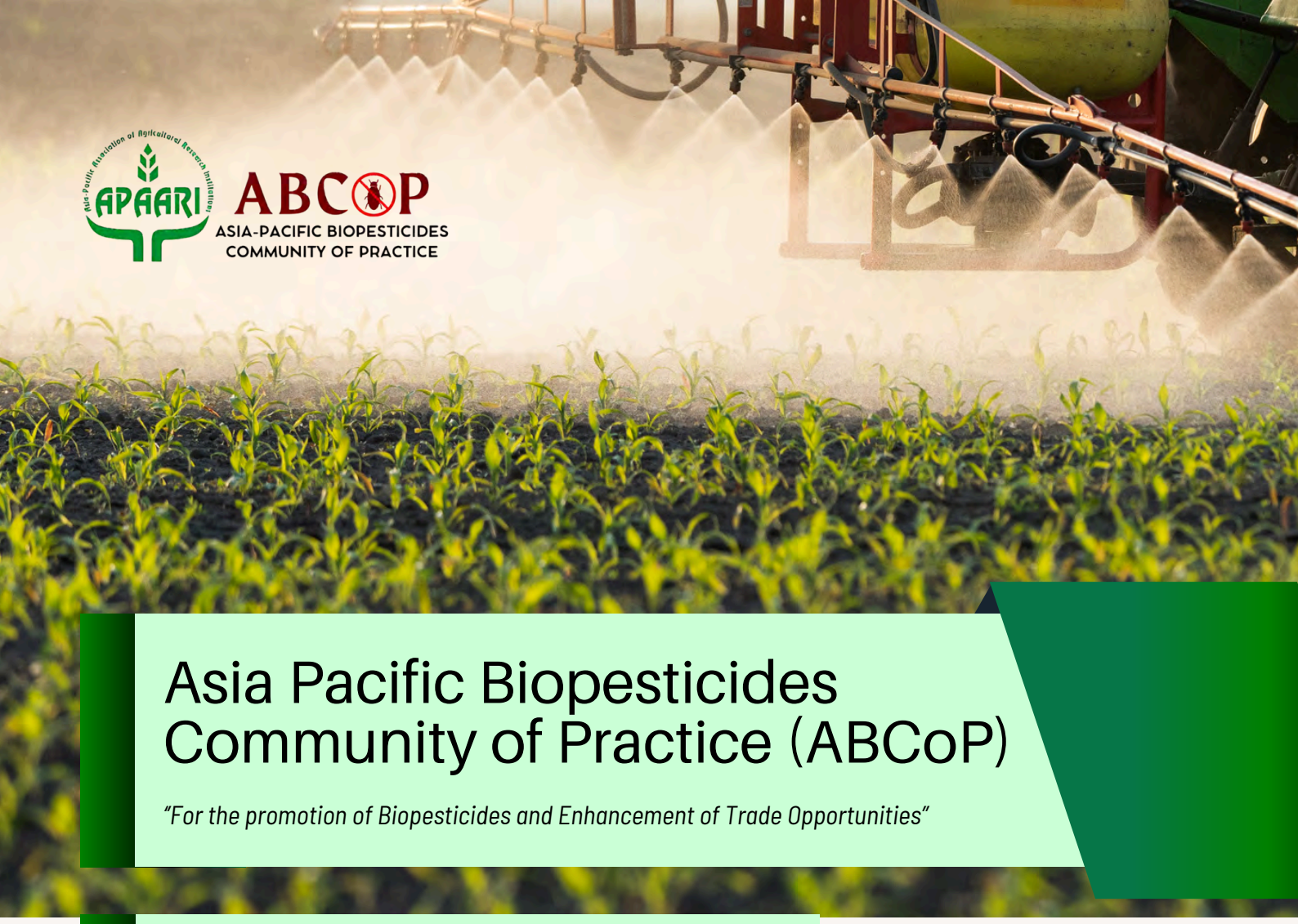

ABCOP
ASIA-PACIFIC BIOPESTICIDES COMMUNITY OF PRACTICE

Asia Pacific Biopesticides Community of Practice (ABCoP)

"For the promotion of Biopesticides and Enhancement of Trade Opportunities"

Topic:

"Lesson learned and the implementation of IPM - biologicals in Climate Smart Rice Landscape in Thailand"

An interactive Q&A session is lined up!

Guest Speaker

Dr. Atthawit Watcharapongchai
Project Director
Rice Projects in Thailand
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
German International Cooperation

Moderation and Expert's Insights

Dr. Ravi Khetarpal
Executive Director, APAARI

Prof. Paul Taylor
Technical Coordinator, APAARI

August 28, 2025
Thursday

02:00 - 03.00 PM
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Presentation 1: **Lesson learned from Biologicals Promotion in Chiang Rai, Thailand**

Speaker: Dr. Atthawit Watcharapongchai, Project Director Rice Projects in Thailand, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, German International Cooperation

Summary: The project on promoting biopesticides was initiated in Chiang Rai, Northern Thailand, where around 3,000 farmers cultivate rice, maize, and potato in rotation. Rice is largely grown for household consumption, while maize and potato are key cash crops. At the beginning of the project, farmers faced low income, indebtedness, high production costs, and low yields. Pest and disease pressure was particularly severe, with rice blast affecting rice and late blight threatening potato. These challenges were compounded by heavy reliance on chemical pesticides and fungicides.

The project was implemented as a Public-Private Partnership (PPP), funded by the German government with PepsiCo as a private sector partner. It began in 2021 and is scheduled to conclude in 2025. While initial efforts focused on single crops—rice supported by government extension services and potato supported by PepsiCo—the project shifted towards a holistic approach. This shift recognized that farmers manage multiple crops, and improvements in practices for one crop could be transferred to others.

Trichoderma was selected as the first biological control agent to be introduced to the farmers. Although it has been available in Thailand for over a decade and its efficacy is widely recognized, adoption rates were extremely low. A baseline study in 2022 found that only about five percent of farmers had ever used it. Farmers had heard of Trichoderma but faced barriers such as lack of access, misconceptions that it clogged spray nozzles, and absence of opportunities for trial. Importantly, no farmer reported that Trichoderma was ineffective, suggesting that the issue lay not with the product but with the process of technology adoption.

To address this challenge, the project applied the Innovation Adoption Theory by Everett Rogers, which outlines the steps from awareness through interest, evaluation, trial, and adoption. The assessment showed that most farmers were stuck at the awareness stage. Therefore, interventions were designed to move them forward in the adoption process.

The project organized community meetings in collaboration with extension officers and community leaders to refresh farmers' knowledge and explain the benefits, use, and accessibility of Trichoderma. Demonstration plots were established to allow farmers to observe results directly, based on the principle that "seeing is believing." Training workshops enabled farmers to practice multiplication and incubation of Trichoderma themselves, and each participant received free samples to encourage immediate trial. Misconceptions were also addressed—for example, farmers concerned about nozzle clogging were shown that

spraying with drones avoided this problem. Integrated Pest Management (IPM) practices, including pest monitoring, use of traps, safe pesticide use, and personal protective equipment (PPE), were also introduced to complement biological control.

The results were significant. Within two years, adoption of Trichoderma increased from 5 percent to about 50 percent, a tenfold improvement. Farmers progressed from awareness to trial and adoption, with many entering the early majority stage. Beyond adoption of a single technology, the project fostered a broader change in mindset. For example, one farmer, Ms. Visa, initially had limited knowledge of sustainable practices, but after two years became more aware of climate change impacts, expressed interest in diversifying risk, and actively sought to learn about other biological control agents such as Beauveria and Bacillus subtilis. This illustrates the transformative effect of continuous learning and farmer engagement.

The success with 3,000 farmers provided important lessons for scaling up. These experiences are now being applied in larger programs. The Inclusive Sustainable Rice Landscape (ISRL) Project aims to reach 45,000 farmers in two provinces, reduce the use of toxic chemicals by 100,000 tons, and restore 180,000 hectares of land. Another initiative, the Thai Rice NAMA and Green Climate Fund (GCF) Project, works across 21 provinces with 253,400 farmers and 3,000 extension officers, promoting ten core technologies including IPM and biopesticides.

Several key lessons emerged from the experience. First, adoption of biopesticides depends not only on their effectiveness but also on addressing access, perceptions, and trust. Second, awareness-raising is insufficient unless complemented by hands-on demonstrations and trials. Third, misconceptions and minor practical challenges, such as spray nozzle concerns, can be overcome with simple solutions. Fourth, holistic approaches that cut across multiple crops are more impactful than focusing on individual commodities. Finally, scaling requires alignment with government policy, private sector engagement, and integration at the landscape level.

In summary, the project demonstrated that biopesticides, when combined with IPM and supported by effective extension methods, can substantially reduce chemical dependence, improve resilience, and transform farmer practices. The rapid increase in adoption within two years highlights the potential for small pilots to generate knowledge and models that can be scaled nationally. Ultimately, these efforts contribute not only to farmer livelihoods but also to sustainable agriculture and environmental protection in Thailand.