HORTEX NEWSLETTER

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Editor's Note

Fruits and Vegetables are perishable commodities. Loss occurs at different stages after harvest due to improper handling, transportation, storage and microbial infection. On an average, the post harvest loss of these commodities is over 25%. Major factors of losses are weight loss, discoloration, shrinkage and spoilage etc. Farmers find difficulty to maintain quality of the produce for sale after harvesting of some fruits and vegetables due to periodical marketing and surplus production particularly during summer season. They need to store the produces to prolong the safe duration for better price.

Zero Energy Cool Storage (ZECS) of fruits and vegetables appears to the promising for small farmers. The technology is simple, as it needs some bricks, sand, bamboo, small space and source of water for periodical wetting the sand when the heat case ranges about Taka 4000.00 to Taka 4500.00 to store about 150-200kg commodities. It seems that this storage system applicable both in remote areas of Bangladesh where electricity is not available and supply has frequent disruption.

Supply Chain Development Component (SCDC) of National Agricultural Technology Project (NATP) being implemented by Hortex Foundation already demonstrated the storage technology at the project sites of Shibganj (Bogra) and Savar (Dhaka) upazilas. Farmers' response is reported to be positive as they got high price of commodities like tomato, leafy vegetables storing up to 4 (four) days maintaining freshness of the produce. However, our understanding that scope prevails to improve the efficiency of this low cost storage system of fruits and vegetables. Bangladesh Agricultural Research Institute (BARI), the generator of this technology may focus for its further improvement and also develop low cost storage technologies to prolong the shelf-life of the different perishable high value agro-commodities.

Zero Energy Evaporative Cooler for Horticultural Produces

By: Sreekanto Shaw[1]

Introduction

In Bangladesh, quality deterioration of horticultural produce takes place immediately after harvest due to lack of on-farm storage. In presser, fruits and vegetables arrive in the assembly/wholesale market early in the morning and are usually purchased by the trader/retailer consumer before noon. In some cases, the commodities have to wait day long for sale. For transition of the commodities during this long period in the roadside in open place, a substantial amount of post harvest loss is occurred. On the other hand, especially, in the assembly market, farmers very often have to forced sale their valuable crops to a nominal price due to lack of storage facilities. At this situation, if the commodity is stored for this transit period in a cool chamber, freshness and quality of the commodity will be retained as well as the post harvest loss will be reduced to a great extent.

Refrigeration is energy intensive, expensive, not so easy to install and operate in remote areas and not always environment friendly. Considering acute energy crisis and lack of cool storage facility, the low cost, low energy cool chambers may be useful to reduce post harvest loss to a great extent. ***Zero Energy Evaporative Cooler (ZEEC)*** is a cool chamber which acts as a ***"Natural Refrigerator"*** for short term preservation of fruits, vegetables, cut flowers and a ***"Natural Incubator"*** for storage. It develops bright red color during ripening of tomato and golden yellow color of banana. The cooler also reduces starch to sugar conversion during storage of potato. In Bangladesh, *ZEEC* can work more efficiently in dry season while comparatively lower humidity prevailed. With some limitations in the rainy days prevailing higher humidity, *ZEEC* can be used year round all over the country for short term storage of horticultural produces.

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Principles of Zero Energy Evaporative Cooler

Principle of *ZEEC* depends on cooling by evaporation. As water evaporates it has a considerable cooling effect and faster the evaporation greater the cooling rate and ultimately greater the cooling. Evaporative cooling occurs when air is not already saturated with water, passes over a wet surface. Water evaporates into air raising it's humidity and at the same time cooling is occurred at the surroundings. Efficiency of evaporative cooler depends on humidity of the surrounding air. Very dry and low humid air can absorb a lot of moisture and hence considerable cooling occurs. In extreme case of air that is saturated no evaporation can take place and no cooling occurs. Based on this principle of direct evaporative cooling, *ZTFC* has been developed. The main advantages of this on-farm low cost cooling technology are:

Figure 1: Zero Energy Evaporative Cooler (ZEEC)

i) It does not require any electricity or power to operate and
ii) Materials required like bricks, sand, bamboo etc. available easily and cheaply.

Method of Fabrication

ZTFC is a double brick-wall structure, the cavity is filled with sand and wall of the chamber are soaked in water (*Figure 1*). Then unskilled labor can build the chamber, as it does not require any specialized skill. Cool chambers can reduce temperature by 5-15°C depending on the temperature and humidity of air and maintain high humidity of about 95% that can increase shelf life and retain quality of horticulture produces. Small and marginal farmers can store perishable commodities for about a week after harvest for better price.

Table 1: Cost of Fabrication of ZEEC

Items	Taka/Unit
Brick, 500 Nos. @ Taka 2.50 per piece	1,250.00
Sand, 1000 kg	900.00
Gunny, 3 bags @ Taka 300 per bag	1,470.00
Labor (mason), 2 Nos. @ Taka 300 per day per person	600.00
Bamboo sleeper, Jute sacks, Wire, earthen pot etc.	650.00
Total	4,870.00

To fabricate a *ZTFC*, the required materials are: i) Highly porous brick (3rd class brick) - 500 Nos. ii) Cement-2 Sacks and iii) Sand, gunny bag and bamboo sleeper (cost of fabrication is presented in *Table 1*). The following methodology is used to fabricate the cooler:

i. The isometric view of the cooler is presented in *Figure 2*. According to the dimensions specified in the figure, the cool chamber is fabricated with sharp quality highly porous bricks and river bed sand.
ii. The floor is made with a single layer of bricks, the side walls with a double layer of bricks, the space (7.5 cm) between the bricks being filled with sand. The chamber prepared thus, is used for storage of commodities.
iii. The brick and sand are soaked in water till they are saturated.
iv. The top of the storage space is covered with wet gunny cloth fitted with a structure made with bamboo sleeper.
v. The cooler may be installed in a shed having sufficient aeration facilities. If there is no room available in existing shed, a low-cost thatched shed may be prepared for the cooler.

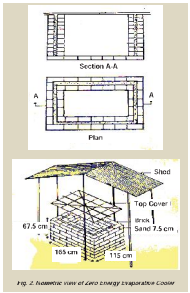


Fig. 2: Isometric view of Zero Energy Evaporative Cooler

Method of Operation

The *ZEEC* can be installed in farmers' field, assembly and retail markets at village level. The sand layer of *ZEEC* will be soaked with water sufficiently. Once the cooler is saturated with water, sprinkling of water once in the morning and once in the evening is enough to maintain the temperature and humidity. It is better to set a drip system containing a plastic container as water reservoir and a plastic flexible pipe having sufficient number of nozzles fitted with it in certain interval. Once the container is filled in with water, the nozzle will discharge water drop by drop to the sand layer and thus the sand layer will be soaked sufficiently and continuously on the basis of the rate of evaporation of water. Dripping can be controlled by adjusting the connection tap attached with the water reservoir. Nine plastic crates having capacity of 1×20 kg of fruits/vegetables will be placed in 3 layers keeping 3 crates in each layer. Before storing the commodities, these should be properly sorted and graded and washed (where necessary). Fruits/vegetables will be placed in the crates with or without packing with perforated polythene depending on the nature of the commodities.

Conclusion

ZEEC can be installed profitably where the fruits, vegetables and cut flowers are held temporarily. The materials required for the cooler is cheap and available at the rural level and the fabrication method is also easy. If the *ZEEC* is properly fabricated and actually adopted, availability of nutritious fruits and vegetables with the increased income reduction of post harvest loss as well as farmers traders will get better price.

Hortex News in Brief

The 86th and 87th meeting of the Governing Body of Hortex Foundation (HF) was held on Tuesday, April 17, 2012 and Thursday, June 21, 2012 respectively at its Conference Room under the Chairmanship of Mr. Monzur Hossain, Secretary, Ministry of Agriculture, Government of the Peoples Republic of Bangladesh and Chairman, Hortex Foundation. The meeting discussed on various administrative issues and policy directives were given which include review of implementation status of the decisions taken in the 85th and 86th meeting of the Governing Body of Hortex Foundation held on January 26, 2012 and April 17, 2012 respectively. The 87th meeting of the Governing Body of Hortex Foundation transacts the following major agenda like corrigendum and approve of the work plan and budget of HF and SCDC of NATP for FY2012-2013; review and approve of the Annual Report of the Governing Body of HF for the fiscal year 2010-2011 and the audited financial statements of HF for the year ended June 30, 2010 for placement in the 8th Annual General Meeting (AGM) for receiving and adopting, fix date and time of the 8th AGM of HF and to approve of its agenda, review and approve of the draft annual performance evaluation format developed by HF for the experts working in the SCDC of NATP, approval of the construction of four Commodity Collection Marketing Centers (CCMC) under the SCDC of NATP, HF at four upazilas of four districts in Bangladesh etc.

Exchange Visit by Nepalese Delegation

A group of 13 (thirteen) members Nepalese Delegation of Ministry of Agriculture and Pre-shipment under the joint project of Government of Nepal and USAID on titled ***"Food Security Promotion Program"*** visited Hortex Foundation on June 13, 2012 as the international observation tour to know about the Bangladesh agricultural development progress including Hortex Foundation activities in the meeting, Dr. S. M. Monowar Hossain, Managing Director of Hortex Foundation presented the keynote paper highlighting Hortex and SCDC of NATP activities. 23 (twenty three) participants attended in the meeting of which 5 (five) took part in the open discussions on the keynote paper. The meeting concluded with thanks to the participants by Managing Director of Hortex Foundation. The 13 members Nepalese Delegation also visited different agricultural organizations in Bangladesh like Ministry of Agriculture, BAU, BINA, BFRI, BARI, BRRI, SCA, BLRI, DAE, BADC, DLS, DoF, Tal Teer etc. to share mutual interest, knowledge and ideas, experiences and opportunities for joint work to be organized by SAARC Agriculture Centre (SAC), Bangladesh.

A view of meeting with Nepalese Delegation at Hortex Foundation

87th Meeting of the Governing Body of Hortex Foundation

Formulation of BanglaGAP Policy Directives

Hortex Foundation prepared a Concept Note on ***"Developing National Programme on Good Agricultural Practices (GAP) for Fresh Produce of Bangladesh"*** and submitted to the Ministry of Agriculture, Government of the Peoples Republic of Bangladesh in 2010. Based on subsequent discussion with concerned the officials of Ministry of Agriculture, the Ministry of Agriculture formed a four member committee to make Policy Directives of BanglaGAP and its Protocol with the harmonization of GlobalGAP for more export, income and export product diversification. The committee headed by Dr. Md. Khalequzzaman Akand Chowdhury, Member Director (Crops), BARC and Mr. Md. Refiqul Islam, AGM (QAB, Traceability, Processing & Packaging), Hortex Foundation as a Member Secretary for preparing draft Policy Directives and Protocol of BanglaGAP as per basic concept note of Hortex Foundation. Other two members of the committee are Dr. Md. Ershad Sultan, Director, HRC of BARI and Mr. Md. Abu Hanif Miah, Director, PPM & DAE. The committee already prepared a draft BanglaGAP Protocol through opinion from relevant experts by arranging various meetings and discussions and submitted to the Ministry of Agriculture for further action.

Production and Marketing Advisory Services

During the period, business advisory services were provided to 21 entrepreneurs, producers and exporters. researchers, NGOs etc on various aspects of high value agricultural crop production technology and improved management of horticultural crops, technical services to the entrepreneurs on baby pineapple, mango and pangasius fish export, treatment, packaging and labeling of citrus fruits, cool-chain transportation, joint training program organization, flowers export business plan and documents, organic farming strategy, export requirements of betel leaf, fresh fruits and vegetables, linking exporters to the clusters of farm producers, information of supply and value chain activities and cost associated with exporting of high value agro-commodities, farm level food safety issues and marketing system of fresh horticultural produces in domestic and export market.

The notable among the recipients of such services are: Trade World, Hamza Corporation, Angel Vision, RAR International, Sensor International, Al-Jabid International, VCI Logistics, Sund Enterprise, ICFA Bangladesh (Dhaka), Baki Chamber (Sylhet), Surja Enterprise, A&A Enterprise, Talukder Agro Enterprise (Sherpur), M/S. S. M Hasan (Sylhet), Huda Vass & Co, ABA (NGO), M.S. Hosne Ara Agro Ltd. (Natore), M.S. Aulad Hossain, PRANTFC (NGO, Gazipur), Republic Freight Services etc.

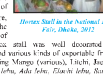
Participation in National Fruit Fair 2012

Hortex Foundation participated in the three days ***"National Fruit Fair"*** from June 16-18, 2012 at BARC inaugurated by Mr. Anamul Haque Mostofa Shahid, MP, Hon'ble Minister, Ministry of Social Welfare, Government of the Peoples Republic of Bangladesh. Hortex stall was well decorated with features, banner and various kinds of exportable fruits of Bangladesh including Mango (various), Litchi, Jackfruit, Citrus fruits (*Desi lebu, Ada lebu, Kagzi lebu, Sudrovo, Naga boi chilli*), Guava, Pineapple, Ong plum, Sapota, Carambola, Pummelo, Wood apple, Amola, Bacteise grape, Baeshal, Golden apple, Wax apple, Jackfruit seeds, Ber (dry), Coconut etc. In second day of the fair, Begum Matia Chowdhury, Hon'ble Minister for Agriculture, Government of the Peoples Republic of Bangladesh visited Hortex stall and showed interest in the exportable fruits and overall export activities. During the fair, a good number of visitors visited Hortex stall and aware about the export performance and prospects of fruits and vegetables, major export destination and sources of fruits in Bangladesh.

Hortex Stall in the National Fruit Fair, Dhaka, 2012

Success Story Presentation on Dragon Fruits

Hortex Foundation organized a success story presentation on ***"Dragon Fruits Cultivation in Bangladesh"*** at its conference room on June 19, 2012. Mr. A. F. M. Fakhrul Mustafa, Director, Governing Body of Hortex Foundation was present as Special Guest while Dr. S. M. Monowar Hossain, Managing Director of Hortex Foundation presided over the event. Krishibid S. M. Kamruzzaman, Project Director, Integrated Quality Horticulture Development Project, Phase II, DAE presented the keynote paper titled on ***"Dragon Fruits Cultivation in Bangladesh"***. 75 (seventy five) participants from different organizations, fresh produce exporters, NGO and farmer representatives attended in the program. Mr. Kamruzzaman explained in details about the



A view of presentation on Dragon Fruits

cultivation practices including ambient climate for dragon fruit production, site & soil selection, species of dragon fruits, cutting propagation, choice of planting materials, designs of dragon planting, training & pruning activities, types of trellis, pests and disease management, method of irrigation, yield, shelf life, nutritional status and its effects on human health, and its medicinal value. Mr. Zaman also mentioned that they have collected about eight species of dragon fruits from different countries like USA, Vietnam, Thailand and Sri Lanka. All of the species can be grown commercially in Bangladesh for local and export market, he added. The Chief Guests expressed his satisfactory views for the important development and promotion of dragon fruits in Bangladesh.

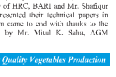
Hortex Organized Training of Trainers (ToT)

Hortex Foundation and Agriculture, Nutrition and Environmental Conservation NGO (PRANTFC), Gazipur jointly organized a training of trainers (ToT) program on ***"Safe Vegetable Production for Export Facility"*** at HF conference room on May 3, 2012. In the event, Mr. Abu Bakar Siddique, Executive Director of PRANTFC was present as Chief Guest while Dr. S.M Monowar Hossain presided over the program. 15 (fifteen) participants from PRANTFC farmer beneficiaries group were participated in the training program. Mr. Md. Rafiqul Islam, AGM (Production), HF, Dr. Md. Sekh Ahmed, Expert of SCDC, Dr. Md. Shahadat Hossain, SSO of HRC, BARI and Mr. Shafiqur Rahman, PRANTFC presented their technical papers in the event. The program came to end with thanks to the Chair and participants by Mr. Mitul K. Saha, AGM (Marketing), HF.

A view of Training of Trainers

Partners Training for Quality Vegetables Production

Hortex Foundation in collaboration with a group of 8 (eight) fresh produce exporting farms & Upazila Agriculture Office (UAO), Belabo, Narshingdi jointly organized a farmers training program on ***"Export Quality Production of Brinjal and Teasel Gourd and their Market Enhancement"*** at the training center of UAO, Belabo, Narshingdi on May 15, 2012. 60 (sixty) farmers from Dulalchandi, Char Uchlabo and Hossain Nagar, Belabo Upazila were participated in the training program. Deputy Director of DAE, Narshingdi was present as Special Guest while Deputy Director (Quarantine), DPW of DAE, Dhaka was present as Chief Guest in the event. To ensure the export quality production of brinjal and teasle gourd, the resource speakers from HF, HRC of BARI and DAE experts were delivered their presentation on improved production technology & post-harvest management practices and plant protection measures including pre-harvest intervals on brinjal and teasel gourd. Exporters stated that, all necessary supports (inputs) and better market price will be provided to the farmers if export quality produce is ensured. Initially exporters committed this they will provide Taka twelve thousand *(equivalent to one spray machine)* to the farmers for their existing 9.15 acres of brinjal and 10.6 acres of teasel gourd land under the supervision of HF and Local DAE officials.

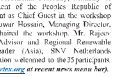


A view of training at Belabo Upazila

Organized Workshop with IDE and SNV

Hortex Foundation, SNV Netherlands Development Organization and IDE Bangladesh jointly organized a workshop on ***"Prospects & Challenges of Commercial Agriculture in Bangladesh"*** held on May 27, 2012 at its conference room.

Mr. Anwar Farugue, Additional Secretary, Ministry of Agriculture, Government of the Peoples Republic of Bangladesh was present as Chief Guest at the workshop while Dr. S. M Monowar Hossain, Managing Director, Hortex Foundation Chaired the workshop. Mr. Rajeev Mucunthan, Senior Advisor and Regional Renewable Energy Network Leader (Asia), SNV Netherlands Development Organization welcomed to the 35 participants *(see details in www.hortex.org or recent news menu bar)*.



Workshop with IDE and SNV

The workshop recommended following key priority areas for future intervention to Commercialize Bangladesh Agriculture:

- Ensuring farmers' fair price through value chain approach, establishing cooperative group marketing and empowering small farm holders
- Ensuring proper packaging, transportation and storage system for minimizing the huge post harvested loss

- Strengthening different organizations like DAE, BSTI, DAM, Hortex Foundation, BCSIR etc to build their institutional capacity to provide required services
- Developing efficient human resources from different public/private universities as an agribusiness expert
- Promoting valuable agricultural land for future national food security
- Encouraging research in private sector and R&D should be demand driven and market oriented
- Ensuring strong presence of market monitoring team
- Arranging quality agricultural inputs with subsidized price for farmers
- Establishing aquatic Cell in MoA for supervision and monitoring of produce quality, certification, packaging, processing etc
- Simplification of agricultural credit disbursement, ensuring collateral free loan and introducing crop-based loan with re-payment facility after harvest
- Public private partnership is needed for sustainability of commercial agriculture.
- Research findings should be published in media and other IT based communication tools etc.

Organized Seminar with Ayurvedic College

Hortex Foundation and New Dhaka Ayurvedic College, Dhaka jointly organized a seminar on ***"Assurance of Herbal Extract and its Effectiveness on Ayurvedic Medicine"*** held on June 21, 2012 at its conference room. Mr. A A Salim Barami, Director (CC), Directorate General of Drug Administration, Ministry of Health and Family Welfare, Government of the Peoples Republic of Bangladesh was present as the Chief Guest. Mr. M. Ahsan Ullah, Director, Governing Body of Hortex Foundation was present as the Special Guest while Dr. S. M Monowar Hossain, Managing Director of Hortex Foundation Chaired the seminar. Mr. ASF Kamrul, CEO, Surya Herbal Extracts, India presented a presentation paper in the seminar. Mr. A. F. M. Fakhrul Islam Mustafa, Director, Governing Body of Hortex Foundation was present in the event and given inaugural speech highlighting the importance of herbal extract on Ayurvedic medicine in Bangladesh. 33 (thirty three) participants attended in the seminar.

Seminar with Ayurvedic College

Major Meeting/Seminar Participation

During the period, Hortex officials attended number of seminars, workshops, trainings and discussion policy meetings on various issues at agriculture and export related affairs. Some of them are as follows:

(i) Hortex Foundation organized a meeting held on April 01, 2012 with the officials of Republic Freight Services, Dhaka regarding pineapple, mango and pangasius fish export from Bangladesh to Baden-European countries by adopting Farm to Market Approach.

(ii) Meeting with Mr. Donald M. Taylor *(Consultant)*, Ms. Kristin T. Smith *(Research Associate, Enterprise and Industry Development)*, Ms. Ella dya villacorta *(Managing Associate, Trade and Investment)*, NATHAN Associates Inc., USA held on April 02 & 03, 2012 at HF to identify the areas of cooperation on supply & value chain analysis of different agro-commodities as per Hortex SCDC experience, info data sharing and other activities.

(iii) Hortex official participated in the workshop on *"Prospects and Problems of Fresh Fruits and Vegetables Export"* at the conference room of BADC cold storage, Hortex Shahjalal (R.) International Airport, Dhaka held on April 15, 2012 organized by EPB of DAE under the program of *"Quarantine Service Strengthening Program"*. Mr. M. Zahiruddin, Additional Secretary, Ministry of Agriculture, GoB was present as Chief Guest in the event.

(iv) The Foundation organized meeting with a private company namely Agrotecnos, Dhaka held on April 18 and June 26, 2012 at HF premises on production and marketing of French bean and other high value horticultural crops for export in association with HF.

(v) Hortex official attended in the meeting held on April 24, 2012 on *"Target Fixation of Export oriented all Commodities for the Year 2013"* at Export Promotion Bureau (EPB), Karwanbazar, Dhaka. Vice Chairman of EPB presided over the meeting.

(vi) Meeting with Ms. Heather Danton, Senior Director, Livelihoods Program Integration, International Program Leadership, Dr. Chuck Chapnik and Ms. Tracksform Sivathayan, Economic Growth, DAI, USA held on April 25, 2012 at HF for sharing of HF experiences in supply and value chain activities of agro-commodities and identifying joint areas of activities for USAID's AVC program.

(vii) Meeting with Mr. Timothy Russel, Consultant, Tropical Agricultural Development in Uk., Ms. Angelina Tracy, Director, Agribusiness, ACDI-VOCA, USA held on May 08, 2012 at HF for sharing of HF experiences and supply and value chain activities of agro-commodities in Bangladesh.

(viii) Hortex official attended in the workshop *"Prospects and Opportunity of Fresh Fruits, Vegetables and Allied Products from Bangladesh"* held on May 14, 2012 at Hotel 71, Hajee Jagir, Dhaka organized by BFVA-EPSA. Mr. Anwar Farugue, Additional Secretary and Director General (Seed), Ministry of Agriculture, GoB and Mr. Md. Abu Hanif Miah, Director, PPM of DAE was present as Chief Guest and Special Guest respectively in the event.

(ix) Hortex official attended in the 8th meeting held on May 15, 2012 on Central Market Management Committee (CMMC) at BADC conference room, Sech Bhaban, Dhaka Chaired by Chairman, BADC and Secretary, CMMC.

(x) Meeting with Mr. Richard Wingar, Senior Program Officer and Mr. Jonathan Hodgkiss, Senior Program Officer, IRD, USA held on May 20, 2012 at HF highlighting Hortex and SCDC experiences on supply and value chain management of agro-commodities and identifying joint areas of activities for USAID's AVC program.

(xi) Meeting with Ms. Pila Tehani, Environmental Specialist, ARD Inc., Tarra Tech, Philippines held on May 22, 2012 at HF highlighting Hortex and SCDC experiences on supply and value chain management of agro commodities and identifying joint areas of activities for USAID's AVC program.

(xii) Meeting with a private company Timely Investment *(Bangladesh-Denmark Joint Venture)* held on May 22, 2012 at HF on establishment of fruits and vegetables processing centre in association with HF.

(xiii) Meeting held on May 30, 2012 at HF with Mr. Aaron Sinkaghan, Senior Manager, J.E. Austin Associates Inc., USA highlighting Hortex and SCDC experiences on supply and value chain management of agro-commodities and identifying joint areas of activities for USAID's AVC program.

(xiv) Meeting held on May 31, 2012 at HF with Dr. Hannah Jaenicke (Germany) and Martina Spitalakova (Slovakia), Network for Knowledge Transfer on Sustainable Agricultural Technologies and improved Market Linkages in South and Southeast Asia (SATNet Asia), the project is coordinated by the Centre for Activation of Poverty through Sustainable Agriculture (CAPSA), a subsidiary body of Cot. UN. ESCAP, highlighting Hortex SCDC activities and SATNet Baseline Survey aims to understand and map the current situation in SATNet partner countries and also identifying joint areas of activities for USAID's AVC program.

(xv) Meeting with Mr. Daisuke Horide, Mr. Shingo Doshita, Toyota Tsusho Corporation, Japan held on June 05, 2012 at HF highlighting the joint fair trade mechanism to Japan as raw green jute leaf or by powder form producing herbal food product and design intervention strategy.

(xvi) Meeting with M. Abdul Aziz, Senior Deputy President, ASA held on June 06, 2012 at HF on identifying status of organic farming in Bangladesh and briefing value chain activities of SCDC of NATP.

(xvii) Hortex official participated in the seminar on *"Impact of Climate Change on Crop Agriculture: Implications for Planning Process"* held on June 07, 2012 at Planning Commission organized by Agriculture, Water Resources and Rural Institutions Division, Air Vice Marshal (Rtd.) A K Khandaker, Hon'ble Planning Minister, GoB was present as Chief Guest while Dr. M. A. Sattar Mandal, Member, Agriculture, Water Resources and Rural Institutions Division, Planning Commission, Chaired the event.

(xviii) HF participated in the National Seminar on *"Contribution of Fruit Tree on Fulfillment of Food and Nutrition Demand and Environment Conservation"* held on June 16, 2012 at BARC organized by Ministry of Agriculture, GoB. Mr. Anarul Haque Mostofa Shahid, MP, Hon'ble Social Welfare Minister, GoB was present as Chief Guest while Mr. Monzur Hossain, Secretary, Ministry of Agriculture, GoB Chaired the event. Dr. S. M Monowar Hossain, MD of HF gives his valuable speech as discussant on keynote paper presented by Prof. Dr. M. A Rahim, BAU, Mymensingh.

(xix) From June (3rd), 2012, the Delegation of European Union in Bangladesh and International Trade Centre (ITC) sponsored a two-day workshop on Market Analysis and Export Potentials. The workshop was organized by PSFS project in collaboration with Bangladesh German Chamber of Commerce and Industry (BGCCI) and it was held at GIZ conference hall. Ambassador William Haran, Head of EU Delegation to Bangladesh, Mr. Magnus Schmid, Programme Coordinator of PSFS project, Mr. Daniel Seidl, Executive Director of BGCCI and Mr. Romita Sengupta, Acting Country Director of GIZ spoke at the introductory session of the workshop. 43 representatives from major industrial sectors of Bangladesh including Hortex SCDC activities and SATNet Baseline Survey aims to understand and map the current situation in SATNet partner countries and also identifying joint areas of activities.

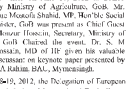
(xx) Meeting with USAID Horticulture Project Cliff AVRDC Bangladesh, International Potato Centre, Pora team held on June 27, 2012 at HF on identifying possible areas for USAID funded potato seed & vegetables and IFAD funded grant project on food security and value chain.

(xxi) Hortex official attended BARC organized workshop on *"Contamination and Adulteration Status in Food Items: Consumers Safety"* held on June 27, 2012 at its conference room.

(xxii) Hortex official attended in the workshop *"Present Status and Export Potentials of Citrus and Vegetables"* organized by Export the Citrus Fruits & Vegetables Special Programme (EXCSP) held on June 28, 2012 at conference room of Cotton Development Board, DAE, Khamarbari, Dhaka. Secretary, Ministry of Agriculture, GoB was present as Chief Guest in the event.

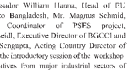
Highlighted Activities of SCDC, NATP

Supply Chain Development Component (SCDC) of National Agricultural Technology Project (NATP) being implemented by Hortex Foundation has carried out 17 training programs in different aspects on selected commodities & management practices for developing supply chain in the project sites during the period April-June 2012. A total of 727 different stakeholders covering 361 CIG farmers, 6 local traders, 40 inputs dealers and 320 leader farmers participated in the training program. Out of 727 participants trained, 663 were male and 119 female. Resource persons beyond the SCDC experts were invited from Spices Research Center (SRC), specialists from DAE, faculties of BIM and NGOs like BRAC, GRSS etc.



Practical demonstration on nutrient management for Brinjal, Shibganj, Bogra

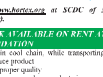
SCDC also conducted a workshop on value addition in agro-commodities for better market knowledge among the participants. A total of 51 (fifty one) different stakeholders covering CIG farmers, traders and exporters, representative of input/store owner association, marketing companies, research & government organizations, universities, private companies, Hortex officials and SCDC consultants participated in the workshop. Out of 51 participants, 47 were male and 4 female. Resource persons were invited from the private companies, scientists from IRRI, specialists from DAE, DOF beyond the SCDC experts.



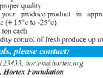
A view of workshop on value addition in agro-commodities for better markets

During the period, one overseas program (training cum study visit) was organized on protective horticulture in China. 4 (four) participants covering 2 (two) CIG farmers and 2 (two) experts of SCDC of NATP participated in the overseas program.

The other important activities performed during the period are development of one CCMC for commercial production and marketing of banana at CIG level and entrepreneurship development on organic fertilizer ***(Tricho-compost and Tricho-suspension)*** and ***bio-agent based technology*** for safe production of vegetables for supply chain development.



Trichо-compost



Trichо-suspension

(see detail in www.hortex.org or SCDC of NATP activities menu bar).

REEFER TRUCK AVAILABLE ON RENT AT HORTEX NOTIFICATION

- To maintain cool chain while transporting your fresh produce product
- To ensure proper quality
- To store your produce product in appropriate temperature (+15 to -25°c)
- Capacity 3 ton each
- Auto-humidity control, of fresh produce up to 99%

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