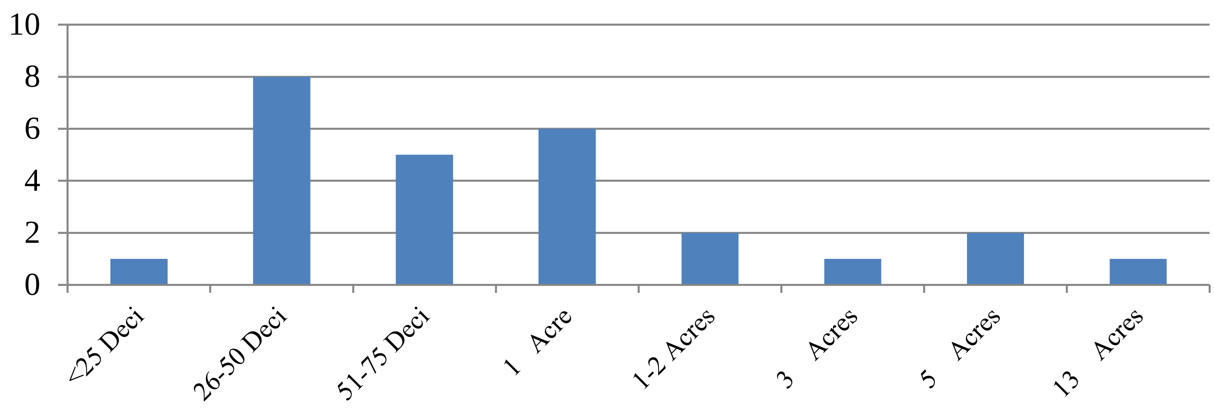

Figure 2. Farm Size

Respondents were asked about what other crops they cultivated in addition to bananas. Common crops were rice (26.4%) and jute plants (25%). Fewer respondents grew mangos (13.9%), mixed vegetables (11.1%), potatoes (11.1%), and sugar cane (4.2%) (Figure 3).

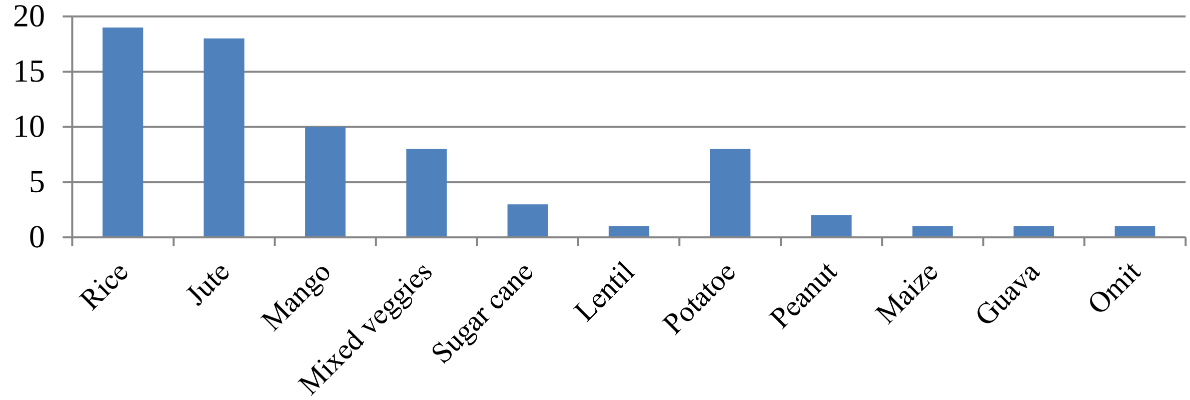

Figure 3. Additional Crops Cultivated

The most popular variety of banana cultivated was Sabri-kola (30.8%), with 21.2% cultivating Rongin Sagor-kola and 15.4% cultivating Champa-kola. Additionally, 23.1% cultivated green or cooking bananas. Less-cultivated varieties were Thota-kola (3.8%) and Bangla-kola, Bitchi-kola, and Baishara-kola (1.9% each) (Figure 4).

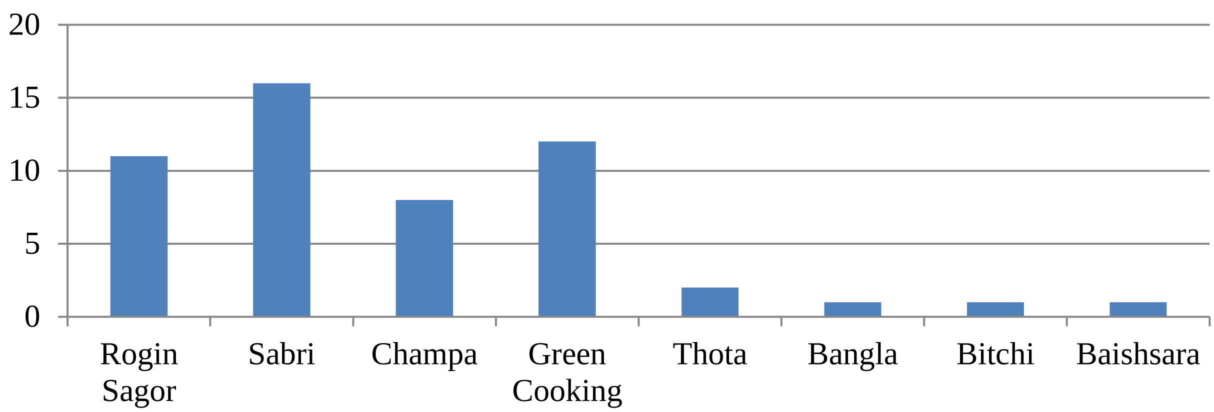

Figure 4. Variety of Bananas Cultivated

One important question was aimed at determining what the growers got for their bananas compared to what consumers were willing to pay, which helped us to determine profitability margin. Among growers, 38.5% reported receiving 151–200 Bangladeshi taka (BDT)/bunch,[2] 43.3% received 201–225 BDT/bunch, and 19.2% received 226–250 BDT/bunch. The average price among all respondents was 193–225 BDT/bunch (Figure 5).

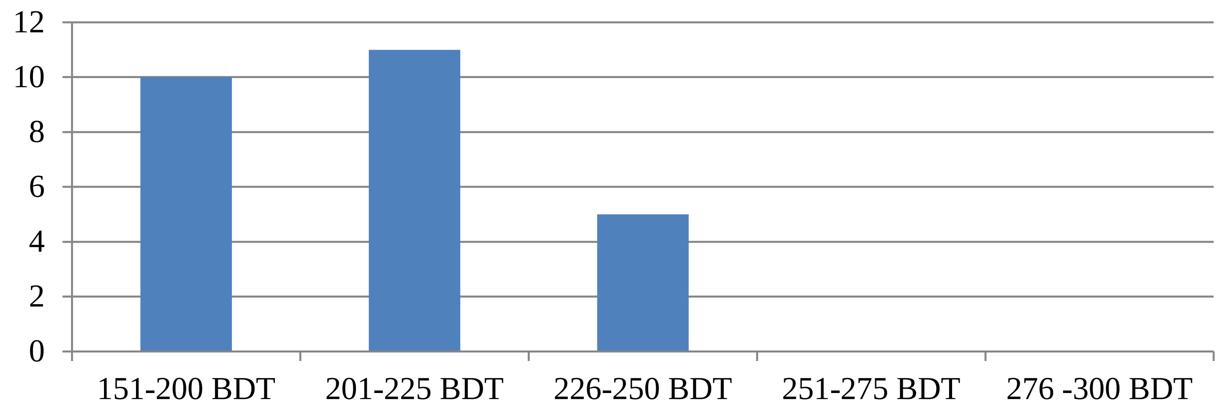

Figure 5. Average Price Received by Farmers

Most farmers (63%) were 31–40 years of age; 11% were younger (20–30 years) and 11% were middle-aged (41–50) (Figure 6). This is could partially explain why the majority of farmers (80.80%) were willing to adopt new technologies. Empirically, we observed that growers were eager to learn new agricultural practices during our visits, asking several pertinent questions about diseases and agriculture generally.

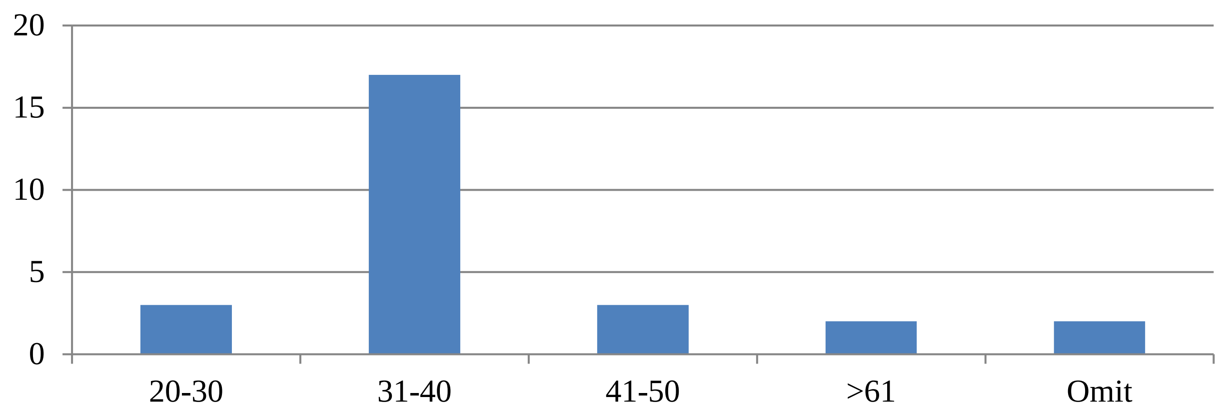

Figure 6. Growers' Ages

Intermediary Survey Results

Among intermediaries, 60% were retailers and 24% were wholesalers. Additionally, 12% were both wholesalers and retailers, while 4% served in all three links in the banana VC (i.e., famers, wholesalers, and retailers) (Figure 7).

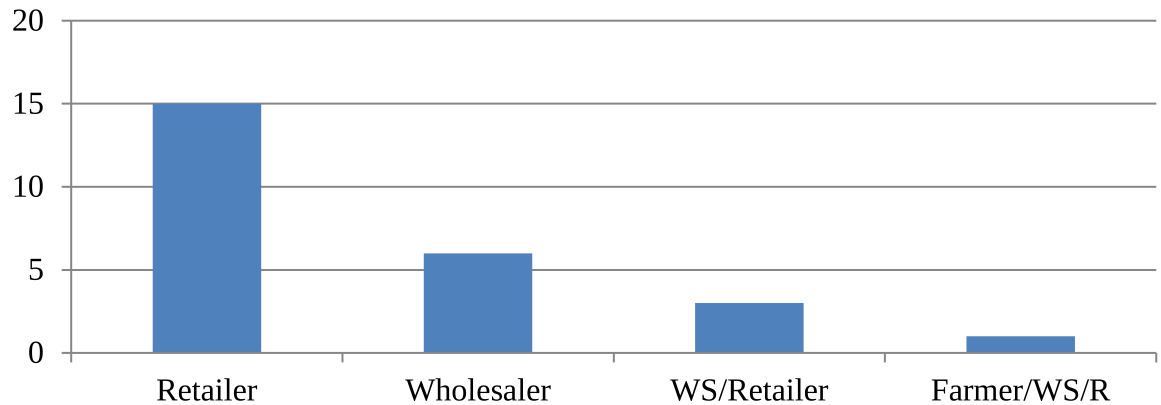

Figure 7. Intermediary Location in the Banana VC

At the farm gate level, there were local, urban, and supermarket wholesalers. For instance, 40% of respondents said their business was located in cities like Dhaka, while 32% reported rural locations and 28% claimed to be supermarket wholesalers (Figure 8).

Figure 8. Business Location

An important question was asked to help us determine whether growers still had room to increase profitability. Fortunately, 76% of respondents were willing to pay between 200 and 400 BDT/bunch for good-quality bananas and only 12% indicated they would pay less than 200 BDT/bunch.

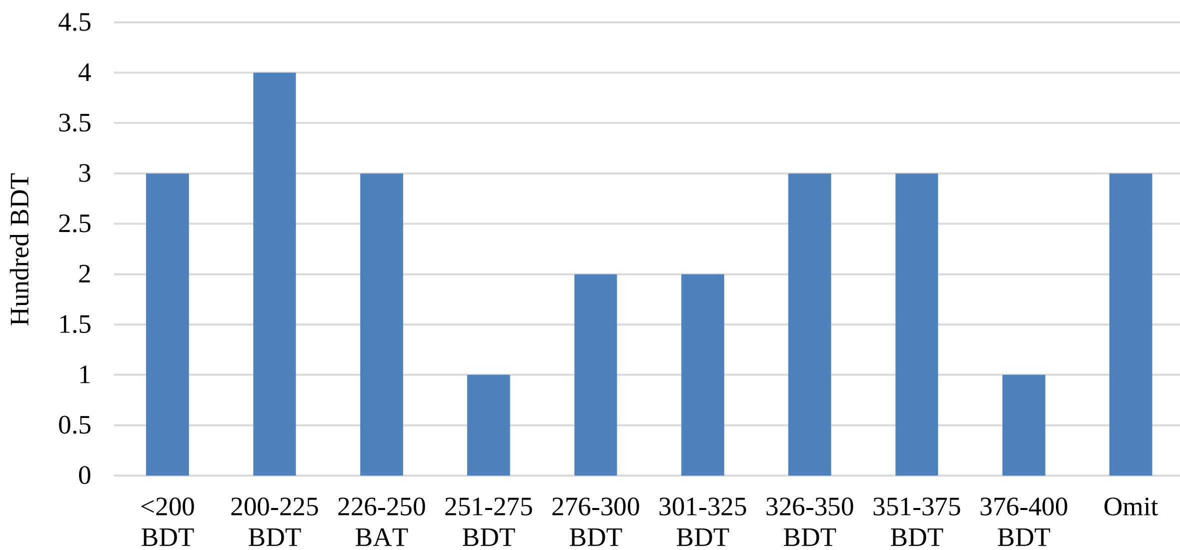

Figure 9. Intermediary WTP for Good-Quality Bunch of Any Variety of Bananas

Although price preferences were mixed among the intermediaries, 16% indicated they would pay 200–225 BDT/bunch, while 12% indicated they would pay 326–350 BDT/bunch and 12% indicated WTP of 351–375 BDT/bunch. A sizable minority (36%) indicated that they would be willing to pay 326–400 BDT/bunch for any variety of good quality bananas. This is a clear indication that adopting new technology and good agricultural practices would be beneficial to growers in terms of increasing income in addition to benefitting intermediaries and consumers looking for high-quality fruit (Figure 9).

Consumer Survey Results

Consumer behaviors and preferences in the different distribution districts—particularly urban versus rural—were exceptionally diverse. Faridpur and Barisal are both fairly rural areas while Dhaka is urban. For instance, 38% of Dhaka consumers preferred Sabri bananas compared to 0% in Faridpur and 13% in Barisal, while 30.4% of Dhaka consumers preferred the Champa variety compared to 19% in Barisal and 15% in Faridpur.

Additionally, 85% of Faridpur consumers preferred the Shagor variety compared to 34.8% in Barisal and 13% in Dhaka. Other significant differences were in preferences for green/cooking bananas, which were preferred by 21.7% of Barisal respondents compared to 0% in Faridpur and 9% in Dhaka. Finally, 12% of the respondents in Dhaka preferred the Bangla variety compared to 0% in Faridpur and 0% in Barisal. (Figure 11).

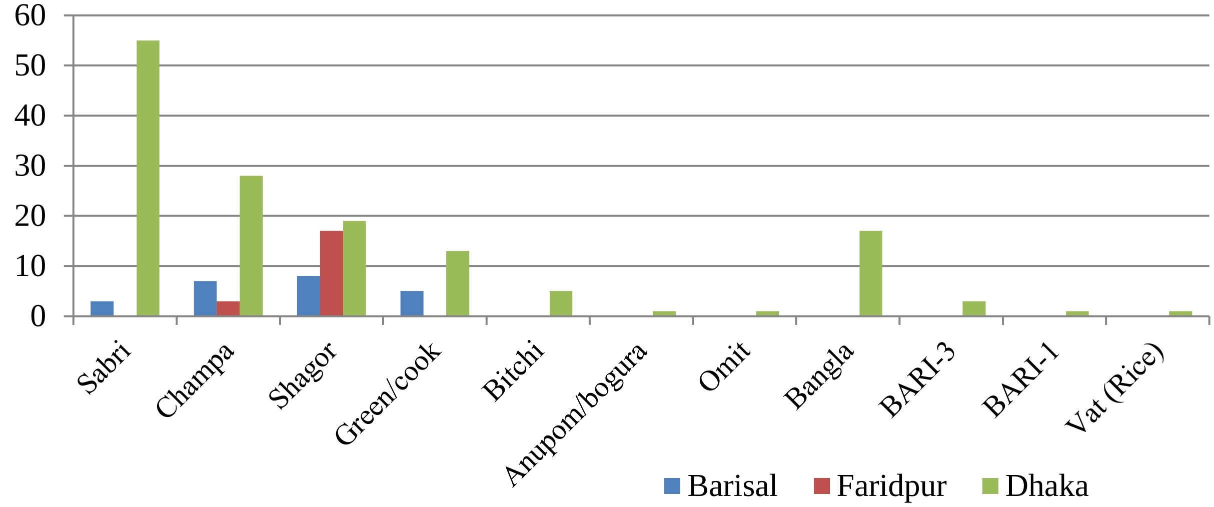

Figure 11. Preferred Varieties of Locally Grown Bananas

Taste and flavor stood out in the three districts as preferred banana attributes. Dhaka respondents ranked high in all the preference categories such as sweetness, multiple uses, availability, price, cooking, and overall cosmetic appearance. Faridpur district ranked second, followed by Barisal (Figure 12).

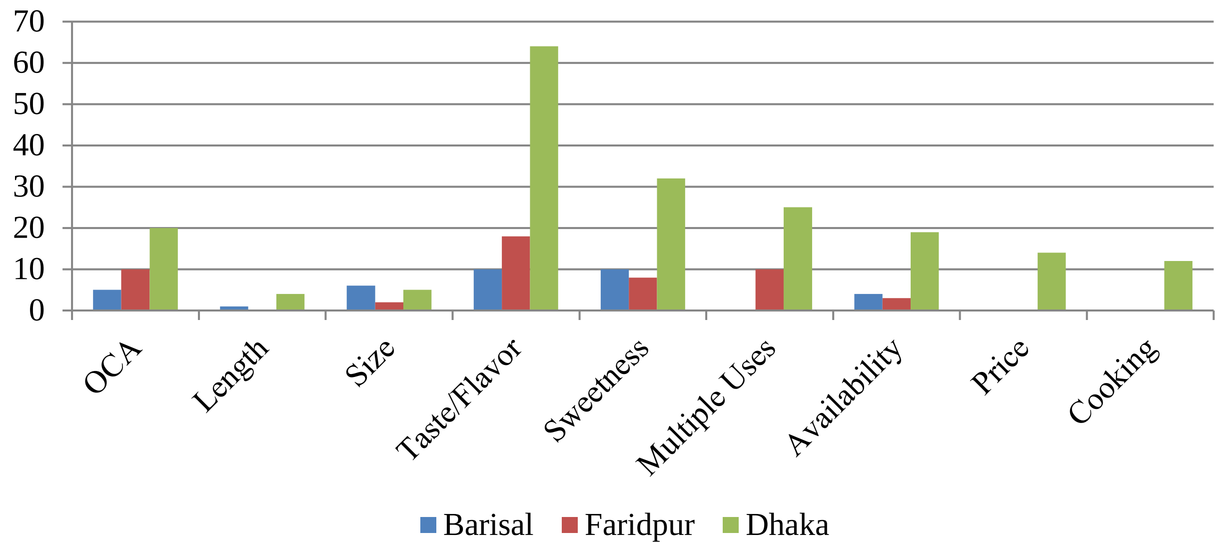

Figure 12. Preferred Banana Attributes

We also asked about consumers' WTP for bananas. Dhaka ranked highest in all categories, followed by Faridpur and Barisal. In Faridpur, the respondents were willing to pay (WTP) 11–25 BDT/kg of bananas, while respondents in Barisal stretched the range from 11–30 BDT/kg (Figure 13).

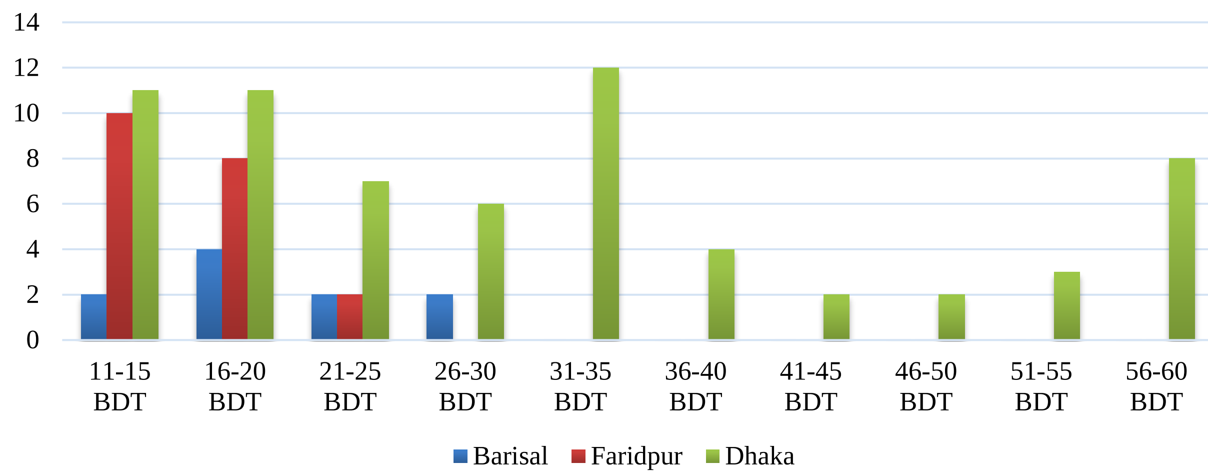

Figure 13. Consumer WTP for 1 kg of Bananas

Conclusion

Bangladesh has the potential to become a producer, marketer, and exporter of premium quality bananas. Market demand is growing domestically, and per capita consumption is more than 4.3 kg/year. With a population growth rate of 1.6%, demand for bananas will continue to increase. The problems plaguing the industry are pest and disease control and a lack of modern agricultural practices in producing quality bananas for both local and export markets. Survey results across the complete banana value chain indicate a willingness to adopt new technology and WTP higher prices for any variety of high-quality bananas. A Total Quality Management (TQM) strategy—which is an integrated banana management approach—is recommended to revamp the whole industry.

Acknowledgement

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Notes

[1]A decimal (or decimel) = 1/100 acre (40.46 m²). One (1) decimal in Bihar = 435 sq[2] (Wikipedia, 2016).

[2]Bangladeshi Taka (BDT): 1BDT = US $0.013 (September 27, 2016)

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