



# CABI News Bulletin Asia

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# News and Stories

CABI makes progress to sustainably tackle invasive pest and weed as part of EUR €6 million ADOPT-IPM project



CABI is making good progress as part of its role in the EUR €6 million [ADOPT-IPM project](#) aimed at using Integrated Pest Management (IPM) tools to fight economically important crop pests and weeds affecting major crops across Europe and China.

ADOPT-IPM is an EU-China joint action set up by 32 partners from EU Member States, as well as from China and the United Kingdom, including research institutes, universities, small enterprises, and extension services.

Funded under the [Horizon Europe research and innovation framework programme](#), ADOPT-IPM aims to develop, optimise, and implement a range of IPM tools and packages to reduce the reliance on chemical pesticides to tackle pests in wheat, maize, tomato, and leafy vegetables.

CABI, together with partners, is leading

the development of a web based IPM tool performance demonstrator and is also making valuable contributions to the creation and efficacy of IPM or biocontrol tools against two devastating invasive species, fall armyworm (*Spodoptera frugiperda*) and common ragweed (*Ambrosia artemisiifolia*).

## **Devastating impact of invasive pests and weeds**

According to [Eschen et al. \(2021\)](#), fall armyworm causes estimated annual yield losses of USD 9.4 billion in Africa alone and it is suggested by [Tambo et al. \(2021\)](#) that some of these pests can fly continuously for 48 hours, which would greatly increase the area of crops under potential damage.

[A workshop held in 2021](#), involving scientists from the MARA China-CABI Joint Laboratory for Biosafety and MARA China-CABI European

Laboratory, heard how there are around 70 natural enemies of the fall armyworm in China. They include 44 predators such as Pentatomidae, Lygaeidae, Anthocoridae, Nabidae, Coccinellidae, Reduviidae, Chrysopidae, Forficulidae, Formicidae and Vespidae species. Beneficial bugs and beetles constitute 68% of the predators.

Meanwhile, common ragweed is a worldwide invasive weed originating from North America. It causes a great deal of suffering to people because of its highly allergenic pollen, which is typically released from August to October in the Northern Hemisphere.

In 2020, **CABI led a team of scientists in new research** which revealed that the leaf beetle – *Ophraella communa* could help relieve more than two million sufferers of allergies in Europe while also saving more than EUR €1 billion in health costs.

### **Good progress being made**

So far, CABI has designed the protocol fieldwork to calibrate a fall armyworm model and assessed fall armyworm distribution in China to optimize field site locations.

Experimental designs on laboratory bioassays and semi-field cage tests to assess the feasibility and efficacy of a push-pull crop system against fall armyworm under controlled conditions have also been designed.

Field cage experiments have been conducted along an environmental gradient at six field sites in Central and south-eastern Europe to assess the efficacy of *O. communa* as a biocontrol agent against common ragweed.

The results showed that *O. communa* built up high population densities inside the cages in central Slovenia, while population growth was limited at some sites in central and southern Hungary.

Wireframes of the IPM performance demonstrator have also been developed to illustrate the user journey and examples of potential outputs from the IPM tool demonstrator.

### **Develop, optimize, and implement IPM tools and packages**

Dr Feng Zhang, Regional Director, East & South-East Asia, and Project Manager, said, “Every year a high percentage of food crops are lost to plant pests and diseases and there are growing concerns over the effects of pesticides used in agriculture on the environment, non-target plants and animals, and human health.

“CABI is making good progress as part of its role within the ADOPT-IPM project in partnership with colleagues from Europe and China as we seek to develop, optimize, and implement IPM tools and packages.

“The project will aim to reduce the dependence of farmers on conventional chemical pesticides in the EU, China, and associated countries that share similar problems with the same crops and pests.”

Dr Zhang added that while progress has been made in creating IPM tools in the past decade and European Union and Chinese policies, widespread adoption by farmers has not taken off sufficiently.

This might be because, he suggests, that many available non-chemical IPM tools, e.g. biocontrol-based approaches, have not been optimized so they lack reliability or effectiveness. Furthermore, it may be that they are sub-optimal when combined in IPM packages because they have not been developed via an integrated approach with sufficient involvement of end-users.

“The joint EU-China approach utilised by the ADOPT-IPM project will make agricultural products safer for domestic consumers while ensuring profitable trade among countries,” Dr Zhang said.

The CABI team involved in the work includes Dr Urs Schaffner, Dr Stefan Toepfer, Katherine Cameron, Michelle Jones, Mike Frewin, Dr Bryony Taylor, Alyssa Lowry and Dr Hongmei Li.

## Revolutionizing crop protection in Pakistan: Registration guidance approved to promote sustainable biopesticides



To celebrate the longstanding achievement in the crop protection sector of Pakistan, CABI organized a dialogue on 'Regulatory Harmonization in Pakistan for Maximum Residue Limits and Biopesticides' in Islamabad, Pakistan.

The event saw the approval of biopesticide registration guidance to promote the uptake of safer-to-use and more environmentally friendly biopesticides in the fight against crop pests and diseases which threaten livelihoods and food security.

Dr Kausar Abdullah Malik, Federal Minister for the [Ministry of National Food Security and Research](#) (MNFS&R), appraised the biopesticide registration guidance to further improve the quality of food produced and mitigate trade related issues.

### **High levels of aflatoxins and maximum residue levels (MRLs)**

This includes high levels of aflatoxins and maximum residue levels (MRLs) affecting food produce, such as maize, chillies and groundnuts, as well as commodities including cotton – particularly in respect of aflatoxins impacting upon cotton seed and cotton seed cake. Fifty-nine key stakeholders – including those from federal and provisional regulatory authorities, international development organizations and the private sector – attended the dialogue which will also help Pakistan access more global markets.

Agriculture is very important to Pakistan's economy and people. It is the largest sector, employing over 42% of the workforce and it contributes around 24% to the country's gross domestic product (GDP).

However, an increased demand for food to meet Pakistan's growing population – predicted to nearly double to 403 million by 2050 – is challenged by low agricultural productivity due to losses caused by a range of crop pests and diseases.

### **Overreliance on pesticides**

There is an overreliance on pesticides to try and manage the scourge of crop pests and diseases in Pakistan with the market – currently valued at over \$300 million – expected to rise to \$500 million in the next five years.

Ninety percent of these pesticides are imported as raw materials, with only 10% as final products.

The [Department of Plant Protection](#) (DPP), functioning under the Ministry of National Food Security and Research (MNFS&R), oversees the pesticide sector's regulation and since the Agricultural Pesticide Ordinance 1971 and Agricultural Pesticide Rules 1973, over 7500 chemical pesticides have been registered for commercial use.

### **More sustainable pest management solutions**

Nevertheless, there has been, in recent years, a focus on food safety and ecosystem conservation that has driven efforts towards more sustainable pest management solutions. As such, the rise of biopesticides products has gained attraction globally.

Since 2018, CABI, in collaboration with the [Pakistan Agricultural Research Council](#) (PARC) and with support of the [United States Department of Agriculture](#) (USDA) and the [United States Agency for International Development](#) (USAID) has been leading a project 'Aflatoxin control in Pakistan'.

This initiative is focused on demonstrating the efficacy of an indigenous biocontrol product to mitigate aflatoxins along the supply chains and to facilitate the registration of biocontrol products/ biopesticides in Pakistan.

As is currently the case across most South Asian countries, Pakistan's existing pesticide regulatory system only considers the registration of chemical pesticides. This hinders biopesticides being commercialised and impedes their widespread use.

Recognizing the limitations in the existing pesticide registration process to include biopesticides, CABI in 2019 initiated formal discussions with the DPP, in collaboration with experts from USDA and PARC.

### **Development of guidelines for registration of biopesticides**



The journey in development of biopesticides registration guidelines discussed at recent dialogue in Islamabad (Credit: CABI).

To start this process, CABI convened a four-day workshop in February 2020 on the 'Registration and Commercialization of Biopesticides in Pakistan.' Efforts were made to understand the existing registration process and to develop the guidelines for registration of biopesticides in the country.

During the event, participants were provided with insights (data requirements, forms, procedures, labelling requirements etc.) to help regulatory authorities and other actors understand existing global mechanisms for biopesticide registration.

This included guidelines from the [Organization for Economic Cooperation and Development \(OECD\)](#), the [Food and Agriculture Organization of the United Nations \(FAO\)](#), and the [US Environment Protection Agency \(US EPA\)](#), among others.

Following the workshop, CABI facilitated extensive consultation sessions with regulatory authorities, including the DPP, and led a team of biopesticide experts from USDA and PARC who jointly developed a national registration guidance document.

This served to cover the registration process of microbial and biochemical biopesticides and their commercial availability in Pakistan.

### **CABI formally submitted guidance document**

Afterwards, CABI formally submitted the biopesticides registration guidance document to the DPP for incorporation into its regulatory system in July 2020.

The guidance document included new application forms for registration of biopesticides and relevant information – particularly with regards to minimum data requirements for the registration of active ingredients and formulated products; exemptions from registration; and guidance for waivers.

Over the period of last three years, the DPP led various consultation sessions with relevant stakeholders and authorities and concluded their due review process of the biopesticides registration guidance document.

After deliberated discussion, the biopesticides registration guidance document was approved from respective technical for, for example, the Agricultural Pesticides Technical Advisory (APTA) Committees back in November 2023.

### **Registration guidance approved**

Furthermore, this registration guidance document was discussed and approved through a Cabinet

Committee on Legislative Committee (CCLC) Meeting held in January 2024. Dr Tariq Khan, Director Technical Registration at the DPP, said the process of biopesticides registration has reached its final stages and will soon be available for industry.

Jessica Mudjitaba Fernandez, Program Manager at USDA, assured full support for the promotion and development of the biopesticides portfolio in Pakistan.

“Pakistan and the United States have a long history of collaboration in the agriculture sector, starting from the era of green revolution. However, the aflatoxin project is the first big initiative by the United States government to ensure food safety for the people of Pakistan,” she said.

### **More reliable and sustainable alternatives**

Dr Ghulam Muhammad Ali, Chairman of PARC, praised the efforts of stakeholders for these joint efforts. He said biopesticides would address the issues and challenges related to crop protection and farmers will now have more reliable alternatives to manage their crops from pest attack.

Dr Babar Bajwa, CABI’s Senior Regional Director, Asia, expressed his gratitude to all the participants for their active engagement in the dialogue and their sincere interest in the national cause of ensuring food safety and implementing biological control to provide safe food to the population.

He said, “The collaborative efforts of CABI, USDA, USAID and PARC, and the private sector is a shining example of how global partnerships can drive positive change in agriculture.

“The journey continues with a shared commitment to building a resilient and biopesticide focused future for Pakistan’s agricultural landscape.”

## CABI conducts workshop in India to help pave the way for better FAIR data processes in agriculture



CABI, as part of the [Enabling FAIR data sharing and responsible data use](#) project, has conducted a workshop in Delhi, India, to help pave the way for better FAIR data processes in agriculture.

The project, funded by the [Bill & Melinda Gates Foundation](#), aims to address responsible FAIR data sharing and improved data management practices, and identify possible risks encountered during the development of interventions to achieve this.

Dr Vinod Pandit, Acting Regional Director, South Asia, gave opening remarks to the workshop, which focused on six steps within a FAIR process framework that helps contribute to the establishment of a robust and sustainable data ecosystem.

The workshop, which built upon the basis of FAIR principles – Findable, Accessible, Interoperable, and Reusable – was also attended virtually by [Martin Parr](#), Director, Data Policy & Practice, as well as in person by staff from [CABI’s centre in India](#).

It was conducted by [Arun Jadhav](#), Manager – Digital Development, [Akanksha Nagpal](#), Project Coordinator, South Asia, and CABI Consultant [Ranjeet Kumar Singh](#).

A mix of stakeholders from different backgrounds – such as FAIR practitioners from the [Indian Statistical Institute](#), Bangalore, the [Indian Institute](#)

of Technology, Delhi, and Delhi University and domain experts from the diverse institutions of Indian Council of Agricultural Research (ICAR) such as Indian Agricultural Research Institute, Indian Agricultural Statistics Research Institute and The Directorate of Knowledge Management in Agriculture were present to give their inputs on the framework and how well it resonates with them.

## **FAIR process framework**

In the dynamic landscape of development and innovation, data has emerged as a crucial asset, offering insights and solutions to some of the world's most pressing challenges. However, realizing the full potential of data requires a commitment to principles that ensure its accessibility and usability.

CABI developed a FAIR process framework by adopting a people-first approach from the perspective of human-centered systems design in the people, process, technology framework. It is designed to guide the project officers towards the integration of FAIR principles in their investments.

The comprehensive framework comprises of six pivotal steps. These are 'define data intervention types,' 'understand the enabling environment,' 'identify data assets,' 'codevelop FAIR aligning principles,' 'develop a FAIR data governance strategy,' and 'develop a FAIR technical implementation plan.'



### **Define data intervention types**

The journey towards FAIR data begins by identifying key intervention types that can overcome barriers hindering the transformation

of data into a FAIR format. This step prioritizes high-impact interventions, setting the stage for a targeted and efficient process.

### **Understand the enabling environment**

Recognizing the external factors that influence data accessibility is paramount. The second step involves understanding the enabling environment – the external conditions critical for fostering FAIR data practices throughout the investment cycle. This holistic approach ensures that the impact of FAIR principles extends beyond individual projects.

### **Identify data assets**

Vital data assets lie at the heart of any successful investment. Identifying and ensuring the availability of these assets is the third step in the framework. This step guarantees that the data essential for operational success is not only recognized but also made accessible for optimal utilization.

### **Codevelop FAIR aligning principles**

FAIR is not a 'one-size-fits-all' concept. In the fourth step, stakeholders collaboratively define the significance of FAIR within the context of the investment. This approach encourages broader participation, ensuring that the FAIR agenda is shaped by diverse perspectives.

### **Develop a FAIR technical implementation plan**

The final step involves creating a technical blueprint outlining the readiness for achieving FAIR compliance. This plan equips stakeholders with the tools and knowledge necessary for seamless FAIR implementation, ensuring a smooth transition to a data-driven paradigm.

### **Strengthening the framework**

The participants especially liked the fact that the workshop focused on problems first rather than a technology-first approach and the steps made sense in a clear order. The systems thinking approach and human-centered approaches used to develop the framework were also well appreciated.

The workshop brought some healthy discussion around the overall FAIR process framework and its six steps for the implementation FAIR in research projects and the experts gave their valuable inputs that would help to strengthen the framework further.

All the stakeholders agreed that the developed framework is applicable to their actual working context, and it would be useful in supporting FAIR data implementation in different types of projects. The framework resonated well with the stakeholders in terms of implementation in both their own context and various other projects.

Dr Pandit said, “CABI plans to conduct workshops on the FAIR process framework with a diverse range of stakeholders. This inclusive approach will involve engagement with funders, project implementors, researchers, and other key players in the data ecosystem.

“By bringing together a wide spectrum of perspectives, these workshops aim to enrich the framework further, ensuring its adaptability across various sectors and contexts.”

## CABI visit to Malaysia and Singapore served to strengthen partnerships for enhanced food security in region



CABI CEO, Dr Daniel Elger, has paid a visit to Malaysia – a Member Country of CABI – and Singapore to further strengthen existing partnerships, build new linkages and explore fresh opportunities to support food security and sustainable trade in the region.

Dr Elger joined staff from CABI’s regional centre in Malaysia to meet with government, public and private sector partners and discuss how CABI is helping smallholder farmers sustainably tackle pests and diseases on crops including rice, maize, sweet potato, coffee, peppercorn, and coconut.

The visit was also an opportunity to review other significant work in value chains and trade, development communication and extension, digital development, and knowledge management.

Dr Feng Zhang, Regional Director for CABI East & South-East Asia, welcomed Dr Elger and both men joined centre colleagues for talks with officials from Malaysia’s Department of Agriculture (DOA), the Malaysian Agricultural Research and Development Institute (MARDI), and the Malaysian Palm Oil Board (MPOB).

### Enhancing and strengthening relationships

The CABI party also visited the EU Delegation to Malaysia and met with partners from the Association of Southeast Asian Nations (ASEAN) ARISE + Malaysia project funded by the EU and International Trade Centre (ITC) Trust Fund – which aims to support inclusive and sustainable economic growth in Malaysia.

Dr Elger and Dr Zhang also paid a visit to Universiti Putra Malaysia to discuss areas of common interest in research and knowledge sharing.

Meanwhile, in Singapore, Dr Elger and Dr Zhang met with partners at the agribusiness Olam Agri as well as CropLife Asia, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the multi-stakeholder partnership platform Grow Asia.

These partnerships have been built through an ADB funded sustainable coffee value chain project in Vietnam, a USDA funded ASEAN regional MRL project, and activities under the ASEAN Fall Army Worm Action Plan.



The visit by Dr Elger followed the recent strengthening of CABI's partnership with the **International Coconut Community (ICC)** through a renewed Memorandum of Understanding designed to support the sustainable development of the coconut sector in Asia, the Pacific, Caribbean, Africa, and South America.

### Research and development in areas of mutual interest

Dr Elger's visit also came after CABI in July last year renewed its agreement to work in partnership with the Malaysian Agricultural Research and Development Institute (MARDI) to help ensure greater food security in Malaysia through a Joint Laboratory platform – conducting research and development in areas of mutual interest.

This includes CABI and MARDI working to reduce the use of chemical pesticides and support the use of safer-to-use and environmentally-friendly bioprotection products to fight crop pests and diseases such as the fall armyworm (*Spodoptera frugiperda*), diamondback moth, and stemborers and leaf-feeders of rice.

CABI also opened an office in September 2023 in Hanoi, Vietnam, as part of a collaboration with the

**Vietnam Academy of Agricultural Sciences (VAAS)** to help strengthen food security and development of a sustainable food system in the country.

### CABI's work in partnership is wide-ranging

Dr Elger said, "CABI recognises that it is only by working in partnership that we can create more sustainable production techniques and resilient commodity chains, as well as wider access to tools and knowledge.

"Central to this is our continued collaboration with a wide range of partners to ensure that the very latest research can be applied to support smallholder farmers to grow more and lose less to potentially devastating crop pests and diseases."

The visit to Malaysia and Singapore concluded with a commitment from CABI to support Malaysia in delivering its national development goals and regional and international UN targets including the UN Sustainable Development Goals (SDGs).

This includes building the CABI regional centre in Malaysia as a regional hub for South East Asia and the South Pacific, supported by a network of project offices in key Member Countries in the region.



Dr Daniel Elger (centre) and Dr Feng Zhang (left of centre) met with Prof Loh Tech Chwen (right of centre), Dean of the Faculty of Agriculture, and colleagues from the Universiti Putra Malaysia.

## Annual Report and Work Plan of MARA-CABI Joint Lab witnesses “outstanding progress” throughout 2023



The Annual Report and Work Plan, reviewed by the Steering Committee of the [Chinese Ministry of Agriculture and Rural Affairs \(MARA\)-CABI Joint Laboratory for Biosafety](#), based in Beijing, has witnessed “outstanding progress” in all aspects of its research activities throughout 2023.

The 16th Joint Lab Steering Committee meeting, held at the Anhui Sub-centre for Agricultural Pest Control, heard the Joint Lab’s work to seek sustainable management approaches for eight major invasive crop pests and implement some development co-operation projects, which are progressing well.

This Steering Committee meeting was preceded by a Technical Advisory Group meeting, which convened at the Institute of Plant Protection (IPP), [Chinese Academy of Agricultural Sciences \(CAAS\)](#) in Beijing.

### **Future focus areas and development of the Joint Lab**

Here future focus areas of the Joint Lab, and technical details of several project implementation and development of the Joint Lab (including biological control agents to tackle invasive pests), were discussed and synthesized for reporting to the Steering Committee meeting.

The Steering Committee members and observers

were warmly welcomed by Professor Zhang Zhengzhu, President of Anhui Academy of Agricultural Sciences, and his team.

Professor Zhang expressed his appreciation of the inclusion of the Institute of Plant Protection of his Academy into the Joint Lab as one of the four sub-centres. He was pleased that – thanks to the Joint-Lab platform – his Academy has become a partner for the EU-China Joint Action to Increase Development and Adoption of IPM Tools (ADOPT-IPM).

### **Key research for predicting pest occurrences**

Scientists from the Joint Lab, for example, created a model which can estimate adult emergence periods and identify migratory populations of the yellow-spined bamboo locust from their ovarian development. The findings, published in the journal *Frontiers in Physiology*, provide a quick way to determine the population source as either “native” or “immigrant” from the phenotypic traits without dissection.

Research on the ovarian development of insect pests helps provide key information for predicting pest occurrences, and currently, there is very limited information about the reproductive system of the yellow-spined bamboo locust.

In total, 33 research papers and three patents were published in 2023. In addition, 16 oral presentations and six posters were delivered at international and Chinese conferences.

### **Joint Lab continues to play a bridging role**

Further to its research output, the Joint Lab continues to play a bridging role in some major triangular collaborations and South-South co-operation initiatives.

This includes facilitation of agricultural technology transfers from China to other countries under the ‘Chinese Technology Going Global’ programme, and the consolidation of the Plant Protection International Alliance under the framework of the ‘Belt and Road Initiative.’

The bridging role of the Joint Lab is supported by a growing number of sub-centres. These include the MARA-CABI European Lab in Delémont, Switzerland, the Yunnan-CABI Sub-centre for Integrated Prevention and Control of Trans-boundary Pests, Shandong Sub-centre for Biological Control, and the Anhui Sub-centre for Agricultural Pest Control, as well as partner Joint-Labs, such as that of CABI and Malaysian Agricultural Research and Development Institute.

### Inner Mongolia-CABI Joint Laboratory



The signing of the MoU.

This meeting also welcomed a new member to the Joint Lab family as the fourth sub-centre, following the signing of the Memorandum of Understanding of the Establishment of the Inner Mongolia-CABI Joint Laboratory for Grassland Management.

This will no doubt strengthen Joint-lab's strategic outreach and coverage of different climatic and geographic zones and ecosystems when combating pests and diseases posing damages to China's vast grassland areas.

In his remarks (delivered by Ms Zhai Lin, DDG, International Co-operations, CAAS), Professor Sun Tan, Vice President of CAAS put forward several suggestions for the future directions of the Joint Lab.

This included continuing to foster capacity building; deepening collaboration, thereby advancing scientific co-operation and exchange; exploring trilateral cooperation (particularly among CABI Member Countries); and promoting technology extension and product demonstrations.

### Cooperation between the Joint Lab, European Lab, and sub-centers

The 16th Joint Lab Steering Committee meeting concluded with a commitment to further strengthen the cooperation between the Joint Lab, the European Lab and the sub-centers through the annual meeting, project development and scientific exchanges.

Dr Ulli Kuhlmann, Executive Director, Global Operations and CABI's Co-Director of the Joint Lab said, "The Joint Lab achieved outstanding progress in driving forward research and innovation on sustainable development that meets the needs of both China and the wider world. This is particularly true in terms of the need for improved food and nutritional security, plant biosafety, and food safety."

"While continuing to focus on areas, such as prevention and control of invasive alien species, Integrated Pest Management (IPM) and biological control, and introduction and development of biopesticide resources, it would be of strategic importance for the Joint Lab to carry out research and capacity building projects on pesticide risk reduction, mycotoxin contamination, and One Health going forward."

The 2024 work plan will integrate key areas within [CABI's Medium Term Strategy 2022-2025](#). These include five goals to help tackle some of the greatest challenges facing humanity such as poverty, hunger, climate change, gender inequality and biodiversity loss.

# PlantwisePlus News & Stories

Fifth PlantwisePlus National Forum vows to address challenges of food security in Pakistan



Last month, CABI in Pakistan conducted the 5th PlantwisePlus National Forum Meeting. The forum, with the national and provincial agriculture departments, aims to improve Pakistan's food security through CABI's flagship PlantwisePlus programme.

## Strengthening partnerships for PlantwisePlus in Pakistan

The meeting, held on 22nd December 2023 in Lahore, aimed to strengthen the collaboration between PlantwisePlus and national and provincial agriculture departments. The Federal Minister for National Food Security and Research (MNFS&R), Dr Kausar Abdullah Malik, chaired the meeting. Secretary Agriculture AJK, Chairman PARC, DG DPP and key stakeholders also attended the meeting.

CABI's Senior Regional Director for Asia, [Dr. Babar Ehsan Bajwa](#), welcomed the participants. He also highlighted the achievements of the Plantwise programme. He briefed that [CABI officially launched the PlantwisePlus programme in 2022](#) to

help improve the country's food security through a more coordinated and sustainable approach to food production across the value chain.

The CABI-led programme supports Pakistan's Government and the country's smallholder farmers to predict, prepare and prevent plant health threats to reduce crop losses. Thus improving livelihoods.

He added that a particular focus will be on promoting and using safer and more environmentally friendly biological control agents. Instead of an overreliance on potentially more harmful chemical pesticides, to protect crops including cotton, rice, maize, wheat, and sugarcane.

## Supporting smallholder farmers

The Federal Minister stated, "Climate change is impacting agriculture in a number of ways, often exacerbating existing challenges to crop production. Smallholder farmers in developing countries are the most vulnerable and disproportionately affected because they lack the

capacity to cope with uncertainties created by a rapidly changing world.”

He added, “Smallholders need to adapt farming practices to climate hazards to maintain the quality and quantity of crops or, in some cases, diversify into new forms of farming and livelihoods. But access to reliable information about climate hazards, and approaches to mitigate risks or adapt through diversified crops and new practices is limited for smallholder farmers”.

The Minister appreciated the contributions of CABI to Pakistan’s agriculture system and encouraged stakeholders to generate on-ground results under PlantwisePlus.



Chairman of the Pakistan Agricultural Research Council (PARC) Dr Ghulam Muhammad Ali said, “Smallholder farmers can confidently face the challenges of climate change and plant health threats through the promotion of sustainable approaches to crop production, increasing incomes and the supply of safer food”.

“Together we are supporting the national system in how to adopt the best practices in plant health – to improve the safety, resilience and quality of crops which, ultimately, will lead to greater food security and livelihoods for smallholder farmers and their families.”

### **Advancing the use of digital advisory tools**

Dr Muhammad Naeem Aslam, CABI’s PlantwisePlus Country Coordinator, said that the

aim is to improve and mainstream sustainable agriculture development. For poverty alleviation of resource-poor farming communities. It will strive to do this by identifying key crops where quantity and quality can be improved. Key to this will be the use of digital advisory tools to boost climate-smart plant health practices.



Representatives of provinces also briefed the participants on their departmental role and support for PlantwisePlus. They agreed that increasing the supply of and demand for safer, higher quality and locally produced food in domestic markets is important. Also pertinent is the desire to strengthen detection and response to pest outbreaks. Plus, the enhanced availability of safer plant protection products. They further pledged to continue their support for the success of the programme and uplifting smallholder farmers.

### **Also published recently:**

- Empowering women farmers with digital tools in India
- National Forum stresses importance of partnerships to strengthen Bangladesh's plant health systems
- Fifth PlantwisePlus National Forum vows to address food security challenges in Pakistan
- Recommendations made for plant health clinic progress in Afghanistan
- Agriculture digitalization: Opportunities and challenges discussed at workshop in India
- Free crop pest diagnosis and management courses now available in India
- The uptake of digital tools in Nepal discussed at workshop
- Strengthening Bangladesh's pest preparedness and management system

# Meetings and Events

Upcoming meetings and events CABI colleagues will be attending:

- **Asia and the Pacific Food Security Forum** | 9-12 April | CABI's Membership Director and Regional Director for East & South East Asia will attend this milestone event
- **International Plant Protection Symposium** | 26-27 April | CABI is co-organizing a session on 'Digital tools in plant health management' with PQPMC
- **PlantwisePlus National Forum Meeting, Nepal** | 28 April | national stakeholders are invited to discuss the progress and initiatives led by the programme
- **PlantwisePlus Provincial Stakeholder Meeting, Nepal** | 30 April | local stakeholders and partners are invited to discuss areas of collaboration and opportunities
- **Launch Ceremony with the Higher Education Commission, Pakistan** | May | this event will mark the collaboration between the two organizations and digital tools which will help academia access 1.9 million records and courses in agriculture and bioscience
- **Promotion of CABI Digital Tools, Pakistan and Sri Lanka** | May | CABI is conducting workshops with national stakeholders on the agricultural tools, their role in decision-making and research and how to integrate them

## Recent Publications

- Finch, E., Li, H., Cornelius, A., Styles, J., Beeken, J., Cheng, Y., Wang, G., Qiu, G., Luke, B. 2023. [An updated and validated model for predicting the performance of a biological control agent for the oriental migratory locust](#). *Pest Management Science*
- Lu, Y., Wyckhuys, K., Wu, K. 2023. [Pest Status, Bio-Ecology, and Area-Wide Management of Mirids in East Asia](#). *Annu. Rev. Entomol.* 69:393-413.
- Qu, H., Wang, Y., Wang, B., Li, C. 2023. [Pulsed electric field treatment of seeds altered the endophytic bacterial community and promotes early growth of roots in buckwheat](#). *BMC microbiology* 23(1): 1-10
- Zhang, N., Feng, S., Duan, S., Yin, Y., Ullah, H., Li, H., Davaasambuu, U., Wei, S., Nong, X., Zhang, Z., Tu, X., Wang, G. 2023. [LmFKBP24 interacts with LmEaster to inhibit the antifungal immunity of \*Locusta migratoria\*](#). *Pesticide Biochemistry and Physiology* 195, 105515

# Products and Resources

CABI supports study, practice and professional development through our array of publishing products, research services and support tools.

	Product	More information
Core Database and ebooks	<b>CAB Abstracts</b> <ul style="list-style-type: none"> <li>■ <a href="http://www.cabdirect.org">www.cabdirect.org</a></li> </ul>	<a href="https://www.cabi.org/publishing-products/cab-abstracts/">https://www.cabi.org/publishing-products/cab-abstracts/</a>
	<b>Global Health</b> <ul style="list-style-type: none"> <li>■ <a href="http://www.cabdirect.org">www.cabdirect.org</a></li> </ul>	<a href="https://www.cabi.org/publishing-products/global-health/">https://www.cabi.org/publishing-products/global-health/</a>
	<b>Global Health Practitioner Interface</b> <ul style="list-style-type: none"> <li>■ <a href="http://www.cabdirect.org/globalhealth">www.cabdirect.org/globalhealth</a></li> </ul>	<a href="https://www.cabi.org/publishing-products/global-health/">https://www.cabi.org/publishing-products/global-health/</a>
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