APAARI

ABCOP
ASIA-PACIFIC BIOPESTICIDES COMMUNITY OF PRACTICE

Asia Pacific Biopesticides Community of Practice

'For the promotion of biopesticides and enhancement of trade opportunities'

Our Speakers:

MR. IGOR RYLKOV

International Affairs Manager
All-Russian Plant Quarantine Center subordinated to Rosselkhoznadzor (Ministry of Agriculture of the Russian Federation)
Moscow Oblast

Topic: Biological Crop Protection – Some Key Facts on the Current Situation in Russia

DR. A.D. N. T. KUMARA

Senior Lecturer
Department of Biosystems Technology
Faculty of Technology
Southeastern University of Sri Lanka

Topic: Advancements and Prospects of Biopesticides for Sustainable Agriculture: Global Trends and Insights from Sri Lanka

REGISTER NOW

JUNE 30, 2025

2 PM - 3 PM (Bangkok time)

Contact us

d.senadheera@apaari.org

ravi.khetarpal@apaari.org

www.apaari.org

Presentation 1: Biological Crop Protection - Some Key Facts On Actual Situation In Russia

Speaker: Mr. Igor Rylkov, International affairs Manager, All-Russian Plant Quarantine Center

Summary: The Federal State Budgetary Institution "All-Russian Plant Quarantine Center" plays a central role in Russia's plant quarantine system, operating a network of regional laboratories and serving as an internationally significant scientific center.

Russia's strategic agricultural goal, set by the President, is to increase agro-industrial production by 25% compared to 2021 levels—achieving 1.5 times more output. This will require improved yields through greater use of organic and mineral fertilizers, effective pest and disease management, and widespread adoption of biological plant protection methods.

Globally, the biopesticide market is projected to grow by 16% between 2022 and 2029, with North America and Europe leading the way due to strict regulations limiting chemical pesticides. However, Russia's biopesticide market share is still under 0.5% of the global total.

In the EU, around 1,500 pesticide active ingredients are registered, with about 1,000 banned for safety reasons and replaced by safer alternatives. As of December 1, 2024, Russia uses 25 active ingredients not approved in the EU, found in over 880 pesticide products—about 4% of all pesticides used domestically. Over the last 20 years, the number of registered pesticides in Russia has quadrupled, and pesticide use has risen by 50% in the past five years. Fertilizer application has also increased, raising potential risks to biodiversity, product safety, and export compliance.

To address these risks, Russia aims to accelerate its ecological transition by phasing out obsolete pesticides and increasing the "biologization" of agriculture. Currently, 98 biopesticides are registered in Russia, including *Bacillus thuringiensis* (against Lepidoptera pests) and *Trichoderma* spp. (for soil pathogen suppression).

The institution seeks new collaborations in biological crop protection and invites participation in its upcoming event in Irkutsk (Baikal region) focusing on forest protection, with a dedicated section on biological forest protection.

Presentation 2: Advancements and Prospects of Biopesticides for Sustainable Agriculture: Global Trends and Insights from Sri Lanka

Speaker: Prof. A.N.D.T. Kumara, Professor in Entomology, Department of Bio-systems Technology, Faculty of Technology, South Eastern University of Sri Lanka

Summary: Biopesticides—pest control products derived from natural sources such as plants, bacteria, fungi, and certain minerals—offer eco-friendly alternatives to synthetic pesticides, addressing challenges like climate change, pesticide resistance, and food/environmental safety concerns. They can be classified as microbial (e.g., *Bacillus thuringiensis*, *Beauveria bassiana*, *Metarhizium anisopliae*, baculoviruses), botanical (e.g., neem, pyrethrin, plant extracts), biochemical (plant volatiles, essential oils, insect pheromones), and next-generation (RNAi-based and genetically engineered products).

Mode of Action includes disrupting feeding, reproduction, growth, or behavior; affecting nervous systems; and acting as repellents or mating disruptors. While slower-acting than chemicals and often with shorter shelf life, biopesticides are safer, more specific, and align with sustainable agriculture goals.

Global trends show the market growing from USD 8.73 billion in 2024 to a projected USD 28 billion by 2032, driven by organic farming demand, stricter regulations, and advances in formulation technology, nanotechnology, genetic engineering, and AI-enabled precision application.

Benefits include improved soil health, reduced residues, protection of pollinators, biodiversity conservation, and alignment with SDGs. They fit well within Integrated Pest Management (IPM) systems and organic farming models across Asia, Europe, and Latin America.

Challenges include limited shelf life, formulation instability, high R&D and regulatory costs, inconsistent field performance, lack of advanced technology in some countries, and low farmer awareness.

Sri Lanka's status:

- Growing interest in biopesticides, especially after the 2021 temporary ban on synthetic inputs.
- Products in use include *B. thuringiensis* and neem-based formulations, mostly imported.
- Key actors: Department of Agriculture, universities, private companies.
- Challenges: limited local production, low market availability, inconsistent product quality, and insufficient investment.
- Opportunities: rich biodiversity for botanical biopesticide development (e.g., neem, cinnamon, citronella), growing global demand for organic and residue-free produce, potential for eco-labeling and value-added exports.

Recommendations:

Gradual transition from synthetic to bio-based pest control; increased investment in R&D; improved registration processes; stronger policy support; farmer training and awareness programs; and integration of biopesticides into modern precision agriculture and IPM strategies to ensure both environmental and human health sustainability.