

Introduction to the 2018 International Symposium on Proactive Technologies for Enhancement of Integrated Pest Management of Key Crops

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ABSTRACT

The 2018 International Symposium on Proactive Technologies for Enhancement of Integrated Pest Management on Key Crops, including "Binational collaborative achievements on agricultural pest management between Taiwan and USA" and "Improving the effectiveness on the integrated pest management", which includes the proactive technologies for enhancement of integrated pest management, regulation and application of pesticides, management strategies for important plant diseases, and integrated pest management strategy with regards to climate change. We invited 22 experts from Taiwan, Australia, the United States, Japan and South Korea to be our symposium speakers. The sponsors sincerely hope that the symposium will not only provide proactive technologies or innovative pest management strategies for Republic of China, but also serve as a platform for future cooperation between domestic and foreign scholars, which can make a significant contribution to the advancement of Taiwan and global agriculture.

Keywords: agriculture, international cooperation, integrated pest management, proactive technology

Taiwan is located in eastern Asia and is one of the many islands in the East and Southeast Asia island arcs. It covers an area of 36,000 square kilometers and is the 38th largest island in the world. Nearly 70% of the area is mountainous and hilly. The topography and altitude on the western coast vary greatly. Due to the fact that the Tropic of Cancer runs through the middle of Taiwan, the climate of Taiwan covers the tropical and subtropical zones. The north of the Tropic of Cancer is the subtropical monsoon climate and the south is the tropical monsoon

climate. The population of Taiwan has exceeded 23.57 million in May 2018. Based on the gross domestic product (GDP) report released by the International Monetary Fund (IMF) in 2013, Taiwan was the 27th largest in the global economy. Taiwan's economic structure has been shifted to high-tech industries, which replaced labor-intensive industries e.g., plastic products manufacturing, textile, and garment industry, etc., while the proportion of agriculture in GDP fell from 35% in 1952 to 2%.

Although the proportion of agriculture industry has decreased, the deep foundation in science education in the past has enabled Taiwan's agriculture to quickly integrate cross-domain technology when faced with man-made and natural disadvantages. That surely provides a great opportunity to promote and make agriculture an important industry again to Taiwan. In order to respond to the impacts on the global and regional economic integration due to climate change and the intensification of extreme climate, and the aging of rural employment in Taiwan, the Taiwan Agricultural Research Institute (TARI) has been working with domestic and foreign agricultural research institutions on different themes over the years to reduce the impacts of such problems on the agricultural economies. Using the various themes of this 2018 international symposium as an example, it can be traced back to 2012 when Mr. Bao-Liang Chen, the then chief executive of the Animal and Plant Health Inspection and Quarantine Promotion Group in the International Collaboration Field in the Council of Agriculture, Executive Yuan of ROC, entrusted the Taiwan Agricultural Experimental Institute to consult with different agricultural institutes of COA to tackle the research bottlenecks with self-assessment after he has investigated all of the programs on the management of crop pests. The proposed programs included those that need to introduce domestic and foreign experts or new technologies to shorten their research schedules. It is clearly illustrated in the themes of this symposium that fits the purpose of proposed program introducing foreign experts and technologies, which can be used as the basis for handling international cooperation plans.

Therefore, in 2012, we have prioritized five issues as a medium-term plan for international cooperation, including "Insect vectors and insect-borne diseases", "Integrated pest management strategy with regards to climate change", "Proactive technologies for enhancement of integrated pest management", "Regulation and application of pesticides" and "Establish an information platform for transnational and inter-disciplinary pest management and natural enemy applications". Based on the above-mentioned five issues, we expect to strengthen the research base of agricultural pests in Taiwan. Afterward, through the program

review, researchers from the different institutes of COA would be sent to the United States, Australia, Japan and other countries for short-term studies ranging from 2 weeks to 2 months, with that we traced the cooperation effects between Taiwan researchers and foreign experts. Besides, we will establish a list of foreign experts as potential international partners in the research of integrated pest management in Taiwan based on the recommendations from the above researchers or other domestic experts. Some experts will be invited to serve as lecturers for specific technologies, and some of them conduct cooperative research through bilateral scientific and technological exchange programs signed by Taiwan and foreign countries, and in the meantime we also organized “The 2013 International Symposium on Insect Vectors and Insect-Borne Diseases” and “2018 International Symposium on Proactive Technologies for Enhancement of Integrated Pest Management on Key Crops” in 2013 and 2018, respectively, by inviting specific domestic and foreign experts. In the 2013 symposium, we invited a total of 18 domestic and foreign experts to serve as speakers, including 7 Taiwan experts, 11 US experts and 1 Australian expert. This year (2018), a total of 23 domestic and foreign experts to serve as speakers, including 10 Taiwan experts, 7 Japanese experts, 4 US experts, 1 Australian expert and 1 Korean expert.

We look forward to this international symposium, which like the one held in 2013, will become a discussion platform for cooperation between Taiwan and foreign scholars. We sincerely hope that all speakers and other participants can fully engage in the discussion of the specific targeted issues in these three days. Future potential cooperation issues will effectively solve the common research bottlenecks, and look forward to joining the international agricultural science and technology research projects to enhance the vision of Taiwan's agricultural science and technology research.