Case Study: A Researcher’s Passion in Improving Farming Production in Cambodia through Plant Disease Research

Ong Socheath was supervising students to identify Fungus in the Plant Pathology Laboratory, Faculty of Agronomy, Royal University of Agriculture.

I still remember the day in junior year when one of my teachers mentioned that there were limited number of Cambodian researchers on plant diseases and I thought to myself to become one of them. Thinking about lacking of human resources in this field and knowing how important the major is, I decided to go deeper,” said Ong Socheath, a CE SAIN research grantee.

Ong Socheath, a lecturer and a plant pathologist, is one of the research project winners in 2017 through CE SAIN Research and Innovation Program. She is also a Ph.D. student of Nagoya University, Japan and will graduate this year. Her project title is “Detection and management of tomato leaf curl virus disease and its whitefly vector,” a three-year project.

The project objectives are to sustain productivity of tomato production by reducing yield loss and pesticide use through effective tomato IPM with focus on tomato leaf curl management approaches and to identify the insect responsible for transmission of the tomato leaf curl virus.

Ten students, two master students and eight bachelor students, were selected to join the project. Students have obtained knowledge experiences and extra support on their study. The two master students get full support on their school tuition fee and their thesis research, while the eight bachelor students get support on their thesis research. Going through the experiment to identify the disease transmission by identifying its genetics is a stepping stone for them. They also allocate their significant time to analyze samples in our Plant Pathology Lab. “Personally, I have also learned along the way for being the project coordinator,” she described, “I have learned to manage the project budget better, and how to write a good report.”

“I would like to thank USAID through CE SAIN for providing grants to researchers at the Royal University of Agriculture. I hope this program keeps carrying forward to continue to build more human resources and support them to conduct innovative research for solving agricultural problems in Cambodia,” said Ong Socheath.

To know the causes of the virus transmission, many whiteflies known as infectious agents were collected. The infectious agent was found in the whitefly Bemisia tabaci, commonly known as the silver-leaf whitefly. Based on the preliminary results, she has tested different prevention strategies in different seasons. The result in rainy season has already completed and await to be compared with another result in dry season to assess the seasonal effect on preventing and managing the tomatoes leaf curl virus disease.

She stated that identifying the diseases on tomatoes is a difficult task because of its symptom similarity such as tomato yellow leaf curl disease, tomato mosaic virus, or nutrient deficiency. “If we get mixed up, we cannot control the disease on tomatoes well,” she explained. "Unlike fungus, viral diseases cannot be identified through a microscope. It needs to go through viral genome to conclude the right disease identification for the right preventions.”

The major end users of the research findings is our farmers who will put these prevention and management strategies into practices. This project might also carry forward to have a deeper understanding particularly the disease genomic to figure out whether it is the new species that is being transmitted from the other countries, or its exists in Cambodia.

Right now, Ong Socheath and her team are in the final stage of finalizing the project activities, planning a dissemination workshop, and preparing some publications. “We plan to submit our manuscript to an international peer-reviewed journal and to write a practical manual on Tomato Leaf Curl Management,” she mentioned. Likewise, a technical leaflet was produced to share during training and in other events.

“I am committed to be part of making better agriculture in Cambodia," she said. “After graduating my doctoral degree, I want to do more research on plant diseases as well as producing innovative technologies and solutions for certain plant diseases that will be beneficial to farmers to increase their farming productivity," she passionately expressed.