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Editor's Note

Fresh horticultural crops especially fruits and vegetables contain high water contents and are generally more perishable than any other crops. Technically, these are biologically living entities and continue normal life processes e.g. respiration and their other physiological and biochemical processes, even after harvest. However, once detached from parent plants, the loss in water and nutrients is not replenished, and the internal reserves of fruits (water, carbohydrates) are used to sustain biological activities. These processes are largely influenced by the environmental conditions (temperature, relative humidity, gaseous atmosphere) in which they are kept after harvest, and the postharvest biological condition of fruits and vegetables is directly proportional to the rate of these processes. Hence, to maintain quality, improve shelf life and extend marketing period of fruits and vegetables, the control of environmental conditions during storage and transportation is of essential. Preservation of perishable horticultural crops is a matter of great importance and the losses due to the lack of proper storage facilities are often very high.

Refrigeration has been the principal known method of successful storage of fresh fruits and vegetables to retain their freshness and flavor. Cold storage is meant to preserve the perishable commodities of food items for a longer period with retention of the original color, flavor and taste. It is used for high value items or when prices crash down due to bumper crop or for such items which are grown during the season but there is a demand round the year or for storing the commodities during transition period in the supply chain. Refrigerated storage which includes cold storage and frozen food storage are the best known method of preservation of food to retain its value.

Preservation of food by proper storage assumes great importance in Bangladesh. Several kinds of fruits and vegetables are cultivated seasonally depending on rainfall and other climatic conditions. These have to be preserved both at producing and assembly centers as well as consuming centers, and by employing correct storage practices, then it is possible to store them for a range of periods depending on the nature of the produces.

Techno Economic Feasibility Study on Small Scale Cold Storage and Cold Chain Management System for Fruits and Vegetables

Dr. Sreekanta Sheel¹

1. Introduction

Fresh fruits and vegetables contain high water contents and are generally more perishable than other crops. So, preservation of perishable food is a matter of great importance in Bangladesh.

2. Aim of the study

The techno-economic feasibility study aimed at testing the feasibility of a small scale multipurpose short-term/transit cold storage (MPCS) with marketing facilities maintaining cold chain management up to the exporters' end at the airport and superstore retailers' shop at city level.

3. Existing small-scale cold storage system

3.1 Traditional small scale cold storages

Small scale cold storages are available in the country is of 20 MT covering the floor space area of 400 sq-ft with the height of 16 ft. Fruits and vegetables with compatible groups (in terms of temperature and humidity) are stored at the amount up to 15 MT. Establishment cost of such cold storage may be of BDT 35 lac and the power consumption is 12 KW per hour.

Although the temperature control in such type of cold storage is possible in the wide ranges from freezing to ambient condition and with this facility, all types of horticultural produce may be stored well, but the overhead cost including power consumption is comparatively much higher.

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3.2 Locally available mini cold storage model

A model is available to Basic Engineering Works, Dhaka Uddyan, Dhaka which also uses a room air conditioner having capacity of 2 ton. In this model, expansion valve is modified to provide temperature of 12°C at the lowest level and a humidifier is included to get the expected humidity. A large group of indigenous fruits and vegetables are compatible with the combination of temperature and humidity the model provides.

4. Techno-economic feasibility study on establishing small scale multipurpose cold storage and cold chain management system using CoolBot technology

The key features of the Techno-economic feasibility study on establishment of the small scale cold chain management are as follows:

4.1 Name of the project

Establishing small scale multipurpose cold storage and cold chain management system using CoolBot technology.

4.2 Location of the project

The project is proposed to be located at the major fruit and vegetable growing upazilas of the country. The land area for the project will be situated adjacent to highway and at or closure to the assembly market for fruits and vegetables. All infrastructural facilities like power, water and commercial facilities should be available at the proposed project site.

4.3 Brief description of the project

The proposed project envisages establishment of a small scale multipurpose short-term/transit cold storage (MPCS) with marketing facilities maintaining cold chain management up to the exporters' end at the airport and superstore retailers' shop. The horticultural produce is assumed to be stored in the MPCS up to maximum 3 days. The total production capacity of the plant is 2850 MT fruits and vegetables per year at 100% capacity utilization with 300 working days per year. The project will also produce 48 MT of compost per year. The MPCS comprises i) complete cold chain (CCC) management of 1800 MT fruits and vegetables per year and ii) supply chain management of 1050 MT fruits and vegetables maintaining pre-cooling and using crates packaging (PCP) as transport package only. The MPCS will comprise two CoolBot cold storages each of having capacity of 9 MT.

4.4 Market feasibility

There is huge demand of fresh and superior quality fruits and vegetables at the levels of exporters, domestic superstores and agro-processing enterprises. With these prevailing marketing opportunities, the project will sell its

whole amount to these sectors maintaining proper cold chain management.

4.5 Sources of raw materials

All the quality horticultural crops may be produced through contract farming/group farming following improved and safe production practices. The project shall not purchase any raw materials from abroad. A considerable amount of horticultural crops will be marketed through purchasing the commodities directly from the farmers paying them better price, as a result the growers will find their market as well as more profit and hence, they will be encouraged to grow more crops maintaining quality and safety.

4.6 Machinery and equipments

The project will be run by the machinery available in the country. After comprehensive scrutiny and in-depth field survey and as per the best and suitable price offer, the price of the machinery stands at BDT 44.5 lac. The machinery in detailed is shown below:

Machinery	Requirement of power (KW/hr)	Total price BDT in '000'
CoolBot cold storage machinery, 2 Nos.	7	2000
Hydro cooler, capacity 1 MT/hr, 1 No.	10	650
Pack house machinery/equipment (1 set)	1	500
Lab equipment (1 set)	-	100
Diesel generator, 30KVA, 1 No.	-	500
Deep tube well (DTW)	2	500
Miscellaneous	1	200
Total	21	4450

CoolBot technology for small scale cold rooms:

A small-scale option is to use a modified room air conditioner, a method originally developed by Boyett and Rohrbach in 1993. The control system of the unit is modified to allow it to produce low air temperatures without building up ice on the evaporator coil. The cost of installation of a CoolBot technology for a 15ft W x 12ft B x 10.5ft H small scale cold rooms having capacity of 9 MT fruits/vegetables is around BDT 10.00 lac only. The CoolBot technology utilizes a 1.5 ton capacity air conditioning unit to create a cold room capable of around 2°C temperature.

In the system, the ice restricts airflow and stops cooling. Recently, a company has developed an easily installed controller that prevents ice build-up but does not require modifying the control system of the air conditioner (Cool-Bot, Store It Cold, LLC, <http://storeitcold.com>). It was observed that, the room air conditioner and Cool-Bot control system costs about 90% less than the commercial refrigeration system. The control system is designed so that any moisture condensed on the refrigeration coils is returned to the cold room air and the system will like cause less product moisture loss than the commercial refrigeration system. However, this type of cold storage technology has been started to work in the country (Figure 1).



Figure 1: (Upper) CoolBot cold storage, (lower) CoolBot device connected to indoor unit of a room air cooler
Image Source: USAID Horticulture Project, RARS, BARI, Jessore

4.7 Transport

The project will require reefer van and other transports for carrying raw materials from the farmers’ premises/assembly market to the MPCS and the commodities to the points where the products will be exported and transported to the superstores. The project

will require two reefer vans which will be used only to transport the commodities from MPCS to the places of the exporter and superstores. The project is assumed to be run initially by hiring the vehicles.

4.8 Building and other civil cost

The civil construction of the proposed project includes 3000 sq-ft built area with high quality roofing with adequate civil-structure. The construction includes two cold storage chambers, dispatch dock, pre-cooling room, anteroom, toilet and change room, sorting, grading, washing, weighing and packaging room, waste disposal room, receiving dock, packaging material store room, laboratory, office room and rest house. The total cost of the construction has been estimated at BDT 45.00 lac including electrification, sanitation, drainage etc. The floor plan of the building is shown in Figure 2.

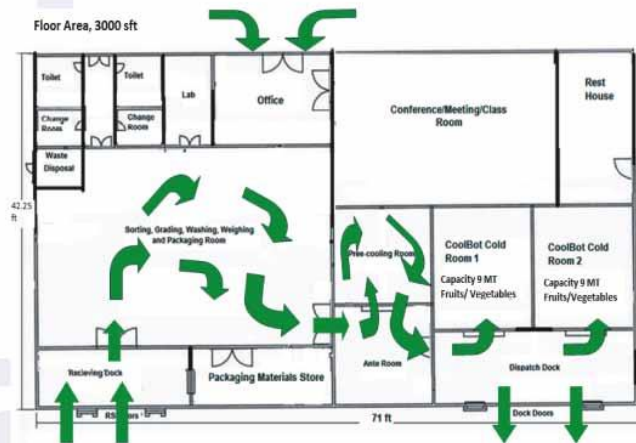


Figure 2: Floor plan of small scale multipurpose short-term/transit cold storage (MPCS)

4.9 Cost of the project

Summary cost of the project is as follows:

Items	Total cost in BDT '000'
Land and land development	1700
Civil & other works	4500
Machinery, equipments & vehicles	4820
Preliminary expenses	1620
Furniture and crates	1400
Contingencies	135
Working capital margin	1189
Total cost of the project	15364

4.10 Earnings forecast

(BDT in '000')

Description	Year-1	Year-2	Year-3	Year-4	Year-5
Capacity level	50%	55%	60%	70%	80%
Annual sales revenue	50354	56235	61359	71515	81755
a) Net sales revenue	50354	56235	61359	71515	81755
b) Cost of goods sold	41212	45618	49402	56748	64159
c) Gross profit (a-b)	9141	10617	11957	14767	17596
d) Administrative and general expenses	2461	2581	2709	2876	3052
e) Distribution and selling (marketing) expenses	2750	2918	3088	3267	3449
f) Operating profit {c-(d+e)}	3930	5118	6160	8624	11095
g) Financial expenses (interest)	-	-	-	-	-
h) Net profit/ (loss) before tax (f-g)	3,930	5,118	6,160	8,624	11,095
i) Income tax (tax holiday)	0	0	0	0	0
j) Net profit after tax	3,930	5,118	6,160	8,624	11,095
o) Cumulative retained earning	3,930	9,049	15,209	23,833	34,928

Ratios :					
Gross profit to sales (%)	18.15	18.88	19.49	20.65	21.52
Operating profit to sales (%)	7.81	9.10	10.04	12.06	13.57
Net profit to sales (%)	7.81	9.10	10.04	12.06	13.57
Return on equity (%)	25.58	33.31	40.09	56.13	72.21
Return on total investment (%)	25.58	33.31	40.09	56.13	72.21

4.11 Other financial and economic features

i. Break Even Point (BEP) percent in capacity (at 70% capacity utilization in the 4 th year):	
a. Break-even capacity (Rated)	27.25%
b. Break-even capacity (Assumed)	39.02%
ii. Pay Back Period (Years)	Two years & one month only.
iii. Internal Rate of Return (IRR)	49.15%
iv. Net Present Value of the Annuity (Tk. in "000")	62,470
v. Employment Generation (No. of Person)	34
vi. Benefit Cost Ratio (BCR)	5.19
viii. Annual Contribution to GDP (At 70% capacity level in the 4 th year) (Tk. in "000")	17558

5. Conclusion and recommendation

Cold Chain Management Activities will earn national income in many aspects. The business will reduce the postharvest loss of fruits and vegetables @ 10% providing national savings of BDT 33.82, 37.20, 40.59, 47.35 and 54.11 lac at the 1st, 2nd, 3rd, 4th and 5th years and beyond respectively. The project on implementation will create new direct job opportunities for 34 peoples including Postharvest and Value Chain Specialist and other categories. The project also provide a large number of workers specially, women who are accustomed with postharvest management may be employed. Development of this cold chain management system will facilitate the agro-processing industry, superstore retail sector and export of fresh fruits and vegetables in the country. Growers of vegetables and fruits will be highly encouraged to grow their crops because they will find out a great user to whom they will sell their quality products. Development of this cold chain management facility will lead to the establishment of food distribution firms and commercial farms throughout the country. The project will train skilled, semi-skilled and unskilled personnel for cold chain operations. Finally, the project will contribute BDT 175.58 lac per year to the national GDP (according to the 4th year operation at 70% capacity utilization).

From the above detail analysis, it seems that the project is technically feasible, economically and commercially rewarding and financially viable. From the market analysis, it was found that there is huge demand gap in both the foreign and domestic market especially at superstore level and hence, the whole produce may easily be consumed. The above feasibility of the project indicates that it is possible to generate sufficient revenue from its operation to pay back debt obligation and annual operational expenses. Therefore, the project is expected to be sustainable and may also be considered suitable for bank financing.

Hortex news in brief



99th Governing Body meeting of Hortex Foundation held on January 27, 2015 Chaired by Mr. Md. Eunusur Rahman

During the reporting period January to December 2015, four Governing Body meetings of Hortex Foundation comprising 99th was held at Hortex conference room on January 27, 2015 under the Chairmanship of Mr. Md. Eunusur Rahman, Secretary, Ministry of Agriculture, Government of the People's Republic of Bangladesh and Chairman, Hortex Foundation. The meeting discussed on various administrative issues and policy directives were given in the meeting.



100th Governing Body meeting of Hortex Foundation held on May 14, 2015 Chaired by Mr. Shyamal Kanti Ghosh

Besides, 100th, 101st and 102nd Governing Body meeting of Hortex Foundation were held at Hortex conference room on May 14, 2015, July 08, 2015 and November 19, 2015 respectively under the Chairmanship of Mr. Shyamal Kanti Ghosh, Secretary, Ministry of Agriculture, Government of the People's Republic of Bangladesh and Chairman, Hortex Foundation. Important policy directives and administrative decisions were taken in those meetings.

9th AGM of Hortex Foundation

The 9th Annual General Meeting (AGM) of Hortex Foundation was held on March 09, 2015 at its conference room under the Chairmanship of Mr. Md. Eunusur Rahman, Secretary, Ministry of Agriculture, Government of the People's Republic of Bangladesh & Chairman, Hortex Foundation. Out of 37 existing Members of the General Body of Hortex Foundation, 28 Members attended the AGM. Besides, officials of Hortex Foundation and one representative from the Hoda Vasi Chowdhury & Co (Audit Firm) also attended the AGM. With the consent of the Chairman of AGM, Dr. Md. Abdul Jalil Bhuyan, Managing Director, Hortex Foundation made presentation on the working paper of AGM and shared highlights of Annual Report of the Governing Body of Hortex Foundation during FY2011-12. Agribusiness activities in general, horticultural export



9th AGM of Hortex Foundation held on March 09, 2015 Chaired by Mr. Md. Eunusur Rahman

related activities in particular performed by Hortex Foundation including financial statements during FY2011-12 were presented and discussed in the AGM. However, some activities undertaken and accomplished by the Foundation through implementation of Supply Chain Development Component (SCDC) of National Agricultural Technology Project (NATP) under the financial assistance of the World Bank, IFAD and GOB also came up for discussion in the AGM.

There were threadbare discussion on overall activities and performance of the Foundation participated by some General Body Members and provided valuable suggestions and guidelines for further improvement.

The AGM approved the new Members of the General Body of Hortex Foundation and the meeting elected Prof. Dr. M A Rahim as the new Director of Governing Body of Hortex Foundation from the Members of General Body.

It was reported in the AGM that for not being complied with the Good Agricultural Practices (GAP) and regulations imposed by the European Union, export of agricultural commodities from Bangladesh are facing serious problems at present and its smooth export, all the stakeholders working supply chain must follow the country or region specific guidelines of importing countries requirements.

Mr. Md. Eunusur Rahman, Secretary, Ministry of Agriculture and Chairman of the AGM, Mr. Shubhashish Bose, Additional Secretary and Vice Chairman, Export Promotion Bureau (EPB) and Director, Governing Body, Hortex Foundation as well as all the Members of the General Body, Hortex Foundation emphasized for financially and technically strengthening of Hortex Foundation for agro-commodity export promotion in Bangladesh.

Market intelligence support services by Hortex

In the reporting period January-December 2015, Hortex Foundation provided 27 market intelligence support services to the new entrepreneurs, producers, exporters and researchers. The Foundation provided cool chain transportation (360 round trips by its five reefer trucks) support services for different business organizations. The notable among the recipients including marketing services are incorporated here:

Service recipients	Specific service provided by Hortex
Mr. Mainul Hasan Suman, Basic Effort, Ctg. (18 Jan. 2015)	He was given technical specifications incl. cost analysis of potato for export as new exporter.
Dr. Asif Reza Anik, Asst. Prof., Dept. of Ag. Econ, BSMRAU and Dr SM Zahedul Islam Chowdhury, Research Fellow, BIDS (Feb.05, 2015)	Provided info for developing their research proposal highlighting effect of natural barrier on competitiveness of Bangladeshi selected agro-commodities.
Mr. Abu Sayeed, Chairman, Unison Homes Ltd and Md. Sazzad Hossain, Partner, Unison Corporation (16Feb2015)	He was provided guidelines for exporting potato to UK as new exporter. Further, they were linked with Dr. S A Quader, Agriconcern and President, BPEA for collecting GAP certified potato for export.
Dr. Shila Wadud, DAM, GOB (08 March 2015)	She was provided report on agricultural market extension services in Bangladesh.
Mr. Sandip Mitra, MS Student, BAU (March 10, 2015)	He was supported by providing data on problems & constraints of vegetables export in Bangladesh, export statistics of fruits and vegetables, export cost analysis, Biman fare and potato related articles/info for completing his MS Thesis at BAU, Mymensingh.
Mr. Abdul Hakim Sheikh, CEO, Greentex (10 March, 2015)	He was linked with international buyer Mr. Mubarak Al Somaily, ANAAM Group, Saudi Arabia for exporting fruits and vegetables from Bangladesh.
Mr. Abu Hena Mastafa Kamal, Head of Channel Sales, Solar Water Pump-Bangladesh, Sunedison Products Singapore Pte. Ltd. (11 March 2015)	He was provided organic farming country report written by Mr. Mitul K. Saha published from FiBL-IFOAM (Germany). Organic farming country report was also provided to Mr. Mahbubur Rahman, General Manager, Supply Chain, Meena Bazar, Dhaka.
Mr. Zakir, Asst. Manager, Shwapno, ACI Logistics Ltd. (19 March, 2015)	He was provided update fruits and vegetables export status for starting export of fruits & vegetables with the technical support of Hortex Foundation.
Dr. Md. Jahangir Hossain, Director, TCRC, BARI (29 March 2015)	For preparing power point presentation on the visit of Russian Delegation during 6-11 April 2015, he was provided export status of potato and three potato related Hortex's article.
Agriconcern Ltd. (21 April 2015)	Provided int'l MRL data on potato for achieving their GAP certification on potato through SGS.
EPB, Dhaka (23 April 2015)	Canned pineapple, aloe vera, baby corn and sesame seeds sample products were given to EPB for displaying in International Fair in Italy-2015.
Abdul Hakim Sheikh, Greentex (13 May 2015)	He was linked with ACI Logistics Ltd. for joint export of fruits and vegetables and establishing group farming production system both for domestic and export market.

Service recipients	Specific service provided by Hortex
Md. Shamsul Hoq, BARI (24 May 2015)	He was provided gerbera and rose flowers export cost analysis on Dubai and Japan market respectively for conducting BARI study on constraints and opportunities of cut flower production and export from Bangladesh.
Ziaul Haque, ASTRA Agro Ind. Ltd., Dhaka (08 July 2015)	He was given article on potato production and marketing incl. export info, statistics for starting their new potato export business with the technical support of Hortex Foundation.
Dr. Madan Gopal Saha, BARI (03 Aug. 2015)	He was provided export performance of fresh fruits and vegetables during FY2004-05 to 2013-14.
Mr. Abul Ashraf, SCDP, DAE (12 Aug 2015)	He was provided contact addresses of potential exporters, processors, entrepreneurs, superstores and area, production & update export status of fresh fruits & vegetables, potato incl. frozen agro-commodities data.
Dr. S P Ghosh, SCDP, DAE (28 Sept. 2015)	He was provided mango flow chart activities following export to Walmart (ASDA shop), UK under FAO-FSP, Hortex and DAE.
Md. Bodiar Rahman, Manager (Operation), EPU Enterprise, Mirpur, Dhaka (14 Oct. 2015)	As a new exporter, he was given export guidelines and linked with M/S. Mysa Corporation developing MAP for export leafy vegetables, beans and bottle gourd to the UK.
Mr. Belal Hossain and Mr. Humayun Kabir, BH High Tech Food & Agro Ind. Pvt. Ltd., Naogaon (18 Oct. 2015)	As a new rice exporter, Mr. Humayun was given export guidelines of aromatic rice and linked with Md. Anwar Hossain Khan, DD (Export), PQW of DAE for fumigation and phytosanitary certificate support for exporting 400 MT aromatic rice to the USA by sea shipment.
Abdul Hakim Sheikh, Greentex & Rajaul Karim Reza, BD-MART (03 Nov. 2015)	They were linked with Alhaj Shahjahan Ali Badsha, MD, Maa Moni Krishi Khamar, Solimpur, Ishurdi, Pabna for collecting quality papaya for export to Italy.
Ms. Nasrin Sultana, Ph.D Fellow, DAM (12 & 29 Nov. 2015)	She was provided mango export, value chain info/data, FAO-FSP experiences of Hortex for conducting her Ph.D research.
Mr. Abu Bakar Siddik and Md. Shafayet Ahmed, BUET student (12 Nov. 2015)	They were provided technical info on exportable fruits and vegetables for conducting their thesis on carbon saving project at BUET.
Mr. Md. Abul Khair Rumi, Dhaka (19 Nov. 2015)	As a new entrepreneur, he was linked with Mr. Darda (Parmeda.com) and ACI Shwapno for developing market linkage on ghee and strawberry marketing in Dhaka City.
Ms. Towhida Rahman, Mr. Tahiatul Jannat, Mr. Imran Khan, University of Liberal Arts, Dhaka (22 Nov. 2015)	As MBA students, they were given fruits & vegetables incl. potato export business process, technical info and export cost analysis of potato for completing their assignment on International Business of Potato to Russia.
Mr. Sankar Chakraborty, Kachua, Bagerhat (24 Nov. 2015)	He was provided info on exportable horticultural crops for his son being studied at Open University for preparing assignment on export & import of fibred crops in Bangladesh.
KM Nazmul Hasan, PRAN-RFL Group (24 Nov. 2015)	He was linked with Chinese buyer Jointt Group exporting sesame & pineapple. He was further linked with Mr. Arif, Dhaka for jointly sesame export to France.
Mr. Murad, Quatra, Japan (26 Nov. 2015)	He was delivered Hortex supported mango export process to Walmart, UK 2015 for importing mango in Japan market from Bangladesh.

Entrepreneurship development by Hortex

In the reporting period January-December 2015, Hortex Foundation guided 76 new entrepreneurs, producers and exporters as entrepreneurship development and given market intelligence support. The notable among the recipients are incorporated here:

Name	Company	Business type	Date services of
Mr. Ishraf Hossain and Shams Rahman	M/S. Pure Farms, Dhaka	Marketing of organic produces	07 Jan2015 03-03-2015
Mr. Jong Ryeul (JR) Kim, Visiting Fellow, (IIT), DU and Mr. Russel J U	Eagles Corporation, Dhaka, Bangladesh	Banana trial export to China	11 Jan2015 22 Feb2015 27 May2015
Mr. Mainul Hasan Suman	Basic Effort, Chittagong	Potato export	18 Jan2015
Mr. Shahadat Hossain	XEBEC Sourcing Ltd, Dhaka	Vegetables export to Malaysia	20 Jan2015
Md. Abdus Sattar, Proprietor	Auto Soft Int'l Trading Company	Potato export to Malaysia	05 Feb2015
Md. Iqbal Hossain, Proprietor	nano, Uttara, Dhaka	Potato export to Malaysia & Singapore	09 Feb2015 01 Dec2015
Mr. Kawsar Chowdhury, Managing Director	C&ic Ltd, Chittagong	Vegetables and flowers export to Singapore, Malaysia, UK & USA	12 Feb2015
Mr. Suman Das	M/S. Das Int'l, Mohakhali, Dhaka	Vegetables export to Malaysia	26 Feb2015
Md. Zakir Hossain, Asst. Manager	Shwapno under ACI Logistics Ltd., Dhaka	Fresh fruits & vegetables export to EU and ME	02 Mar2015 02 June 2015
Mr. Shamsul Islam Khan and Mr. Mamun	Direct Fresh-FASAL, Essential Perishables, Dhaka	Safe vegetables marketing in Dhaka City	05 Mar2015 24 May 2015 03 Aug 2015 03 Sept2015 03 Nov2015
Abdul Hakim Sheikh, CEO & Owner	Greentex, Mirpur, Dhaka	Fruits, vegetables and potato export to Malaysia & Indonesia	10 Mar 2015 25 July 2015
Mr. Moiznul Hasan, Proprietor	Fakirapul, Motijheel, Dhaka	Green chilli and turmeric export to New Zealand	12 Mar2015
Mr. Tanveer Faruq, Proprietor	Supreme Trading and Distribution, Uttara, Dhaka	Vegetables export to UK, Doha and Malaysia	16 Mar2015 26 May 2015

Name	Company	Business type	Date services of
Mr. Mainul and Mr. Zakir Hossain (Leton), Proprietor	Sonali Traders	Banana (Cv. Sagar & Chapa) export to Oman	24 Mar2015
Mr. Md. Nurul Haque, Proprietor	Bonvita, Dhaka	Pineapple & Mango export to Dubai	29 Mar2015
AKM Yousof Harun, BADC	Golden Burn Kingdom Organization, Dhaka	Potato export to Sri Lanka	01 April2015
Mr. Syed Ahmed, GM	ASKCO Ltd., Dhaka	Vegetables export to KSA	12 April2015
Md. Akhtaruzzaman, Proprietor	Radical Agro Industry, Sherpur	Vegetables production and marketing	21 April2015
Kazi Golam Ali Suman,	General Secretary, BAPMA, Dhaka	Safe fruits and vegetables marketing	23 April2015
Mr. Sayedur Rahman, Proprietor	S. Rahman Agro, Dhaka	Mango and sesame export to UK & China	06 May 2015 24 May 2015 26 May 2015
Mahmudul Hasan Mr. Navid Hasan Pavel	Savar, Dhaka	Cold storage and marketing of carrot	24 May 2015
Shamim Rashed Chowdhury, Proprietor	Polygon Resource, Dhaka	Potato export	25 May 2015
Mr. Musa Mahmood, CEO & Proprietor	Saint Martin Agro Processing & Marketing Co.	Potato and bitter gourd export to Dubai	25 May 2015
Arup Chowdhury, Proprietor	DSA Agro Int'l, Chittagong	Potato export to Russia	26 May 2015 23 Aug2015
Engr. Zakir Hossain, Senior Assistant Engineer, LGED	Producer/Supplier, Bandarban	Mango production and marketing	27 May 2015 02 June 2015
Mr. Anayetur Rahman, Executive Director	OKM Group, Chittagong	Banana ripening and marketing	27 May 2015 02 July 2015 23Nov2015 24Nov2015
Md. Mamunur Rashid, CEO	M/S. S Alam & Sons, C&F Agent & Custom Consultant, Chapainawabganj	Mango marketing	01 Jun2015
Jhahedul Alam MD and Mr. Shahedul Alam	Hay Agro (Pvt.) Ltd., Chittagong	Potato export to Malaysia, Singapore & Sri Lanka	10 June 2015 16 June 2015 07 July 2015
Md. Delowar Hossain	S M International, Uttara, Dhaka	Fruits and vegetables export to Malaysia, Singapore and Dubai	18 June 2015

Name	Company	Business type	Date of services	Name	Company	Business type	Date of services
Prof. AFM Ruhul Haque MP, Mr. Ziaul Haque and Abu Sayed Mojumder	ASTRA Agro Industries Ltd., Dhaka.	Frozen food export to EU	01 July 2015 05 July 2015	Mirza Enayet Hossain, MD	Nazifa Corporation Ltd	Maize export to Japan	26 Aug 2015
Mr. Fakhru Islam, Deputy CEO	GETCO Agro Vision Ltd., Dhaka	Sesame and potato export	01 July 2015	Md. Abul Hasan	Anushangik.com, Taltola, Dhaka	Processed vegetables marketing	03 Sept2015
M A Rafiq Sarkar, MD, Asaduzzaman, R. Associate	MATRIX Business Development Ltd., Dhaka	Banana production & marketing	01 July 2015 29 July 2015 30 July 2015	Md. Hasan Sharif, Studied from UK/HR	Taj Enterprise, 72 Dewanhat, Chittagong	Fresh produce local supply and export	03 Sept 2015
Kaiser Uddin Ahammad, Head of Marketing	Krishibid Group, Dhaka	Banana marketing in Dhaka City	01 July 2015	Mahfujul Hasan Sohel	Mango gardens in Meherpur	Mango production and supply	06 Sept2016
Mr. Ershad Ahmed Bhuiyan, AGM	Taiwan Food Processing & Industries Ltd., Dhaka	Export of processed agro-commodities to China, Taiwan, Hong Kong and Vietnam	07 July 2015 28 July 2015 17 Aug2015 15 Sept2015 30 Nov2015	Janathul Ferdous and Hasan Sharif	M/S. Nobin Traders, Shipyard, Khulna	Fruits and vegetables production, marketing	06 Sept2015
Mr. Chandan Debnath, Proprietor	Wingnut Bangladesh, Dhaka	Flowers production and marketing	07 July 2015 03 Nov2015 30 Nov2015	Md. Anishur Rahman, Proprietor	United Foreign Trade, 67 Sukrabad, Dhaka	Vegetables and potato export to Malaysia, Singapore, KSA & UAE	14 Sept2015
Mr. Azam Khan, Manager (Product)	Global Agrovet Ltd., 228 New Elephant Road, Dhaka-1205	Flowers export to Saudi Arabia	09 July 2015	Md. Mustafizur Rahman Khan	ACI Cropex, Dhaka	Vegetables export to Malaysia	16 Sept2015
Mr. AFM Moinul Alam and Khandaker Kamal	Danco & Meghna Group, Dhaka	Flowers export to Saudi Arabia	12 July 2015	Md. Abu Taher (Robi) and Md. Aslam, Proprietor	Rabi Exim Co. and Aman International, Dhaka	Banana export to China and Hong Kong	30 Sept2015 04 Oct 2015 07 Oct 2015 14 Oct2015
Md. Ahsanul Kabir, Kamal Uddin Mirza, Abdul Baten	Ekdala Corporation, Mohakhali DOHS, Dhaka	Vegetables export to Switzerland and UK	22 July 2015	Md. Bodiar Rahman, Manager (Operation)	EPU Enterprise, Mirpur, Dhaka	Leafy vegetables, beans, bottle gourd export to UK using MAP	14 Oct2015
Ms. Kazi Murni, Proprietor	M/S. Rifat Enterprise, Khilgaon, Dhaka	Fruits and vegetables export to Oman	23 July 2015 27 July 2015 28 July 2015	Mr. Belal Hossain Mr. Humayun Kabir	BH High Tech Food & Agro Ind. Pvt. Ltd, Naogaon	400 MT aromatic rice export to USA	18 Oct2015
Md. Apple Mahmud, Saidul Islam Manik and Mosarraf Hossain	Asia Agro & Nursery, College Road, Gangachora, Rangpur	Safe vegetables production and marketing	06 Aug 2015	Mr. Ruhul Amin Ruhany (Azad), Chairman	Bright Group, Dhaka	Banana and pineapple export to Iran	01 Nov2015
Md. Emdadul Kabir Chowdhury (Tulin Chowdhury)	Bakchi Krishi Khamar, Mahiganj, Ward No. 33, Rangpur City Corp., Rangpur	Export quality potato production & marketing	10 Aug2015 12 Aug2015 14 Sept2015	Md. Shahajahan Saju, Managing Partner	Linkup Accessories & Sattapir Enterprise, Savar	Vegetables export to Italy	02 Nov2015
Md. Emdadul Haque	Mirpur, Dhaka	Vegetables export to KSA and Kuwait	12 Aug2015	Md. Rajaul Karim Reza, Owner	BD-MART	Fresh vegetables export to Italy	03 Nov2015
Zahirul Islam, Assistant Manager	PRAN Agribusiness Ltd, Dhaka	Fresh potato export to Sri Lanka	13 Aug 2015	Syed Khurshid Proprietor	AL TANVF, Jeddah, KSA	Flowers export to KSA	12 Nov2015
Dr Md. Rustom Ali, Managing Director	Zishan Corporation, Uttara, Dhaka	Fruits & vegetables export to Singapore	19 Aug 2015	Engr. Abdul Halim Babla and Md. Mahidul Islam, Chairman	North Bengal Research Foundation & Development, Naogaon	Safe food production and marketing	12 Nov2015
				Mr. Abul Khair Rumi, Proprietor	Shirin Food, Pabna	Ghee and Strawberry marketing in Dhaka City	19 Nov2015
				Md. Ashfaque Imam Khan	Master Way Industries Ltd, Dhaka	Rice bran oil fruits & veg. marketing	19 Nov2015

Name	Company	Business type	Date of services
Ms. F.M. Sohely Rahman, Chief Executive	Mohila Samaj Unnayan Sangstha (MSUS), Baliakandi, Rajbari	Integrated farming for fruits, vegetables, spices & fish	19 Nov2015
Mr. Kazi Saiful Islam, Senior Manager-Operations	International Agro & Foods BD Ltd, Panthapath, Dhaka	Fresh veg. export and chicken nuggets, ball, sauces marketing	23 Nov2015
Mr. Mehtaz Ahsan, Proprietor	MAS Trading, Motijheel, Dhaka	Fresh vegetables & potato export to UK and Malaysia	24 Nov2015
Md. Robiul Arefin Khosru, Chairman	Desire Technology Ltd., Mirpur, Dhaka	Mango export to UK	24 Nov2015
Ms. Kohinoor Yeasmin, CEO & SME Specialist	TARANGO, Mirpur, Dhaka	Export of organic vegetables, fruits and spices	25 Nov2015
Md. Nurul Afsar Chandan, Quality Control Manager	Sar & Co Ltd, Chittagong	Frozen vegetables export to EU	26 Nov2015
Mir Hasan Siddique, Proprietor	MHS International, Dhanmondi, Dhaka	Potato export to Malaysia	29 Nov2015
Mr. Jafar Ahmed, Managing Director and M A Bari, Partner	Jafar Int'l and Three CC Company, 27 Nayapaltn (2 nd Floor), Dhaka	Banana, pineapple, lemon, chilli & radish export to Maldives	01 Dec2015 03 Dec2015
Muhammad Safi Kamal, Manager	Clothing Partner Ltd., DOHS, Baridhara, Dhaka	Mango export to EU	08 Dec2015
Md. Atiqur Rahman Shantu, DGM	Vegan Agro Limited, Dhaka	Tomato pulp production & marketing	09 Dec2015 14 Dec2015
Md. Enamul Haque, Proprietor	East Nakhalpara, Dhaka	Contract farming of vegetables	14 Dec2015
A S Mahboobul Anam, Head of Farming & Warehouse	Direct Fresh, Dhaka	Safe fruits and vegetables marketing	15Dec 2015
Engr. Reza Shahnewaz Maruf (Arnab)	Bholahat, Chapainawabganj	Mango production and marketing	30Dec2015

Hortex & HRC, BARI supported summer tomato demonstration at Sherpur sadar upazila

Hortex Foundation and HRC of BARI jointly organized a summer tomato (var. BARI Hybrid Tomato-4 & BARI Hybrid Tomato-8) demonstration at Sherpur sadar upazila and it was executed by Mr. Akhtaruzzaman, Proprietor, Radical Agro Industry, Sherpur to see the efficacy of summer tomato production and income-expenditure

analysis for cultivation commercially in the area. Demonstration was facilitated and guided by Mr. Mitul Kumar Saha, AGM (Marketing), Hortex Foundation and Dr. M A Goffar, SSO, Vegetables Division, HRC, BARI.

As per request of Dr. Md. Abdul Jalil Bhuyan, Managing Director, Hortex Foundation to the Director, HRC, BARI had supplied 420 nos. saplings free of cost to the Hortex Foundation for summer tomato demonstration at Sherpur sadar upazila.

AGM (Marketing), Hortex Foundation visited three times at demo plot on June 13, July 17 & August 07, 2015 and suggested the farmer as per production guidelines of HRC, BARI. During 3rd field visit on Aug. 07, 2015, Hortex Foundation invited DD and UAO, DAE, Sherpur district to see the demo plot. During the visit, Hortex and DAE team observed that poly tunnel was made properly for light control and DD, DAE suggested the farmer to uproot some leaf curl virus infected plants as well as to control insects through application of proper insecticide which act as a vector of the viral diseases in the demonstration plot.



Findings of demonstration are given below:

Particulars	BARI Hybrid Tomato-4	BARI Hybrid Tomato-8
Land area	1.25 decimal	1.25 decimal
No. of planted saplings	210 nos.	210 nos.
Saplings planted time	June 07, 2016	June 07, 2016
Source of saplings	HRC, BARI	HRC, BARI
No. of fruit bearing tree	134 nos.	162 nos.
No. of disease infected trees	76 nos.	48 nos.
Average yield/tree	800gm	1.10kg
Total production	107kg	147kg
Local sale price of per kg tomato	Tk. 40	Tk. 40
Total sale price	Tk. 4280	Tk. 5880
Gross income from both the varieties	Tk. 10160	

Cost analysis of summer tomato production:

Items	Costs (in Tk.)
Land preparation	100
Bamboo for shed preparation	800
Polythene for tunnel preparation	460
Labor (2 nos.) for shed preparation	500
Labor (2 nos.) for saplings sowing	500
Fertilizers application:	
Cow dung	100
Urea (3 kg)	48
TSP (4 kg)	92
MOP (2kg)	30
Intercultural operation (weeding, irrigation, bamboo support for stacking the tree etc.	1000
Pesticides/insecticides	120
Harvesting/marketing cost	300
Total cost	Tk. 4050

Net income: Gross income – total cost
= Tk. 10160 – Tk. 4050 = Tk. 6110

Above analysis revealed that overall performance of BARI Hybrid Tomato-8 var. was better compared to BARI Hybrid Tomato-4 var. due to rate of disease infestation (leaf curl virus), average yield/tree and total sale value. However, the farmers earned Tk. 4050 using only 2.50 decimal of lands. Finally, we recommend that farmers can produce summer tomato commercially in the area for domestic consumers and gaining better price as off-season tomato marketing.



Hortex stall at National Agriculture Technology Fair 2015, Dhaka



Hortex Foundation in collaboration with FAO-Food Safety Programme (FSP) participated in the three day “National Agriculture Technology Fair 2015” organized by Agriculture Information Service (AIS), Ministry of Agriculture, Government of the People’s Republic of Bangladesh from 5-7 April, 2015 at AKM Giasuddin Milky Auditorium premises in Dhaka.

Modern agricultural technologies, like agro seed and machinery, bio-tech, research activities, information and communication technology, agricultural extension work, food safety across the fruits/vegetables value chain, postharvest and marketing technologies were demonstrated by 60 government, semi-government and private sector organizations.



Matia Chowdhury MP, Hon’ble Minister, Ministry of Agriculture, Government of Bangladesh inaugurated the Fair as the Chief Guest while Md. Mokbul Hossain, Chairman, Parliamentary Standing Committee on Ministry of Agriculture was also present as the Special Guest. Mr. Bijoy Bhattacharjee, Additional Secretary (Admn. & Input), Ministry of Agriculture, Govt. of Bangladesh presided over the inaugural session. Before the inaugural programme, the Minister and other dignitaries / delegates

paid a visit to the Hortex Foundation stall supported by FAO-FSP.



Hortex stall displayed a good number of exportable fresh fruits and vegetables, processed products like canned pineapple, aloe vera, baby corn, honey, important technologies combining fruits, vegetables, processed agro-commodities, export quality cartons and flowers of various colours, which received immense interest from the visitors. Hortex Foundation also displayed safe food related banner, festoons, leaflets in the stall and distributed different Information Education Communication (IEC) materials developed by the FAO-FSP on 5 keys for safe vegetables/fruits production from farm to market.

From the Hortex stall, different technical bulletins, booklets, leaflets and export information, including those related to safe food issues were available and distributed to the visitors. Participation in the fair has created a significant impact on the image, uniqueness and endeavours of the Hortex Foundation and FAO-FSP for the development and promotion of agricultural technologies, safe and quality food production to increase market access for promoting agribusiness, value added product development and diversification of agro-commodity for export market. Hortex Foundation received a special prize from the Additional Secretary, MOA, GOB for participating the fair.



Hortex stall at National Fruit Exhibition 2015



Hortex Foundation participated in the three day "National Fruit Exhibition 2015" organized by the Ministry of Agriculture, Government of Bangladesh from June 15-17, 2015 at AKM Giasuddin Milky Auditorium premises in Dhaka.

Matia Chowdhury MP, Hon'ble Minister, Ministry of Agriculture, Government of Bangladesh inaugurated the exhibition as the Chief Guest while different Govt., private agencies and foreign officials were present at the inaugural session. Before the inaugural program, Hon'ble Minister and other dignitaries / delegates paid a visit to the Hortex Foundation stall. Hortex stall displayed a good number of exportable mango, pineapple, jackfruit, banana, guava, lemons among other fresh fruits, value added fruits like canned pineapple, important technologies combining fruits, vegetables,



processed agro-commodities, export quality cartons, which created immense interest of the visitors.

From Hortex stall, different technical bulletins, booklets & leaflets were distributed among the visitors for knowledge sharing to promote agro-commodity export from Bangladesh. Hortex Foundation received a special prize from the Secretary, MOA, GOB for participating the fair.

Hortex stall awarded 2nd position at National Food Fair 2015 participation



Hortex Foundation participated in the three day “National Food Fair-2015 (World Food Day 2015, Theme: Social Protection and Agriculture: Breaking the Cycle of Rural Poverty) jointly organized by the Ministry of Agriculture, Government of Bangladesh and FAO from October 16-18, 2015 at BARC, Farm gate, Dhaka. Matia Chowdhury MP, Hon’ble Minister, Ministry of Agriculture, Government of Bangladesh inaugurated the Fair as the Chief Guest while Mr. AHM Mustafa Kamal, FCA, MP, Hon’ble Minister, Ministry of Planning, Government of Bangladesh as the Special Guest, Md. Mokbul Hossain, Chairman, Parliamentary Standing Committee on Ministry of Agriculture as the Guest of Honor, Mr. Mike Robson, FAO Country Representative in Bangladesh as the Guest of Honor, different Govt., private agencies and foreign officials were present at the inaugural session of the event.

Before the inaugural program, Hon’ble Ministers and other dignitaries / delegates paid a visit to the Hortex Foundation stall. Hortex stall displayed a good number of exportable fresh fruits & vegetables, processed fruits & vegetables like canned pineapple, aloe vera, baby corn, honey, important technologies combining fruits, vegetables, processed agro-commodities, export quality cartons, different colored flowers, which created immense interest of the visitors.

From the Hortex stall, different technical bulletins, booklets, leaflets were distributed among the visitors free of cost for knowledge sharing to promote agro-commodity export

from Bangladesh. Hortex Foundation awarded 2nd prize for participating the fair and raised a good stall for promoting agro-commodity export in Bangladesh.



Export performance of Bangladesh

Bangladesh has crossed 31 billion US\$ export earning achievement in FY2014-15 (EPB 2015). Now, the Bangladesh economy performed very well due to strong support of national agricultural production, high domestic demand, positive export income and foreign remittance. Export sector² plays a remarkable role to national GDP (195 billion US\$) and it contributed 16% on national GDP. In FY2014-15, Bangladesh exported 729 products to 196 destinations across the world, where USA and the European Union are the major export markets while Russia & CIS countries, African region; Latin American countries are still unexplored for exportable produces including fresh and frozen vegetables. Major seven products³ contributed about 92% to our national export earnings. The decision of recently concluded Nairobi Ministerial Conference of the WTO will accelerate Bangladesh’s export products including RMG, Chemical and Agro-processing products. The decision on Preferential Market Access would provide Bangladesh greater access to the global market. As Bangladesh is the third largest vegetables producing country in the world, the country should utilize the scope for exporting fruits and vegetables⁴ to the mainstream export market by fulfilling import country requirement. Bangladesh should enhance its skill and market infrastructures to tap the advantages of the preferential market access.

²Contribution of export to GDP includes many positive impacts on the economic development of Bangladesh

³Woven garments (41.86%), Knitwear (39.82%), Jute & jute goods (2.78%), Home textile (2.58%), Leather & leather goods (2.07%), Frozen food (1.82%), Leather footwear (1.55%)

⁴Bangladesh climate (both tropical and sub-tropical) and soil are suitable for wide range of fruits and vegetables cultivation. High and medium high lands are mostly suitable for vegetables production. Growing seasons are winter, summer and year round of distinct varieties and species. Farming is now blending of indigenous and improved varieties and technologies.

Hortex Foundation supported export in 2015

A. Hortex Foundation supported different horticultural crops export in 2015

State of activities	Achievements	Remarks
Canned pineapple, baby corn, aloevera and pineapple core export to the China, Taiwan, Hong Kong and Vietnam	820 MT (44988 canned products box)	Hortex Foundation is working with 100% export oriented Taiwan Food & Processing Industries Ltd Bhaluka, Mymensingh for promoting export of processed agro-commodities from Bangladesh.
Potato (var. Granola) export to Indonesia (12 container), Malaysia (18 container)	900 MT	Hortex Foundation is working with new exporter Mr. Abdul Hakim Sheikh, Proprietor, Greentex, Mirpur, Dhaka for promoting export of potato in int'l market.
Potato (var. diamant) export to UAE	14 MT	Hortex Foundation is working with the export company Effort Properties Development Ltd, Dhaka for supporting potato export.
Potato export to Brunei Darussalam as per Hortex guidelines & paper cartons	26 MT	Hortex Foundation is working with the export company Access Corporation, Chittagong for support to potato export.
Aromatic rice (Kataribogh) export to USA by sea shipment	20 MT	Hortex is working with B H High Tech Food & Agro Industries Pvt. Ltd., Naogaon for exporting aromatic rice.
Sesame (Black & Brown) export to China	500 MT	Hortex Foundation is working with Md. Sayedur Rahman, S. Rahman International & S. Rahman Agro, Dhanmondi, Dhaka for sesame and mango export. Mr. Rahman was linked with Greentex, Dhaka for supplying sesame for export to China and Desire Technology Ltd., Dhaka for collecting quality mango for export to UK.
Flowers (Gladiolus, Tuberose, Gerbera, Carnation, Rose, Orchid, Gypsophila, Cut belly) trial export to KSA	10kg	Hortex Foundation is working with Mr. G. Azam Khan, Global Agrovet Ltd and Mr. Chandan Debnath, Wingnut Bangladesh for promoting flowers export to the Middle East countries.
A tomato pulp manufacturer VEGAN Agro Ltd., Dhaka linked with DAE (Dhunat upz. Bogra and Sherpur sadar upz., Sherpur) for purchasing tomato from the farmers directly	228 MT	Hortex Foundation is working with VEGAN Agro Ltd. for developing direct farmer-market linkages to supply fresh & safe tomato from the farmers and tomato pulp supply to the Square Food & Beverage Ltd. (SFBL). SFBL is producing value added tomato sauces and ketchups both for domestic and export markets using VEGAN Agro Ltd. tomato pulp.

State of activities	Achievements	Remarks
Flowers trial export to Japan	01 carton	Hortex Foundation supported 2 nd shipment of flowers trial export to Japan by M/S. Ahsan Associates on 11 Feb. 2015.
Pineapple export to Oman	01MT	Hortex Foundation supported 1000kg pineapple export to Oman by air shipment from Modhupur through Avalon Associates, Dhaka. Export quality pineapple was supplied by Mr. Md. Abdul Mannan, Secretary, Idilpur Anarosh Chashi Samity, Modhupur, Tangail and imported by Mr. Md. Tofazzal Hossain, Eagle Eye International L.L.C, Oman.

B. Hortex Foundation supported fresh mango export to UK in 2015

Exported mango variety	Export destination	Market destination (in kg)		Name of the exporting farm
		Walmart (ASDA super shop)	Ethnic market	
Himsagar & Langra	UK (Petersburg)	3412	-	M/S. Dip Int'l, Dhaka
Himsagar, Langra, BARI Aam-3, BARI Aam-2 (Laksmambhog) & Fazli	UK (London and Birmingham)	-	76469	M/S. Dip Int'l, Dhaka
Himsagar, BARI Aam-2 (Laksmambhog) & Fazli	UK (London)	-	5000	M/S. Manik Traders, Dhaka
Himsagar, Langra, BARI Aam-3, BARI Aam-2 (Laksmambhog), Fazli, Mallika & Harivangha	UK (London and Birmingham)	-	45000	M/S. Morison Enterprise, Dhaka
Himsagar, Langra, BARI Aam-3, BARI Aam-2 (Laksmambhog), Fazli, Mallika & Harivangha	UK (London and Birmingham)	-	5000	M/S. Selina Int'l, Dhaka
Himsagar, Langra, BARI Aam-3, BARI Aam-2 (Laksmambhog) & Fazli	UK (London and Birmingham)	-	20000	M/S. Fardin Int'l, Dhaka
Langra	UK (London)	-	1000	M/S. S Rahman Int'l, Dhaka
Total mango export		3.41 MT	152.47 MT	155.88MT

Source: Hortex Foundation 2015

Note: Fresh mango was exported under technical guidelines & supervision of Hortex Foundation and FAO-FSP in collaboration with Horticulture Wing, DAE and it was facilitated by Hortex Foundation.

National export growth of horticultural crops

A. Export of fresh fruits and vegetables in Bangladesh

About 100 types of fruits and vegetables are being exported from Bangladesh to more than 43 countries in the world. Export of fresh fruits and vegetables from Bangladesh are significantly increased from 46.41 million\$ in FY2004-05 to 209.38 million\$ in FY2013-14. Export value and quantity was decreased about 32% in FY2014-15 compared to FY2013-14 due to restriction in EU countries on some fruits and vegetables incl. self banned by Govt. of Bangladesh. However, fresh fruits and vegetables export growth (on values) from FY2004-05 to FY2014-15 are shown below:

Fiscal year	Quantity exported (MT)	Export value (in m. US\$)	Export growth on value (in %)
2004-2005	29100	46.41	-
2005-2006	19460	39.59	(-) 14.70
2006-2007	19805	40.53	(+) 2.37
2007-2008	33626	69.12	(+) 70.54
2008-2009	24670	50.71	(-) 26.63
2009-2010	29370	64.21	(+) 26.62
2010-2011	48428	109.41	(+) 70.39
2011-2012	59573*	134.59	(+) 23.01
2012-2013	80660*	182.23	(+) 35.39
2013-2014	92679*	209.38	(+) 14.89
2014-2015	62730*	141.72	(-) 32.31

Source: EPB and data analysis by Hortex Foundation, Oct. 2015

Note: *Quantity estimated by Hortex Foundation as per average export value of fruits & vegetables @ 2259.23\$/MT during FY2010-11 due to export quantity data is not available since FY2011-12 from EPB.

Hortex Foundation had direct and indirect role in export achievements of fruits and vegetables in Bangladesh. This export needs to be improved further by necessary support.

B. Export of fresh vegetables in Bangladesh

Fiscal year	Quantity exported (in MT)	Export growth (quantity, in %)	Value (in m. US\$)	Export growth (value, in %)
2005-2006	17218	-	32.92	-
2006-2007	18277	(+) 06.15	35.64	(+) 08.26
2007-2008	30931	(+) 69.24	60.47	(+) 69.67
2008-2009	22791	(-) 26.32	44.67	(-) 26.13
2009-2010	23959	(+) 05.12	46.84	(+) 04.86
2010-2011	36672	(+) 53.06	71.73	(+) 53.14
2011-2012	39586*	(+) 07.95	77.43	(+) 07.95
2012-2013	56411*	(+) 42.50	110.34	(+) 42.50
2013-2014	75435*	(+) 33.72	147.55	(+) 33.72
2014-2015	52781*	(-) 30.03	103.24	(-) 30.03

Source: EPB and data analysis by Hortex Foundation, Oct. 2015

Note: *Quantity estimated by Hortex Foundation as per average export price of vegetables @ 1956 \$ / MT on FY2010-11 due to export quantity data is not available since FY2011-12 from EPB.

Hortex Foundation had direct and indirect role in export achievements of vegetables in Bangladesh. Vegetables export needs to be improved further by necessary support.

Bangladeshi vegetables are exported to over 43 international markets. The major export market comprises Middle East (Saudi Arabia, UAE, Qatar, Kuwait), EU

(UK, Italy, France) and Far East (Malaysia, Singapore) countries. The above table reveals that export of Bangladeshi vegetables has grown steadily over the last 10 years. However, the total export value still remains small as compared to other Asian, African and European countries. Bangladesh's vegetables exports represent only 0.1% of world exports, its ranking in world exports is 67 (ITC 2014)

This vegetables export sub-sector is highly subsidized. Govt. of Bangladesh is being provided cash incentive support to the exporters @ 20% FOB for promoting export of vegetables. But, our valued traditional exporters are not yet able to enter into the mainstream export market in abroad (exception of Hortex Foundation, FAO & DAE supported first time mango export to the Walmart, ASDA Chain Shop in UK in 2015) rather till exporting to ethnic markets due to lack of contract farming⁵, adoption of international quality & marketing standard, traceability, global standard lab testing facilities, infrastructure facilities, logistic support of warehousing and lack of aggressive marketing strategy promoting export. The exporters have failed to take full advantage of opportunities to improve the supply chain integration, product quality & safety, standard packaging, develop new/niche markets and explore alternative modes of transportation. So, it is proper time to review the provision of cash subsidy policy on horticultural crops. As per statement of Commercial Counsellor, Bangladesh Foreign Mission, London, UK, cash incentive support should be given to the partly on packaging sector for improving quality and value addition and other part on airfreight for competing international market.

C. Export of fresh fruits in Bangladesh

Fiscal year	Quantity exported (in MT)	Export growth (quantity, in %)	Value (in m. US\$)	Export growth (value, in %)
2005-2006	2242	-	6.67	-
2006-2007	1528	(-) 31.84	4.89	(-) 26.69
2007-2008	2695	(+) 76.34	8.65	(+) 76.89
2008-2009	5204	(+) 93.11	16.67	(+) 93.41
2009-2010	5411	(+) 4.00	17.37	(+) 3.83
2010-2011	11757	(+) 117.26	37.68	(+) 116.92
2011-2012	17835*	(+) 51.69	57.16	(+) 51.69
2012-2013	22431*	(+) 25.77	71.89	(+) 25.77
2013-2014	19292*	(-) 13.99	61.83	(-) 13.99
2014-2015	12006*	(-) 37.76	38.48	(-) 37.76

Source: EPB and data analysis by Hortex Foundation, Oct. 2015

Note: *Quantity estimated by Hortex Foundation as per average export price of fruits @ 3205 \$ / MT on FY2010-11 due to export quantity data is not available since FY2011-12 from EPB.

Hortex Foundation had direct and indirect role in export achievements of fruits in Bangladesh. Fruits export needs to be improved further by necessary support.

Bangladesh's fruit exports represent only 0.07% of world exports and its ranking in world exports is 84 (ITC 2014).

⁵Contract farming production process not getting popular in agricultural sector due to several reasons

D. Export of fresh potatoes in Bangladesh

Financial year	Quantity exported (MT)	Data source on quantity exported	Export value (in m. US\$)	Data source on exported value	Export growth on value (%)
2008-2009	407	PPW of DAE	0.68	EPB	-
2009-2010	9687	PPW of DAE	03.45	EPB	(+) 407
2010-2011	34891	PPW of DAE	15.98	EPB	(+) 363
2011-2012	34232	EPB	08.50	EPB	(-) 47
2012-2013	41830	EPB	10.93	EPB	(+) 29
2013-2014	103000	PQW of DAE	33.82	EPB	(+) 210
2014-2015	94614	PQW of DAE	32.22	EPB	(-) 4.73

Source: PQW of DAE, EPB and data analysis by Hortex Foundation, December 2015

Note: Bangladesh's exports represent 0.86% of world exports of potatoes; its ranking in world exports is 21 (Source: trade map, ITC)

Hortex Foundation had direct and indirect role in export achievements of potatoes in Bangladesh. Potatoes export needs to be improved further by necessary support.

Every importing country has some specific requirements/special demands for potato. Malaysia, Nepal, Russian Federation, Sri Lanka, UAE, Singapore, Hong Kong, Indonesia and Saudi Arabia are the major importing countries of Bangladeshi fresh potato during FY2014-15 and they prefer long dormant varieties like Granola (round shape, white skin) and Diamant (oval shape, white skin). Asterix, Courage, Lady Rosseta, Cardinal etc are also exported for fresh/processed consumption in abroad. Processing varieties of **Atlantis and Harmis** are most demanded in UAE, other Middle East countries and Russian Federation but these varieties are not widely available in Bangladesh. The consumers of Malaysia and Singapore prefer freshly harvested potatoes due to their better taste and flavor. The size of potatoes preferred is between 40-70mm having weight of 100-150g. In Malaysia, 5kg bag is preferable and in UAE, 25kg bag is preferable for the buyers. The market price of potatoes in Malaysia and Singapore largely varies depending upon the supply of other competing countries. Since the supply of Bangladeshi potatoes is concentrated at the peak-harvesting season (February-March), our exporters have to compete with the suppliers of China, India and Pakistan.

In International market, main competitors of Bangladeshi potatoes are China (they exports mainly to Malaysia, Vietnam and Russian Federation which all are the Bangladeshi market potentials) and Pakistan (leading exporter in Sri Lanka, Afghanistan, UAE and Malaysian Markets). Bangladesh can compete with the global market of fresh as well as value-added processed product if

effective potato production is developed in a planned way by the use of appropriate export varieties for fresh and processed product along with adoption of improved production practices, proper packaging and market intelligence support.

In International market, potato price is very lucrative. The normal price range for table potato varieties in Asian Markets is about 280-450 US\$/MT and normal price range for processing potato varieties in Asian Markets is about 400-500 US\$/MT like Lady Rosseta. But the scenario is just opposite in case of Bangladeshi potato that is the normal price range for table potato (var. Granola, Diamant) in Asian markets is about 220-300 US\$/MT and normal price range for processing variety potato (Lady Rosseta) in Asian markets is about 230-320 US\$/MT due to absence of standard quality adoption, lab test and certification system.

Europe is the largest importer of potato in the world and at the same time they are also the largest exporters. But Europe market is tilted restricted for Bangladeshi potatoes due to quarantine pest/diseases and absence of quality & safety compliance measures and adoption of any international marketing standard (like UNECE⁶) as per EU requirement. So, this is the prior time in Bangladesh for ensuring potato quality and safety by developing contract farming, GlobalGAP certification, traceability system and adoption of international marketing and commercial quality control/standard for promoting export of potato.

Hortex supported tomato marketing to food processing industry, Vegan & Square Food



Hortex Foundation & Square Food & Beverage Ltd jointly visited tomato farmers' field at Matikura ICM Club, Dhunat upazila, Bogra on 15 November 2015

⁶United Nations Economic Commission for Europe (UNECE) marketing standard for potato

Hortex Foundation supported tomato marketing from Sherpur Sadar Upazila under FAO-FSP and Dhunat Upazila, Bogra to Square Food & Beverage Ltd. through Vegan Agro Ltd. for food processing industry to produce tomato pulp, sauces and ketchup.

As per advice from the Secretary, Ministry of Agriculture and Chairman, Hortex Foundation, the team comprising Dr. Md. Abdul Jalil Bhuyan, Managing Director, Mr. Mitul Kumar Saha, AGM (Marketing), Md. Rafiqul Islam, AGM (Production), Hortex Foundation and Dr. Md. Abdur Rashid, Joint Director, RDA visited Dhunat upazila, Bogra on December 21, 2015. After visit, Hortex Foundation developed farmer-market linkages among the processing companies i.e. Vegan Agro. Ltd, Square Food and Beverage Ltd and Matikura ICM Club, Dhunat upazila, Bogra regarding fresh tomato marketing for agro-processing industry as raw materials. As per Hortex facilitation, fresh tomato was sold to the Vegan Agro Ltd. by Matikura ICM Club for tomato pulp production. Further, Vegan Agro Ltd. delivered their tomato pulp to the Square Food and Beverage Ltd. (US-FDA recognized food company in Bangladesh) for making their value added tomato sauces, ketchup both for domestic and export markets. Total 108MT tomato was supplied from Matikura ICM Club to Vegan Agro Ltd and farmers received Tk. 6.60 lac (@ average price Tk. 6.11/kg) whereas local price of tomato was Tk. 2/kg.



Hortex supported quality tomato production at Sherpur sadar upazila under FAO-FSP, the team of Hortex & Vegan Agro Ltd. visited tomato farmers' field on 21 Dec. 2015

On the other hand, the team comprising Md. Rafiqul Islam, Project Coordinator, Mitul Kumar Saha, Field Coordinator, FAO-FSP, Hortex Foundation, Md. Atiqur Rahman, DGM, Vegan Agro Ltd., Md. Enayetullah Khan, Factory Manager, Vegan Agro Ltd. visited farmers' field at Sherpur sadar upazila, Sherpur to see the status of Hortex and DAE supported tomato production under FAO-FSP on December 21, 2015. After visit, Mr. Mitul K. Saha, Field Coordinator, FAO-FSP, Hortex Foundation

developed direct farmer-market linkages among the processing companies i.e. Vegan Agro. Ltd, Square Food and Beverage Ltd. and 20 tomato lead farmers under FAO-FSP, Sherpur sadar upazila, Sherpur for fresh tomato marketing to the food processing industry.



Hortex developed direct farmer-market linkages between Vegan Agro Ltd. and 20 lead farmers of Sherpur sadar upazila, Sherpur district on 21 Dec. 2015

Hortex Foundation supported 20 lead farmers under FAO-FSP and they supplied 120 MT fresh tomatoes from Sherpur sadar upazila, Sherpur district to the Vegan Agro Ltd., Kushtia for tomato pulp production. Further, Vegan Agro Ltd. delivered their processed tomato pulp to the Square Food and Beverage Ltd. for making their tomato sauces, ketchup both for domestic and export markets.

CCMC visit in Kapasia upazila, Gazipur



The team of Hortex Foundation visited Commodity Collection and Marketing Centre (CCMC), Chandpur Bazar, Union: Bhaual, Chandpur, Upazila: Kapasia, District: Gazipur on April 27, 2015 to conduct discussion with 20 women CIG farmers, local traders and CCMC Management Committee Members to assess potentiality of homestead level fruits and vegetables production & processing for CIRDAP project and also to see CCMC's present operation & its utilization process.