Cooperative rural savings and credit system boosts farmers’ income in Indonesia

Health benefits, no pesticide residues, and environmentally friendly farming practices have made organic vegetables popular and accepted by Indonesian consumers even though prices are 3-5 times higher than nonorganic vegetables. Over the past two years, the Taiwan Technical Mission in Indonesia has organized farmers into 37 producing and marketing teams and conducted 32 training courses for 1,120 participants to learn organic vegetable farming. Planting the vegetables in net houses/tunnels can reduce insect pest damage by 70%; however, most Indonesian farmers cannot afford this technology.

Top: In the Taiwan Technical Mission's Agribusiness Development Center, farmer participants learn how to pack organic vegetables for marketing

Right: Nylon net tunnels protect organic vegetables, Bogor, Indonesia

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The Mission implemented a rural savings and credit system for organic farmers to obtain loans to buy nylon netting for building net houses/tunnels. The farmers send the harvested organic vegetables, including kangkong, amaranth, rape (choy sum), kale, and pak choi, to the packing and trading center at the Mission’s farm, and the Mission deducts 25% of the income to pay for the nylon netting.

This project received a tremendous and warm response from farmers in Leuviliang and Ciomas districts, Bogor; selling organic vegetables has increased their incomes by 3-5 times. The sale of organic vegetables is more than 2.5 tons per month at present. More farmers are willing to join the organic farming teams and the Mission plans to promote the project to more regions in Indonesia.

Source and photos:
Chiung-feng Wu, Taiwan Technical Mission in Indonesia

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Farmers’ knowledge on disease management needs strengthening in Indonesia

Keeping virus-infected plants in the field and cultivating whitefly host plants next to chili pepper crops is common in Indonesia. This practice causes serious leaf curl symptoms on all newly planted chili seedlings. Disease incidence reaches 100% in such situations, with no hope for good yields. Farmers lack knowledge on disease management.

Recommended disease management practices include removing the virus-infected plants immediately when observed, keeping away whiteflies by physical and bio-barriers, using appropriate chemical control, and avoiding planting whitefly host plants, such as tomato family (Solanaceae) and cabbage family (Cruciferae) crops.

Under the “Integrated disease management (IDM) for anthracnose, Phytophthora blight and whitefly transmitted geminiviruses in chilli pepper in Indonesia” project funded by the Australian Centre for International Agricultural Research (ACIAR), chili disease resistance breeding efforts have the potential to generate significant impacts for chili production in Indonesia.

Left: Indonesian farmers did not remove virus-infected plants in the agroecosystem and transplanted chili pepper seedlings right next to the cabbage field. The proper disease management practice is to remove the infected chili plant (front) and avoid planting a whitefly host crop such as cabbage (left) next to the chili field (rear).

Right: Severe leaf curl virus disease was found on a newly-transplanted chili field.

Source and photos:
Wen-shi Tsai, Virology, AVRDC – The World Vegetable Center
Tomato leaf curl diseases were observed in Mali for the first time in 1985. Since then the disease complex has become established and now causes tremendous losses in tomato. Baguineda, with a large irrigation scheme, was one of the main tomato growing areas of the country that suffered from epidemics of tomato leaf curl diseases; the tomato canning factory established in 1964 closed down because of the lack of supply. To combat the diseases, farmers were advised to spray insecticide to reduce whitefly populations. However, the heavy use of insecticide did not have any impact on the tomato leaf curl diseases. What was needed was a sound Integrated Pest Management (IPM) program based on the biology of the begomovirus complex and its vector. This article describes the implementation of an IPM program for the control of tomato leaf curl diseases in the Baguineda Irrigated Perimeter in Mali. It was a collaborative effort involving several partners: the Malian Institute of Rural Economy (IER), the Office of the Irrigated Perimeter of Baguineda (OPIB), the Project Integrated Initiatives for Accelerated Economic Growth In Mali/USAID (IICEM Project) and the IPM Collaborative Research Support Program (CRSP).

The IPM program consists of a two-month host-free period and the use of resistant cultivars. June and July were defined as the host-free period. During these two months, planting tomato, sweet and hot peppers is forbidden, even in backyards. These three crops were identified as the hosts of the begomoviruses attacking tomatoes; weeds do not play any significant role in perpetuating the virus in the environment. Sanitation is a strong component of the host-free period. Plants growing in the field and previous crop residues are pulled up and destroyed. With the help of OPIB and the IICEM project, a brigade was created in each of the 22 villages exploiting the irrigated perimeter. The role of the brigades is to search for and destroy any tomato, sweet or hot pepper illegally planted.

One of the bottlenecks was how to make seeds of the resistant cultivars preferred by growers locally available. This problem was solved by the IICEM project, which signed a contract with a well-known representative of the Malian seed association. Farmers were then informed where they could purchase the seeds.

Training workshops were organized for the extension agents, farmers, representatives of NGOs and private companies involved in tomato production. Although the main objective of the workshops was to train the extension personnel in IPM techniques, modules on other vegetable production techniques were also included. A flyer explaining integrated management of tomato leaf curl diseases was published and widely distributed in Mali.

From the start, it was known that without the support of the local authorities, traditional chiefs, and other influential farmers in the implementation area, the host-free period would not be possible. OPIB has played a major role to secure a strong commitment of all these people to the IPM program. As a result, since 2005 it has been possible to have several meetings with farmers in all 22 villages and explain to them the need for a host-free period. The unwavering adhesion of the farmers to the host-free period was a key element in the success of the IPM program. News of the success in Baguineda has spread throughout the whole country, so that now other regions severely hit by tomato leaf curl diseases would like to implement this IPM program.
Chili pepper leaf curl virus disease in Honduras

Leaf curl virus disease of chili pepper has been observed in Comayagua village, Honduras, and the incidence is more than 80%. This disease was caused by begomoviruses and resulted in severe reduction of the pepper yield. Based on the viral sequence analysis, more than one begomovirus species was detected in the area. The diversity of begomoviruses should be considered in the process of developing multiple resistant cultivars.

Bio-barriers were used in the fields to prevent the begomovirus vector—whiteflies—from reaching the crop. However, high levels of disease incidence were still observed in the fields with uncompleted bio-barriers. This activity was conducted under the Integrated Pest Management Collaborative Research Support Program-Whitefly (IPM CRSP-WF) funded by the United States Agency for International Development (USAID).

Left: Leaf curl symptoms of chili pepper in Honduras; right: Wider spacing/lower planting density of sorghum leads to higher levels of whitefly-transmitted viral diseases

Source:
Wen-shi Tsai, Virology, AVRDC – The World Vegetable Center
J. Mauricio Rivera C., Head of Department of Plant Protection, Honduran Foundation for Agricultural Research

Photos:
Wen-shi Tsai, Virology, AVRDC – The World Vegetable Center
Natural selection of flood-tolerant vegetables by Typhoon Morakot

Typhoon Morakot caused severe damage to the southern part of Taiwan with record-breaking rainfall of 2,900 mm over three days from 7-9 August 2009. This was the highest amount of precipitation in 50 years. Many buildings were flooded up to the second floor; many isolated mountain villages and parts of freeways and railways were washed away. AVRDC – The World Vegetable Center’s headquarters is located in southwestern Taiwan and its Demonstration Garden sustained serious damage. More than 70% of the plants in the Demonstration Garden were wiped out, including some aquatic species.

However, some vegetables were flourishing as usual and showing good flood tolerance after three days of continuous rainfall and wind. Those vegetables include tropical violet (Asystasia gangetica), ivy gourd (Coccinia grandis), Vietnamese coriander (Polygonum odoratum), velvet plant (Gynura bicolor), Malabar spinach (Basella alba and Basella rubra), okra (Abelmoschus esculentus), kangkong (Ipomoea aquatica), and jute mallow (Corchorus olitorius). The last four vegetables have been selected as part of AVRDC vegetable seed kits for disaster response.