



Policy Brief

PROMOTING THE USE OF BIOPESTICIDES FOR SAFE TRADE AND ENVIRONMENT IN ASIA

This document provides guidance and learning for policy- and decision-makers on the use of biopesticides to facilitate safe trade and protect the environment. It provides support to inform and position policies and regulations on the use of biopesticides, as well as support to business planning and investment for biopesticide development, promotion and adoption. The recommendations and lessons presented here are drawn from work carried out under a regional project (STDF/PG/634), funded by the Standards and Trade Development Facility (STDF) and implemented by APAARI with partners. They can be tailored to inform regulation, as well as research, development and roll-out of biopesticides at the country level.

Protecting agriculture production in the face of climate change

Farmers worldwide depend on conventional, synthetic plant protection products, including pesticides, to improve their yields and protect their crops from plant pests, diseases and weeds. Proper use of registered products, based on international Codex standards, is expected to protect health and facilitate safe trade. Improper use of these products raises concerns for the health of people and animals, and poses risks for the environment, including soil, water and air quality. This can result, for instance, in environmental pollution, destruction of beneficial insects and the emergence of resistant pests.

With the spread of plant pests and diseases exacerbated by climate change, the need for plant protection products, like conventional pesticides, is expected to grow. At the same time, there is growing public and political pressure globally, including from consumers, to reduce the use of plant protection products that can harm human health and as well the environment. This makes it ever more urgent to identify innovative and effective solutions for farmers to control plant pests in a way that protects human health and the environment, while facilitating safe trade.



How can biopesticides help protect agriculture, human health and the environment?

Biopesticides present an innovative approach to protect production and facilitate safe trade. Biopesticides offer an excellent alternative to some of the older, highly toxic pesticides, and can complement conventional pest control strategies. Use of biopesticides can help growers protect and increase their yields and mitigate trade issues related to pesticide residues, while ensuring food safety and protecting the planet. Mitigation studies carried out under the STDF regional project (STDF/PG/634) showed a reduction of 50% in pesticide MRL values by combining the use of biopesticides at the end of the crop season with conventional pesticides.

Governments should therefore promote and enable the use of biopesticides by farmers, especially through appropriate registration mechanisms, as well as advocacy to expand their adoption at the national level. Government authorities can also work with industry to encourage and support research and development on new biopesticides for crops of importance to small-scale farmers in their countries. In some cases, they may restrict and even ban the use of older pesticides, where there are suitable biopesticide available.

Despite recognition of the need to move away from excessive reliance on chemical pesticides towards more sustainable and environmentally options, in most countries there has been little organized effort to include biopesticides in integrated pest management (IPM) programmes, or to develop new business models for biopesticides research and development (R&D), registration and promotion.

Transitioning away from a reliance on conventional plant protection products and synthetic pesticides towards a more sustainable future based on greater use of biopesticides requires “systems” thinking to strengthen and/or build new national biopesticide regulatory systems, and ensure an

Why are biopesticides unique?

Biopesticides are different from synthetic pesticides since they have natural origins and mostly do not produce residues. Therefore, they are exempt from pesticide Maximum Residue Limits (MRLs) for trade. These are the maximum concentration of a pesticide residue in or on food or feed of plant and animal origin that is legally tolerated when a plant protection product is applied correctly.

adequate supply of biopesticides on the market that are suited to farmers' needs. Diverse stakeholders – including farmers, the private sector and plant protection industry, as well as consumer organizations – all have a role to play in supporting this transition.

Business opportunities exist to develop and manufacture biopesticides in the Asia and Pacific region, which can create jobs and support private sector growth. Yet commercialization will not happen unless the government creates an enabling environment for the development, use and trade in biopesticides in the region. For biopesticides to play a significant role in agricultural production and safe trade facilitation in the future, the biopesticides market needs to grow substantially in the Asia-Pacific region. This requires increased understanding and knowledge about: (i) the potential role and benefits of biopesticides for agricultural production and trade, as well health and environmental protection; (ii) how they can be used by farmers to complement and/or replace the use of conventional pesticides; and (iii) trends and opportunities that are likely to influence their commercialization, as well as relevant requirements for regional international trade.



Dr Stefan Jaronski, Adjunct Professor at Virginia Polytechnic and State University, provided a hands-on training on microbial biopesticide production.

Biopesticides: Key takeaways

- Use of biopesticides in combination with conventional products, as part of sound Integrated Pest Management (IPM) programmes, offers win-win opportunities to facilitate safe trade and protect the planet.
- Biopesticides can help small-scale farmers avoid pesticide Maximum Residue Limit (MRL) issues affecting agri-food trade, while promoting environmental sustainability and ensuring food safety for consumers.

Policy recommendation to promote the use of biopesticides in Asia-Pacific countries

What do policy makers, decision makers and research managers need to know and do about biopesticides to better position their policies?

Strengthen the regulatory system

- Strengthen the understanding and knowledge of government agencies about the role and benefits of biopesticides, including how they can be used alongside conventional pesticides, in order to increase commitment and political support to promote biopesticides as innovative and environmentally-friendly solutions.
- Develop appropriate mechanisms to synthesize knowledge on environmental, economic and social dimensions of biopesticide development, based on science and practice, to feed into future policy- and decision-making.
- Establish and/or improve necessary legislation, regulations and guidelines to support the use of biopesticides in line with international conventions and protocols, and monitor their effectiveness.
- Strengthen national registration mechanisms for biopesticides that address related costs, total toxicology, ecological

and environmental tests, product registration and approval time, and regulatory harmonization.

- Include biopesticide development as part of countries' innovation strategies and vision linked to the creation of new green jobs, food safety, improved incomes and sustainable development.

Improve availability of biopesticides

- Improve the national production system of biopesticides to enable the manufacturing of biopesticides with improved efficacy, lower cost, and increased shelf life.
- Invest in building and/or upgrading existing infrastructure for biopesticides, including research, laboratory and testing facilities in line with international standards, to enhance product quality, efficacy, efficiency and effectiveness.
- Enhance technical and innovation capacities of researchers to effectively perform biopesticide manufacturing and collaborate with relevant stakeholders (including farmers and the private sector) through co-research and co-innovation.
- Attract industry actors and the private sector to support commercialization through incentives (e.g. financing options, tax incentives, simplified licensing processes, and appropriate intellectual property management) combined with knowledge networking across diverse actors involved (including researchers, farmers and other innovation actors).
- Document good practices in promoting biopesticides and make them available to other countries, particularly those with weaker R&D systems that rely on biopesticide imports.
- Facilitate safe trade in biopesticides by ensuring an effective policy framework and reducing procedural and other technical obstacles to the import and export of biopesticides.

Support farmer education and showcase the business case to increase adoption

- Create incentives to expose and involve farmers with more experience on the use of

biopesticides to achieve economies of scale through 'learning by doing' and build trust.

- Promote practical co-research between researchers and farmers to build on their knowledge, and document practical experiences on the use of biopesticides.
- Integrate biopesticide education in rural advisory services to help farmers choose appropriate IPM approaches, considering how farmers' existing pest control approaches can be replaced, or where new technologies can be added without affecting the interdependency of the approaches under one technology portfolio.
- Improve technical and innovation capacities of farmers to motivate and enable them to produce biopesticides locally.
- Showcase the business case to farmers by providing information on the benefits and costs of using biopesticides.

Build consumer awareness

- Design communication strategies to inform the general public about the role and benefits of biopesticides addressing aspects related to economic, environmental and health perspectives.
- Encourage dialogue among farmers, consumers, scientists and government officials to address different perceptions and build trust on the use of biopesticides.
- Introduce national multi-faceted communication campaigns to bridge the gaps between scientific knowledge, farmers' experiences and consumer behavior.
- Engage non-governmental organizations in helping to create public awareness on the safety aspects of biopesticides, and their role in providing socio-economic and environmental benefits to society.

Using biopesticides to reduce residues and facilitate safe trade: STDF regional pilot project in Asia

- Use of biopesticides in combination with conventional products, as part of sound Integrated Pest Management (IPM) programmes, offers win-win opportunities to facilitate safe trade and protect the planet.
- Biopesticides can help small-scale farmers avoid pesticide Maximum Residue Limit (MRL) issues affecting agri-food trade, while promoting environmental sustainability and ensuring food safety for consumers.

Results highlights

- 170+ government officers equipped with knowledge and skills on residue mitigation studies, biopesticide production and regulatory harmonization.
- 18+ residue mitigation studies for products (e.g. cabbage, sweet basil, dragon fruit, chili peppers) grown by millions of small-scale Asian farmers for export.
- Studies showed that proper use of biopesticides at the end of the growing season reduced pesticide MRLs by half.
- Harmonization of participating countries' biopesticide regulations with ASEAN Guidelines.

Find out more: <https://standardsfacility.org/PG-634>

References

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Published online 2021 Jan 27. doi: [10.3390/ijerph18031112](https://doi.org/10.3390/ijerph18031112)

The CABI BioProtection Portal is the largest free global resource providing users with registered biocontrol and biopesticide products in their country and information on how to use them. It aims to help growers and agricultural advisors identify, source and correctly apply these products against problematic pests in their crops. The Portal is available (online and offline) in English and local languages, and on smartphones, tablets and desktop. APAARI and STDF are associate members of the Portal.

Find out more: <https://bioprotectionportal.com/>

About the Standards and Trade Development Facility (STDF)

The Standards and Trade Development Facility is a global partnership to facilitate safe trade that promotes compliance with international standards for food safety, animal and plant health. The STDF creates and disseminates good practices and knowledge on cross-cutting topics, and develops and delivers innovative and collaborative safe trade projects.

About the Asia-Pacific Association of Agricultural Research Institutions (APAARI)

APAARI is a membership-based, apolitical, multi-stakeholder, and intergovernmental regional organization that catalyzes collective action to improve agri-food research and innovation systems toward a more sustainable Asia-Pacific region.

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Dr Stefan Jaronski with participants attending microbial biopesticide production workshop