HORTEX NEWSLETTER

Volume 13 Number 02 *April-June 2013*

A QUARTERLY PUBLICATION OF THE HORTICULTURE EXPORT DEVELOPMENT FOUNDATION, DHAKA

Editor's Note

Proper packaging has multiple benefits which include post harvest loss minimization, quality assurance and food safety among others. One of the major problems of fresh fruits and vegetables is the high post harvest loss. It has been estimated that about 27% post harvest loss occur in the supply chain at different stakeholders from producers to retailers. The SCDC of NATP, Hortex Foundation has the mandate to reduce post harvest loss through improved knowledge of handling, packaging, transportation and storage of agro-commodities.

It may be mentioned here that SCDC already demonstrated the benefits of plastic crates in place of traditional packages like bamboo basket, gunny bag etc. More than 5000 plastic crates had been distributed to the farmers in the project sites for marketing the sorted and graded fresh fruits and vegetables. The use of plastic crates already provided evidence that the post harvest loss of those commodities can be reduced 10-15%. Similar information is also available in countries like India, Sri Lanka, Thailand and Philippines.

SCDC also demonstrated ice packaging in reusable Styrofoam box for vegetables & flowers, insulated corrugated fiber board (CFB) carton for flowers and passive modified atmosphere packaging in perforated plastic film for vegetables and fruits, thermo formed box/Styrofoam box for minimally processed fruits and vegetables for retail marketing. Response of these different packaging systems created positive response among the users.

However in our opinion, improved packaging system should be promoted for domestic as well as export market for post harvest loss minimization and quality retention. Private sector should come forward to manufacture and market nesting type plastic crates for easy packaging and transportation of agro-commodities.

Southeast Asian Packaging Experiences - Applicable to Bangladesh

Ponciano S. Madamba, Ph.D[1]

Packaging as defined is the art, science and technology of bringing goods from its source the place of consumption at the minimum cost possible. Post harvest management, food safety including transport and logistics and storage are some of the fields of specialization where packaging extends beyond or overlaps, and product quality is the ultimate goal of these disciplines. Packaging is a quality assurance (QA) operation for the product to arrive at the intended market in its freshest state, free from dirt and foreign matter including insects, pests, spoilage microorganisms and pathogens and more importantly safe to consume.

Packaging in Southeast Asia particularly the Philippines is very much similar to that of the local conditions here. Cabbages, potatoes and carrots are bulk packed in transport systems from the farms to wholesale markets where the product is re-packed into 20kg Polyethylene (PE), Polystyrene (PS) or string bags. In some cases, traditional baskets made of bamboo lined with banana leaves and sometimes rice straw are used for packaging and transport of cabbages from the production areas to the market centers.

Washing of produce is done in some parts of the Philippines and Thailand. Bananas for export are transported by hanging bunches of bananas using a cable system brought to a small packing house for de-handing, washing, sorting, air-drying, fungicide application before packaging in plastic bags and corrugated fiber boards.

Banana exports from the Philippines to Japan, Hong Kong and Singapore are packed in cartons with fiber board on the bottom, holes on the sides for ventilation, lined with 0.02 mm polyethylene film with 4 to 6 hands, weighing 12kgs.

[1] *International Packaging Specialist, Supply Chain Development Component (SCDC) of National Agricultural Technology Project (NATP), Hortex Foundation, Dhaka, Bangladesh*

Exports to the Middle East are vacuum packed, while to New Zealand and Hong Kong is in 18kg boxes. Vietnam also exports bananas and the hands a wrapped with PE bags and packed in 12kg cartons similar to that of Japan.

The institutional buyers such as supermarkets in the Philippines, Thailand and Malaysia, require some of their High Value Agro-Commodities (HVAC) suppliers to wash and air dry products before shipment because washing has a double function of cooling the field heat and removal of contaminants such as dirt and microorganisms. Potatoes, cauliflower, broccoli, carrots, celery and other vegetables are often washed. Dizon Farms, the biggest retailer of high quality vegetables in the Philippines require washing with chlorinated water.

Washing and air drying before grading and sorting of HVACs is recommended and washing facilities including water pump for potable water is highly recommended for the Commodity Collection and Marketing Centre's (CCMCs) at SCDC of NATP, Hortex Foundation project areas. If the CCMC can afford chlorinated water washing of their products, the better will be the quality. A recommended range of 50 to 100ppm is needed to kill microbial spores and prevent inoculation. Sodium hypochlorite (NaOCl) or calcium hypochlorite [Ca(OCl)2] are cheap and easily available chemicals, that can be used for wash water coming from deep wells, and 15 to 31gms are needed per 200ml of water.

A woven bamboo ventilation rod about 10cm in diameter was an intervention for potato and kalamondin (small lemon), a citrus plant in the Philippines and Indonesian growers, which ventilated the bamboo basket. The vent reduced field heat and heat of respiration by the product, and can be easily designed and adopted for potatoes, citrus, carrots, teasel gourd here in Bangladesh **(Figure 1).**

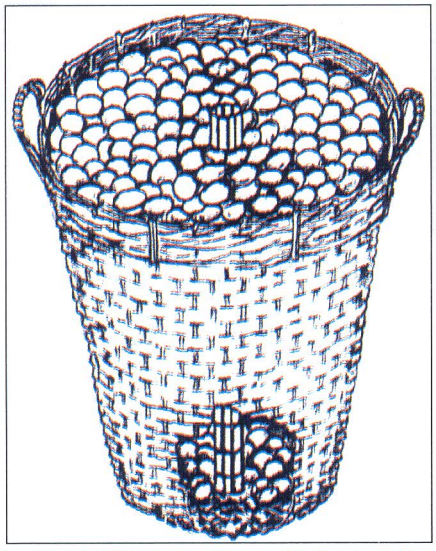

Figure 1: Woven bamboo ventilation rod for potatoes and citrus

Using horizontal dividers or platforms in transport are popular and used in the ASEAN region particularly Thailand, Vietnam and the Philippines. These dividers are made of angle bars or wooden planks designed in such a way that the weight of the upper basket is absorbed by the divider rather than the basket beneath it **(Figure 2).** Basic studies conducted on such transport systems were reported by university students both graduate and undergraduate as theses and special problems, and indicated that quality of produce was maintained during transport. The quality of the packaged HVAC was maintained during transport. This intervention can be easily adopted for local conditions here in Bangladesh.

High value vegetables such as Romain variety lettuce, cauliflower, broccoli and celery are eaten in first class

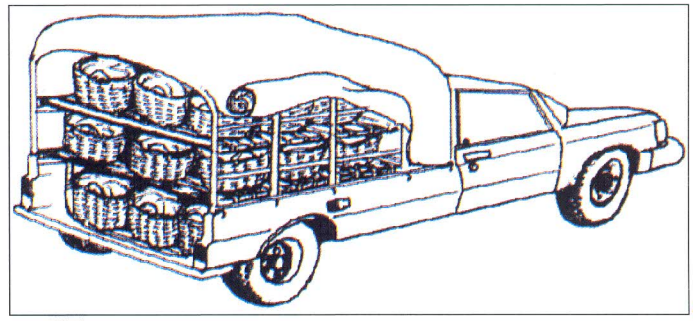

Figure 2: Transporting of HVAC with horizontal dividers and platforms

cities in Southeast Asia. Lettuce is used as garnishing to premium meat steaks and dishes, and also serves as the main ingredient in health salad bars while broccoli and celery are popular with Chinese and Malay dishes.

Romain lettuce and broccoli are brought to a cold storage facility funded by the local government of Benguet in the Philippines for washing and grading before pre-cooling in a storage room while waiting for transport. Fiberboard boxes **(Figure 3)** are used for packaging lettuce, which are transported at night to institutional buyers in Manila and Boracay, such as hotels and restaurants, by land and sea transport respectively. Broccoli is iced in the packaging container to maintain freshness until the product reaches the consumer.

Figure 3: Fiber board boxes used for packaging lettuce for transport after pre-cooling

Transport design is also essential to prevent post harvest losses due to transport. **Figure 4** shows a closed truck in the Philippines, which can open on both sides. The truck design is a paradigm shift from the conventional backdoor opening in which the closed-truck can be opened from the back and the two sides. This innovation can have a tremendous impact on the handling efficiency of the packaged HVAC. Less handling distance in carefully stacked packages minimizes dropping and mechanical bruising and injury of the product compared to a conventional back loaded truck. This truck design can be adoptable to the conventional back loaded vehicles here in Bangladesh.

Figure 4: A truck design in the Philippines where the truck opens on both sides

Hortex news in brief

The 91st meeting of the Governing Body of Hortex Foundation was held on Sunday, 19 May, 2013 at its conference room under the Chairmanship of Dr. S M Nazmul Islam, 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.

Production and marketing advisory services

In the reporting period April-June 2013, the Foundation provided production (14 nos.) and marketing (21 nos.) oriented support services to the different entrepreneurs, producers, exporters, NGOs and cool-chain transportation (64 round trips for 07 companies) support for different business organizations. The notable among the recipients including marketing services are:

Service recipients	Service provided
Kowsar Ahmed (Kamal), Nafiza Enterprise, Uttara, Dhaka-1230	Linked with Belabo CCMC for teasel gourd, Sreemongal CCMC for seedless lemon and Panchbibi, Joypurhat farmers association for stolon of taro direct procurement and sea shipment requirements exporting to Malaysia.
K M Aruf Ul Kabir, Bismillah Corporation, Kafrul, Dhaka	He was given services on fresh vegetables and fruits export business plan for Norway, Poland, Finland, The Netherlands, Germany, UK and Sweden markets as a new exporter.
Ms. Jaitun Nahar, Senior Assistant Director, BADC, Dhaka	Process of citrus trial shipment including export status and markets. Provided info on citrus canker management using Sodium Orthophenyle Phenate (SOPP).
Samiul Islam Khan, ABS Group, Mirpur, Dhaka	Export costs analysis and linked with SCDO (Savar), Mr. Usman Gani (Ullokhola, Gazipur) for direct procurement of vegetables exporting to UK as a new exporter.
IMX Trading, Uttara, Dhaka-1230	Support 10kg seedless lemon trial shipment to Malaysia from CCMC, Sreemongal, Moulvibazar.
Quamrul Islam, Primex Trading Corp., Chittagong	Export market and buyers information on EU countries.
Mr. Aktaruzzaman Sarker, Mirpur	Minimally processed & frozen vegetables and honey purifying info for setting a new agro-industry at Savar as a new entrepreneur. Linked with four agro-processing industries in Denmark for import machineries and equipments
Abdul Hakim Sheikh, Greentex, Mirpur, Dhaka-1216	As a new exporter, provided temperature, humidity and other requirements of reefer container for green chili, potato export to Malaysia.
Nokshikola Agro & Food Industries Ltd.	As a new entrepreneur, linked with Agora for mango supply from Chapainawabganj and strategies of mango export adopting farm to market approach with good packaging.
Sabazpur Tea Company Limited (Square Group)	Advisory services developing orchard on their tea garden at Baralekha upazila under Moulvibazar district.
Shepherd Group	Establishing 100% export oriented canned pineapple project at Bhalluka upazila, Mymensingh.
BanglaDutch Developments Ltd.	Identification of pesticides and hormone presence in pineapple for their juice plant at Modhupur, Tangail.