Adoption of AVRDC-introduced technologies found during baseline survey in Tanzania

To improve smallholder farmers’ income and nutrition in Eastern and Southern Africa and to facilitate their access to best-bet technologies for vegetable production and potential markets, the VINESA (Vegetables for Income and Nutrition in Eastern and Southern Africa) project led by AVRDC – The World Vegetable Center and partners is being implemented in Ethiopia, Malawi, Mozambique and Tanzania. The project is funded by the Australian Centre for International Agricultural Research (ACIAR).

The migration of young people from rural villages to urban areas in search of stable employment is a common scenario in the project target countries. However, they are often disappointed by the lack of job opportunities. These youth constitute labor that can be mobilized for agricultural production in and around the cities. Nevertheless, lack of vegetable production knowledge and skills, poor marketing systems, weak channels for innovation and adoption of improved technologies, and ineffectual vegetable value chains present great challenges for profitable vegetable production.

To reduce youth migration, increase job opportunities in urban areas and fill these knowledge gaps, the Best Practice Hubs (BPHs) were designed and established to develop labor-intensive peri-urban vegetable production, spread vegetable production knowledge to farmers and produce food to feed city dwellers. Each hub serves as a center for crop trials and experimentation and invites young farmers to learn improved vegetable production, postharvest technologies and potential markets. To assess the level of knowledge interchange from the BPHs to farmers, a baseline
survey was carried out to allow subsequent evaluation of changes in knowledge due to the project interventions. This began with training on monitoring and evaluation tools, and survey procedures in June 2014. Pre-testing the baseline survey questionnaire was conducted in June to October 2014 for assessing household socio-economic characteristics and information needs, sources and uses, communication technology, assets, vegetable consumption and dietary diversity, training and extension, cropping patterns, inputs, farm management and marketing, postharvest losses, food security coping strategies, gender decisions for labor, food and non-food expenditure patterns and the farmers’ level of knowledge in specific areas. Information collected would help to design proper training activities and interventions in the selected villages.

The enumerators in Tanzania observed the adoption of AVRDC-introduced solar driers and zero energy cooling chambers (ZECC) in some farm households in Nduruma village of Arusha region. The adopters noted that the introduced technologies are extremely beneficial and enhanced their farm profits due to the reduction of postharvest losses and extended storage period of their produce. The survey also found that leafy vegetables are cultivated in upland villages (Kivulul, Bangata, Oldadai and Ambureni Moivaro) rather than fruit vegetables such as African eggplant and tomatoes, which are less commonly cultivated due to high incidence of diseases and insect pests. Farmers prefer chemical pesticide control; however, farmers were not clear about the accuracy of information they received from the pesticide suppliers. Proper training should be given on pest management and fruit quality control to meet the market requirements.

Regarding the household vegetable consumption and dietary diversity issues, it was observed that farmers do not have balanced diets and the majority were not aware of a good and complete diet. More awareness programs need to be implemented in project target areas. Furthermore, some farmers have faced major challenges on lack of access to good quality seeds, inadequate extension services, unreliable marketing during peak season, and failure of adherence to farming contracts between seed companies and farmers.

In the long-run, VINESA’s BPHs can be converted into registered Youth Agricultural Associations or Hubs which can enhance farmers’ bargaining and marketing power during their transactions with traders and contract companies.

Based on the findings and observations from the baseline survey, the analysis can be carried out on various farm issues in all four countries. In the end of project period, the follow-up survey will be conducted on outcome variables so as to assess knowledge diffusion process from farmer to farmer and differences in their farm knowledge before and after the project.

Source and photos:
Srinivasulu Rajendran, John Macharia, Philipo Joseph, Eliaza Mkuna, Victor Afari-Sefa, AVRDC-The World Vegetable Center, Eastern and Southern Africa, Tanzania
Mr. Geun-Myoung Choi, a progressive Korean pumpkin grower-cum-processor in Daesan village near Seosan city in the Republic of Korea takes immense pride in commercially farming pumpkin (Cucurbita moschata L.) over 15 ha. About 20 years ago, Mr. Choi started cultivating pumpkin and in 2003 he expanded into a pumpkin processing business. He is now popularly known as ‘Master Pumpkin’ in the area.

Mr. Choi cultivates 1,000 hybrid pumpkin plants per hectare with spacing of 3 m each between rows and plants. Around 40 tons of fruits can be harvested from his farm annually and 150-200 tons were purchased at US$0.6/kg from 30 contract growers (with 14 ha) to supply his small factory for producing pumpkin juice and porridge. The pumpkin juice contains 98% pumpkin flesh, 1.2% jujube flesh and 0.8% oligo sugar. The pumpkin porridge consists of 75% pumpkin flesh, 10% rice, 7% sweet potato flesh, 0.5% oligo sugar, 0.5% salt and 5-7% water. In addition, he has developed two more products named ‘Pumpkin beauty’ and ‘Pumpkin hand’. ‘Pumpkin beauty’ is 100% pumpkin juice meant for women. ‘Pumpkin hand’ is the juice made from young pumpkin leaves (1.5%) and is intended for pregnant women.

The price of 100 ml pumpkin juice is US$1 and for 200 g pumpkin porridge it is US$2. Mr. Choi sells his pumpkin products online; 98% of his clients are local consumers and 2% are Korean immigrants in the USA, Australia and Japan.

In addition to his pumpkin processing business, Mr. Choi provides tourism programs for visitors to learn how to
Pumpkin fruits are temporarily stored under a shelter before processing.

Pumpkin fruits are temporarily stored under a shelter before processing. The pumpkin flesh can be stored in the freezer up to one year. Nearly 6,000 domestic tourists visit Mr. Choi’s pumpkin farm every year and he charges US$10 per person including lunch. His annual net income from pumpkin products and tourism is around US$500,000.

To sustain the pumpkin business operation, Mr. Choi hopes that pumpkin breeders can develop varieties with 10-12% °Brix and resistance to multiple virus diseases. The authors believe that Mr. Choi’s successful pumpkin business can be replicated in developing countries worldwide by young and innovative entrepreneurs.

Source and photos: Narinder Dhillon, Supannika Sanguansil, AVRDC – The World Vegetable Center, Regional Center for East and Southeast Asia, Thailand.

Mr. Choi (left) and his pumpkin products (middle); school children learn pumpkin processing skills in Mr. Choi’s factory (right)