



Paving the Way for Lower-Risk Crop Protection

Regulatory Pathways for the Registration of Bio-Pesticides in Pakistan

Presented by

Zaeema Khan

Deputy Director Pesticides Registration
Department of Plant Protection
Ministry of National Food Security & Research
Government of Pakistan

Introduction: Setting the Stage for Bio-Pesticides in Pakistan

Why Bio-Pesticides in Pakistan?

- Growing demand for sustainable, low-risk crop protection.
- **Pakistan's Context:** Agricultural sector heavily dependent on conventional pesticides.
- Bio-pesticides offer a safer, eco-friendly alternative with fewer residues and minimal environmental impact.

DPP's Commitment:

- A comprehensive regulatory framework for bio-pesticides has been developed.
- **Objective:** Facilitate smoother registration and use of bio-pesticides for local agriculture.

Steps in Developing the Registration Process

1. Regulatory Framework Development:

- Drafted in alignment with global standards (e.g., FAO, WHO, OECD).
- Extensive consultations with stakeholders, including regulatory bodies, manufacturers, and farmers.

2. Evaluation and Risk Assessment Criteria:

- Special protocols for bio-pesticides, focusing on low toxicity and eco-sustainability.
- Risk-based assessments to ensure efficacy and safety without stifling innovation.

3. Field Trials and Pilot Programs:

- Field trials in key agricultural regions to evaluate bio-pesticide effectiveness on local pests.
- Feedback loops between field performance and regulatory refinement.

4. Collaboration and Capacity Building:

- Partnering with CABI, international regulatory experts, and local academia for scientific validation.
- Training workshops to build regulatory capacity and awareness.

Key Requirements for Bio-Pesticide Registration Applicants

1. Comprehensive Technical Dossier:

- Full disclosure of product formulation, mode of action, and safety profile.
- Specific data requirements for toxicity, environmental impact, and product stability.

2. Efficacy Trials and Performance Data:

- Evidence of product efficacy through independent field trials.
- Comparative performance with conventional pesticides.

3. Risk Assessment Documentation:

- In-depth environmental risk analysis, addressing non-target effects and biodegradability.
- Minimal risk to human health and ecosystem components.

4. Compliance with Labelling and Usage Regulations:

- Clear and compliant labelling, including safe use instructions, target pests, and crops.
- Alignment with Pakistan's regulatory requirements, including the DPP's mandates for bio-pesticides.

Key Crops & Pests in Pakistan Requiring Bio-Control Solutions

1. High-Priority Crops:

Wheat: Staple crop; bio-pesticides for aphids, rust, and leaf blight.

Cotton: Vulnerable to bollworms and whiteflies; strategic for Pakistan's export economy.

Rice: Bio-solutions for stem borers and leaf folder to reduce chemical dependency.

Mango & Citrus: Bio-pesticides for fruit flies, citrus canker, and scales.

Vegetables (Tomatoes, Potatoes, Onions): Control of aphids, thrips, and leaf miners.

2. High-Priority Pests:

Fruit Fly (*Bactrocera dorsalis*): Key pest threatening mango and citrus exports.

Pink Bollworm (*Pectinophora gossypiella*): Persistently damaging cotton.

Aphids (Aphis spp.): Affecting a wide range of crops like wheat and vegetables.

Fall Armyworm (*Spodoptera frugiperda*): Emerging threat, especially for maize and vegetables.

Future Priorities and Next Steps for 2025

1. Expanding Bio-Pesticide Use:

- Roll-out of bio-pesticides to more regions and for more crops.
- Encourage local production of bio-pesticides to reduce costs and enhance availability.

2. Enhancing Regulatory Framework:

- Simplify the registration process while maintaining safety and efficacy standards.
- Harmonization of bio-pesticide regulations with international best practices for faster market access.

3. Capacity Building and Training:

- Expand training programs for farmers and extension workers on the safe and effective use of bio-pesticides.
- Build technical expertise within DPP to handle bio-pesticide evaluation and monitoring.

Future Priorities and Next Steps for 2025 (Contd.)

4. Strengthening Public-Private Partnerships:

- Facilitate collaboration between industry, research institutions, and the government for R&D in bio-pesticides.
- Incentivize local manufacturers to invest in bio-pesticide production.

5. Public Awareness and Adoption Campaigns:

- Develop campaigns to raise awareness among farmers and consumers about the benefits of bio-pesticides.
- Leverage government subsidies or incentive schemes to encourage widespread adoption.

Towards a Sustainable Future in Crop Protection

Commitment to Lower-Risk Crop Protection:

- Pakistan is fully committed to transitioning to safer, eco-friendly agricultural practices.
- Bio-pesticides will play a critical role in achieving sustainable agriculture.

Call for Global Collaboration:

- Global partnerships with industry leaders, researchers, and regulators will accelerate innovation.
- Joint efforts can lead to a resilient agricultural sector with lower pesticide residues, enhanced safety, and ecological sustainability.

Thank you