

Innovative Potato Storage

USAID Bangladesh is providing funds to the Horticulture Innovation Lab through the International Potato Center (CIP). The award funds an activity “Innovative Potato Storage” that is a component of the CIP/AVRDC horticulture project in Bangladesh, and has the overall goal of assisting smallholder potato producers in Southern Bangladesh in improving profitability through access to effective, low-cost table and seed potato storage.

Selection of storage sites:

Based on criteria including area devoted to potato production and experience, willingness to provide land, potential availability of electricity and convenient location, the team decided to construct 8 coolbot type and 11 ambient (locally-designed) storage rooms in four southern districts - Jessore, Faridpur, Barisal and Potuakhali - during January-April, 2013. Farmer groups were briefed about project goals, their role, participatory activities, storage protocols and potential benefits for the individual farmers and for their communities. The project has benefited significantly from the work of a Bangladeshi researcher and UC Davis Project Scientist, Amrita Mukherjee, who has proved very effective in working with the farmers and in involving women farmers in the project.

Storage experiments:

The project plan was to compare the traditional short-term storage of potatoes in farmers’ homes or outbuildings with storage in ‘ambient storage’ buildings designed by the Bangladesh Agricultural Research Institute (BARI), with storage in large commercial storage facilities, and with storage in small-scale coolrooms using the CoolBot/Air Conditioner system for refrigeration. Replicate samples from 6 growers in each of the four target districts were held in 10 kg mesh bags under the different storage conditions.



Amrita Mukherjee weighs potatoes before placing them in a coolroom in Bangladesh.

Weight loss in potatoes stored in household or ambient storage conditions was very high; after two months’ storage, weight loss was 25% in potatoes stored in household conditions, and 15% in those stored in ambient storage. During the same period, potatoes stored in the commercial cool store lost 2% of their moisture, mostly during the first two weeks, presumably reflecting weight loss during curing and cooling. Because of the high temperatures and relative humidity in the household and ambient storages, sprouting started in the sample potatoes within one week of being placed into storage. No significant sprouting occurred in the samples held in the commercial cool stores. These data emphasize the importance of cool storage for long-term storage of potatoes.

During the year, 6 CoolBot rooms were constructed using structural insulated panels imported from India. One room, located at the local BARI station was operational by mid-year, and storage samples were transferred to it from the commercial coolstore. The remaining coolbot stores will be operational as soon as electricity connections are provided by the Rural Electrification Board. Unfortunately Bangladesh’s critical power shortage has forced the Government to discontinue new connections. A solar system was installed on one of the CoolBot rooms (in Barisal), and is currently being evaluated.