



Creating and facilitating the move towards safer and sustainable food systems where human health and the environment are protected

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The global pesticide market

- Global demand for pesticides is rising due to increasing plant health threats and will continue to do so for the foreseeable future*
- The amount of **pesticide use per hectares of cropland increased** by about 30% between 2002 and 2018**
- In many low and lower-middle income countries there have been significant increases in the number of chemical pesticide active ingredients registered, volumes of pesticides imported and produced, and amounts of pesticide used
- An International Pollutants Elimination Network (IPEN) report*** released at UNEA in February 2024 outlines that while wealthier nations have banned or regulated most HHPs, the toxic pesticides are still widely used in LMICs, with some countries reporting that almost 70% of all pesticides allowed for use were HHPs

*UNEP (2022) Synthesis Report on the Environmental and Health Impacts of Pesticides and Fertilizers and Ways to Minimize them. Geneva, 59 pages.

**Food and Agriculture Organization of the United Nations (2021). FAOSTAT. Data: Pesticide use.

<https://www.fao.org/faostat/en/#data/RP/visualize>***Brosché, S. The Global Threat from Highly Hazardous Pesticides. IPEN. February 2024.

<https://doi.org/10.1016/j.gloenvcha.2023.102693>



Pesticide risk reduction



Pesticide use is **negatively impacting** food systems, human health and the environment.



Pesticide Risk Reduction initiatives **reduce harm to human health and the environment** while ensuring continued production of high quality, safe crops.



Why is pesticide risk reduction important

- Through reducing reliance on pesticides, selecting pesticides with the lowest risk and ensuring proper use of the selected products:
 - Farmers will be exposed to lower levels of pesticide, and **experience fewer health problems** and acute poisonings resulting in improved health
 - We can ensure **delivery of safer produce into food systems**
 - Fewer rejections will be experienced through exceeding maximum residue levels when trading internationally leading to an **increase in net income for farmers.**
 - We will see **benefits to biodiversity, soil and aquatic health,** and lower levels of toxic chemicals circulating in the environment.



CABI's approach to pesticide risk reduction

CABI aligns with the FAO Guidance on Pest and Pesticide Management Policy Development (FAO, 2010), working across three steps:

- 1. Reducing reliance on pesticides.** Determine what levels of pesticide use are actually needed. Make optimum use of non-chemical pest management and eliminate unjustified pesticide use.
- 2. Selecting pesticides with the lowest risk.** If use of pesticides is deemed necessary, select products with the lowest risk to human health and the environment from the available registered products that are effective against the pest or disease.
- 3. Ensuring proper use of the selected products** for approved applications and in compliance with international standards.



CABI's approach to pesticide risk reduction

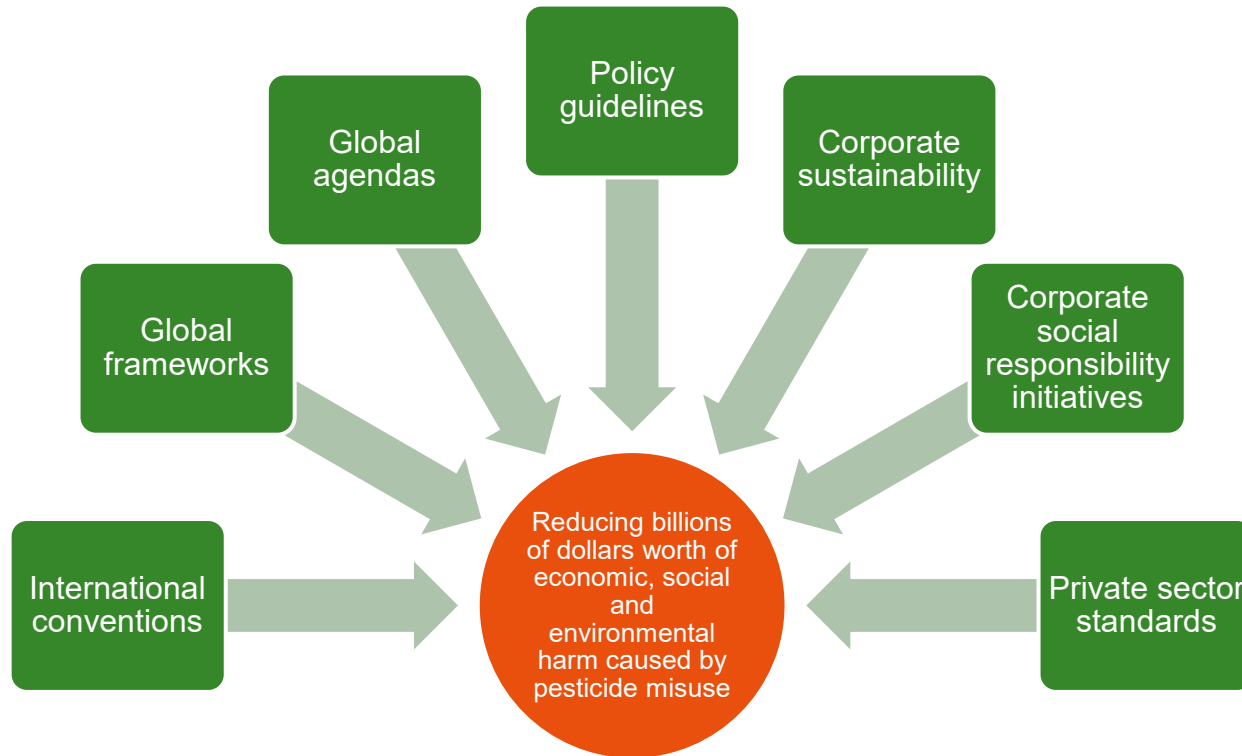
Through working with Member Countries and other stakeholders we will:

- Support the development and implementation of **policies and regulations**
- Collaborate on **research and development** of innovative IPM solutions
- **Support value chain actors** to transition to lower-risk production practices

By applying **Integrated Pest Management (IPM)** practices we will:

- Encompass **diverse, safer practices** to manage pests
- Encourage **judicious and carefully managed** use of appropriate chemicals
- **Reduce the risks** posed by hazardous chemical pesticides

Partnerships are essential



Multiple global initiatives include targets and goals to reduce the harm caused by pesticides however much work need to be done

100's of public and private sector organisations worldwide are working towards reducing the environmental and health risks associated with pesticides

Collaboration is key to meeting these international targets

We recognise that the barriers faced, and progress made around pesticide risk reduction vary substantially between countries therefore **collaboration between CABI and its member countries is vital**

Proven expertise: We support the development and implementation of policies and regulations

- Our convening power and research outcomes are used to inform policy discussions and the development of national pest management strategies, to encourage government level recommendations to use low-risk options¹
- We work with biocontrol manufacturers to assist with registration in CABI member countries (i.e. Kenya²)
- We work with regulatory bodies to develop protocols for registration of lower risk products³

¹Kansiime MK, Besehe P, Hevi W, Lamontagne-Godwin J, Clottey VA, Rwomushana I, Day R, Rware H, Aboagye E, Williams F. (2020) Implementation of fall armyworm management plan in Ghana: outcomes and lessons. CABI Study Brief 34: Learning.

²CABI (2021) Mating disruption pheromone now registered to fight fall armyworm in Kenya. CABI News article

³Musebe, R., Day, R., Kipkoech, S., Musavi, F., Kimani, M., Opiyo, P., & Hassan, N. (2011). Putting research into use: community-based armyworm forecasting in Kenya. East African Agricultural and Forestry Journal, 76.

Mating disruption pheromone now registered to fight fall armyworm in Kenya

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CABI's collaboration with US-based agri-tech firm **Provivi** has supported the registration in Kenya of a new biocontrol product – Provivi's Pherogen™ SPOFR dispenser – now being deployed to fight **fall armyworm** (*Spodoptera frugiperda*).

Provivi's Pherogen™ SPOFR dispenser has been registered by the **Pest Control Products Board (PCPB)** in the Biopesticide Category as a mating disruption pheromone to manage the devastating crop pest in Kenya – estimated to cause annual production losses in the country of between US\$159-177m.

The registration was granted following the completion of efficacy trials in the country and sets the stage for its widespread use as a low-risk biocontrol product. It provides an alternative to pesticide use for smallholder farmers trying to manage fall armyworm as part of their Integrated Pest Management (IPM) plans.

Study Brief 34: Impact



Implementation of fall armyworm management plan in Ghana: outcomes and lessons

Monica K. Kansiime, Patrick Besehe, Walter Hevi, Julien Lamontagne-Godwin, Victor Attuquaye Clottey, Ivan Rwomushana, Roger Day, Harrison Rware, Ebenezer Aboagye, and Frances Williams



Proven expertise: We collaborate on research and development of innovative IPM solutions

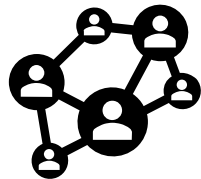
- The biopesticide “Green Muscle” was developed by LUBILOSA a multistakeholder programme led by CABI. The product was deployed successfully in multiple locust outbreaks and continues to be produced by commercially¹.
- We have a strong record implementing and creating impact through classical biocontrol projects, with Benefit:Cost ratios ranging between 53-808:1 over 10 separate projects²

¹Imperial College London (2014). The development and application of successful mycoinsecticides for locust control in Africa and Australia: Green Muscle and Green Guard. Research Excellence Framework Impact Case Study

²Cock, M. J. W., Day, R. K., Hinz, H. L., Pollard, K. M., Thomas, S. E., Williams, F. E., ... & Shaw, R. H. (2016). The impacts of some classical biological control successes. CABI Reviews, (2015), 1-58.



Proven expertise: We support value chain actors to transition towards lower risk production



- Farmers who attend plant clinics are more likely to use **sustainable alternatives** to chemical pest control and to wear PPE while working with pesticides.¹
- CABI-led multi-channel mass media campaigns in Rwanda and Uganda are significantly correlated to **improved farmer knowledge of pesticide risks and safety precautions**, increased adoption of safer alternatives to pesticides, and reduced incidence of pesticide-related illnesses in Rwanda².
- The CABI Bioprotection Portal has contributed to **increased knowledge of biopesticide/biocontrol products** among agro-dealers and farmers' advisers, and allows them to identify suitable registered bioprotection products.³

¹Tambo, J. A., Romney, D., Mugambi, I., Mbugua, F., Bundi, M., Uzayisenga, B., ... & Ndhlovu, M. (2021). Can plant clinics enhance judicious use of pesticides? Evidence from Rwanda and Zambia. *Food Policy*, 101, 102073..² Tambo, J. A., Mugambi, I., Onyango, D. O., Uzayisenga, B., & Romney, D. (2023). Using mass media campaigns to change pesticide use behaviour among smallholder farmers in East Africa. *Journal of Rural Studies*, 99, 79-91. ³Bundi, M., Mbugua, F., Williams, F., Rware, H., & Mibei, H. (2022). Use of the CABI BioProtection portal increases awareness of safer plant protection products among farmers and agricultural advisers in Kenya. *CABI Working Paper* 29, 30 pp. DOI: <https://dx.doi.org/10.1079/CABICOMM-62-8169>



CABI Academy e-learning course: *Reducing Pesticide Risk*

Identify and assess pesticide risk and select the lowest risk pest management option.

⌚ **Duration:** 6–8 hours | 🌐 **Mode:** Online, self-paced

Topics covered

- Define risk and how it relates to pesticide use
- Identify country-specific pesticide guidelines and regulations
- Evaluate how exposure to pesticide hazards can be reduced
- Recognise the difference between lower- and higher-risk pesticides
- Compare the toxicity of pesticides

Who the course is for: farmer advisors, farmers, agricultural students, teachers, and trainers



Key outcomes of Asia-Pacific Consultation

Policy

- CABI's work on **policy development** for biopesticides is well received
- CABI's work in PRR is valuable due to its **impartiality**
- Support on **implementation and communication** of policies through the value chain would be beneficial for countries with newer policies

Research

- Barriers in access to getting bioprotection products -research focussed on **local mass production, shelf-life and improved distribution** could be beneficial
- Farmers need evidence of **demonstrated success, affordability and profitability**

Production

- Work on **awareness in local markets** to drive farmer behaviour change
- Focus on **removal of HHPs** and identifying alternatives to them
- More focus on **finance mechanisms** to support pesticide risk reduction practices
- Include **biological and ecological driver for change in agroecosystems** such as pesticide resistance, biodiversity impacts and phytotoxicity of pesticides



Aims of Session 4: Pesticide Risk Reduction

We recognise that the barriers faced, and progress made around pesticide risk reduction vary substantially between countries.

The sessions on pesticide risk reduction today aims to explore:

- how can CABI's reformulated pesticide risk reduction offering can **meet the particular demands and needs of specific Member Countries**
- how CABI, Member Countries and other partners can **collaborate** on concrete plans to achieve pesticide risk reduction
- how CABI, Member Countries and other partners can work together to **secure external funding** for that work



Agenda outline

We will explore:

- How do the **pesticide risk reduction strategies** in OECD countries influence production in Low and Lower-Middle Income Countries and market access?
- **Barriers and opportunities** for the uptake of bioprotection products
- **The role of different stakeholders** in the uptake of integrated pest management / bioprotection approaches
- **Regional experiences and lessons** showcasing regional/national policy and regulatory developments and their impact
- **Finance mechanisms** supporting implementation of pesticide risk reduction approaches
- **Challenges and opportunities** on the ground for the implementation of pesticide risk reduction practices

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thank you

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