



# CABI Science Report

## 2022

Issued May 2023

[www.cabi.org](http://www.cabi.org)

KNOWLEDGE FOR LIFE



The copyright holder of this work is CABI International (trading as CABI). It is made available under a Creative Commons Attribution-Non-commercial Licence (CC BY-NC). For further details please refer to <http://creativecommons.org/licenses/>.

CABI is an international intergovernmental organization, and we gratefully acknowledge the core financial support from our Member Countries (and lead agencies) including the United Kingdom (Foreign, Commonwealth & Development Office), China (Chinese Ministry of Agriculture and Rural Affairs), Australia (Australian Centre for International Agricultural Research), Canada (Agriculture and Agri-Food Canada), the Netherlands (Directorate-General for International Cooperation) and Switzerland (Swiss Agency for Development and Cooperation). <https://www.cabi.org/what-we-do/how-we-work/cabi-donors-and-partners/> or full details.

CABI (2023) CABI Science Report 2022. CABI, Wallingford, UK, 54 pp.

With thanks to the following for their photographic contributions: cover ©CABI; inside front cover Stefan Toepfer, CABI; page 9 Asim Hafeez for CABI; page 38 Fernadis (Fedly) Makale, CABI; page 39 ©CABI; inside back cover ©CABI.

# Contents

1. Implementing the CABI Science Strategy .....	2
Maintain CABI's annual publication record .....	2
CABI's research published open access .....	3
Support for the preparation of research papers .....	3
Carol Ellison Science Award .....	3
CABI scientific publication recognition scheme 2022.....	4
CABI Scientific Outputs Portal (CSOP) further developed and updated .....	5
Effective scientific reporting mechanisms .....	5
Public relations support for CABI's scientific papers published in 2022 .....	5
Research students (MSc, PhD etc.) and interns (summer students) .....	6
Strategically important scientific review/synthesis papers published .....	6
The BIOCAT database .....	6
2. Scientific outputs.....	7
2.1. Honours, honorary roles.....	7
2.2. Support to international scientific meetings .....	10
2.3. Journal contributions .....	12
2.4. Publications.....	14
2.4.1. Books, proceedings and manuals .....	14
2.4.2. Peer-reviewed papers (115) .....	14
2.4.3. Book chapters and proceedings papers (12) .....	22
2.4.4. Case studies, study briefs, working papers and publications that were not peer-reviewed (18) .....	24
2.4.5. Completed theses (6) .....	25
2.5. Scientific project reports (81).....	25
2.6. Oral presentations at scientific meetings (130) .....	30
2.7. Poster presentations at scientific meetings (7) .....	39
3. Other outputs .....	40
3.1. Support for introduction of classical biological control agents .....	40
3.2. Extension material .....	41
3.3. Distribution maps of plant pests/diseases .....	41
3.4. CABI Bioscience identification service and Genetic Resources Collection .....	41
4. CABI staff, students and associates.....	42
4.1. Scientific staff .....	42
4.2. CABI staff working towards a research degree.....	47
4.3. Research students .....	47
4.4. Certificates and Diploma of Advances Studies in Integrated Crop Management .....	48
4.5. CABI Associates .....	49
4.6. Visiting scientists.....	50
4.7. Technical support.....	50
4.8. Temporary research students / Interns.....	51

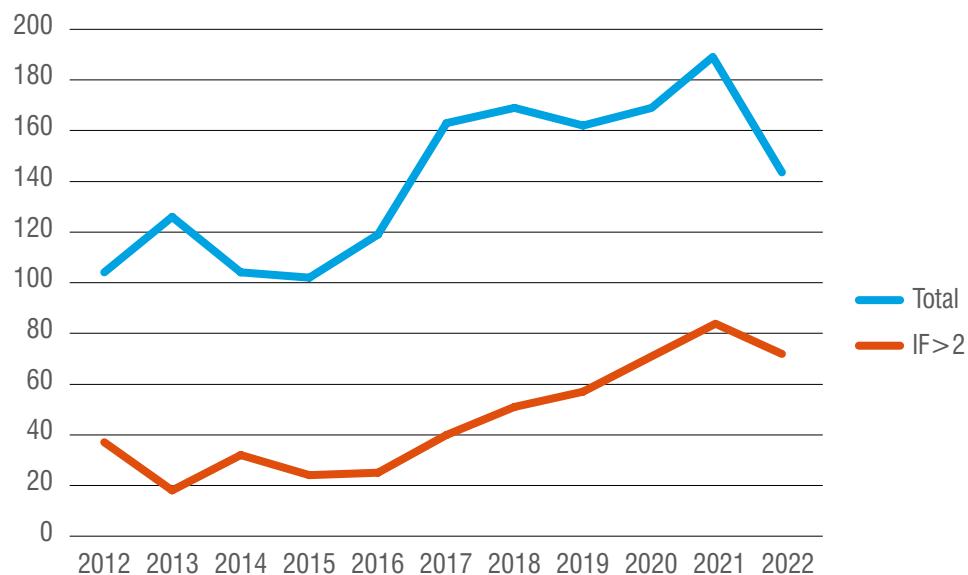
# 1. Implementing the CABI Science Strategy

In this section we present highlights from a number of areas anticipated in the [CABI Science Strategy](#), 2022–2025, much of it supported by the CABI Development Fund (CDF).

## Maintain CABI's annual publication record

It is one of CABI's corporate key performance indicators to produce at least 100 scientific publications each year, of which at least 30 are in journals with an impact factor greater than 2.00 that year. The table below summarizes the listings that are shown later in this report (Section 2), while the graph shows the trend over the last 11 years; it can be seen that we significantly exceeded both targets in 2022.

Scientific publications in 2022	Open access	Not open access	Total
<b>Total number of publications</b>	<b>116</b>	<b>29</b>	<b>145</b>
Number of peer-reviewed publications	103	23	126
Number of peer-reviewed journal publications	95	20	115
Number of publications in journals with a 2021 impact factor >2	64	9	73
Papers with a social and economic science focus	28	1	29
Not peer-reviewed	13	6	19
Books, proceedings and manuals	0	0	0
Book chapters and proceedings papers	9	3	12



**Total annual number of publications by CABI staff since 2012, and the number appearing in journals with an impact factor greater than 2.00 (IF>2)**

Since 2018, a second CABI corporate key performance indicator has been that at least 15 of our published papers should have a strong social and/or economic focus. In 2022, 29 publications were considered to meet this criterion. Another key milestone since 2022 requires that the top 50 CABI scientists have an average h-index of more than 15. This criterion was met with an average h-index of 19.0 (Google Scholar accessed on 15 May 2022).

## CABI's research published open access

In a further CABI corporate key performance indicator, CABI aimed to publish its research open access, specifically all of CABI's core research published in peer-reviewed journals with a CABI staff member lead or corresponding author should be open access. In 2022, 43 out of 44 such papers (97.7%) were published open access (section 2.4.2), compared to 51 of 54 such papers (94%) in 2021. The costs were met from projects (when appropriate), CDF and centre budgets.

## Support for the preparation of research papers

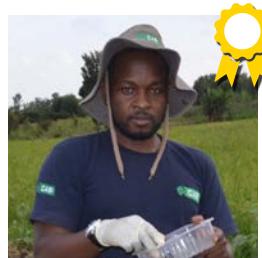
CABI has used CDF funding to support staff time for the publication of selected papers, particularly those arising from completed projects, where resources are not otherwise available. The following papers published in 2022 received support in this way.

**Danielsen, S., Alokit, C., Aliamo, C. and Mugambi, I.** (2022) How crop–livestock clinics are advancing One Health: a pilot case from Uganda. *One Health Cases*. CAB International, 17 pp. <https://doi.org/10.1079/onehealthcases.2022.0002>

**Flood, J., Bridge, P.D.** and Pilotti, C. (2022) Basal stem rot of oil palm revisited. *Annals of Applied Biology* 181(2), 160–181. <https://doi.org/10.1111/aab.12772>

**Kadzamira, M.A.T.J., Chaudhary, M., Williams, F. and Dutta, N.K.** (2022) A non-linear approach to the establishment of local biological control agent production units: a case study of fall armyworm in Bangladesh. *CABI Agriculture and Bioscience* 3, 48, 12 pp. <https://doi.org/10.1186/s43170-022-00115-5>

## Carol Ellison Science Award



This annual award was introduced in 2021, following a similar format to the Scientific Publications Recognition awards. Named after our late colleague, the Carol Ellison Science Award is given to a student doing her/his research with CABI, or an early career CABI researcher, with the objective of enriching their research experience with CABI.

The second Carol Ellison Award was awarded to **Fernadis Makale**, Research Officer at CABI in Nairobi, Kenya, for his study on the potential use of native slug-parasitic nematodes for the biocontrol of the Golden Apple Snail (GAS) in Kenya. The GAS was first reported in Kenya in 2020, causing significant crop losses and increased production costs. Cultural control and synthetic pesticides have been ineffective in managing GAS, making biocontrol using snail-parasitic nematodes a promising alternative.

The study aimed to isolate and screen endemic nematodes as potential biocontrol agents and to test previously isolated commercial products against GAS in both screenhouse and field conditions. Although no native or endemic nematodes were found in 471 GAS specimens dissected from 14 sampling sites in Mwea, screenhouse assays showed that nematode treatment had a significant impact on snail mortality and feeding.

The study demonstrated the potential of nematodes in GAS management and identified the best stage to target for control. Integrating snail parasitic nematodes with other cultural practices in a attract-and-kill approach as part of GAS Integrated Pest Management (IPM) would provide safe control of GAS in these areas. The study also opened up avenues for further research into the isolation of snail-pathogenic fungi and partnerships with other organizations, notably [icipe](#) and [Dudutect](#). A journal article is currently being developed for submission.

## CABI scientific publication recognition scheme 2022

A Scientific Publication Recognition scheme for CABI's scientists was designed, resourced from the CDF, and implemented since 2017. In 2022, several awards have been modified or introduced to align more closely with DORA (The Declaration on Research Assessment), and comments of the 2020–21 external science review. Six awards to recognize achievements in 2021 were made of £2000, each to be spent as the awardee decided in support of CABI's scientific programme.



J.-P. Zhang

**Award 1:** The CABI staff member with the largest number of authored/co-authored papers in journals with IF>2 in 2021. Zhang Jin-Ping – for 11 authored/co-authored papers.



M. Kansiime

**Award 2:** The CABI staff member (first and/or corresponding author) of the publication from the last five years (published since 1 January 2017) with the most citations (2017 to end 2021 on Google Scholar). Monica Kansiime – for the following paper: Kansiime, M.K., Tambo, J.A., Mugambi, I., Bundi, M., Kara, A. and Owuor, C. (2021) COVID-19 implications on household income and food security in Kenya and Uganda: findings from a rapid assessment. *World Development* 137, 105199, 10 pp. <https://doi.org/10.1016/j.worlddev.2020.105199> (148 citations, Google Scholar accessed on 9 May 2022).



J. Tambo

**Award 3:** The CABI staff member (first and/or corresponding author) with the largest number of socio/economic papers in journals with IF>2 in 2021. Justice Tambo – for 5 papers.



K. Constantine

**Award 4:** The CABI staff early career scientist (no PhD or PhD held less than three years on 1 January 2022) who has published a paper as first author since 1 January 2020 with the most citation in the last two years (2020 to end 2021 on Google Scholar). Kate Constantine – for the following paper: Constantine, K.L., Kansiime, M.K., Mugambi, I., Nunda, W., Chacha, D., Rware, H., Makale, F., Mulema, J., Lamontagne-Godwin, J., Williams, F., Edgington, S. and Day, R. (2020) Why don't smallholder farmers in Kenya use more biopesticides? *Pest Management Science* 76(11), 3615–3625. <https://doi.org/10.1002/ps.5896> (14 citations, Google Scholar accessed on 9 May 2022).



P. Taylor

**Award 5:** The CABI staff member (first and/or corresponding author) who has published the paper in *CABI Agriculture and Bioscience* or *CABI One Health* with the most citations in the last two years (2020 to end 2021 on Google Scholar). Phil Taylor – for the following paper: Taylor, P. and Reeder, R. (2020) Antibiotic use on crops in low and middle-income countries based on recommendations made by agricultural advisors. *CABI Agriculture and Bioscience* 1(1), 14 pp. <https://doi.org/10.1186/s43170-020-00001-y> (31 citations, Google Scholar accessed on 9 May 2022).



K. Agboyi

**Award 6:** The CABI staff member (first and/or corresponding author) based in Africa, the Americas or Asia of the publication since 1 January 2020 with the most citations in the last two years (2020 to end 2021 on Google Scholar). Koku Agboyi – for the following paper: Agboyi, L.K., Goergen, G., Beseh, P., Mensah, S.A., Clottey, V.A., Glikpo, R., Buddie, A., Cafà, G., Offord, L., Day, R., Rwomushana, I. and Kenis, M. (2020) Parasitoid complex of fall armyworm, *Spodoptera frugiperda*, in Ghana and Benin. *Insects* 11(68), 15 pp. <https://doi.org/10.3390/insects11020068> (43 citations, Google Scholar accessed on 9 May 2022).

## CABI Scientific Outputs Portal (CSOP) further developed and updated

Details of all new scientific papers, articles and reports published by CABI scientists are available on the website [www.cabi.org/cso](http://www.cabi.org/cso). New publications were added during 2022, and by the end of the year, the CSOP held 7,275 records, an increase from 7,046 records at the end of 2021.

## Effective scientific reporting mechanisms

The Science Strategy recognizes the need for a record of work to monitor publications, reports, talks and posters presented, research students, major scientific contributions, etc. This annual science report provides the primary record of all these scientific outputs (sections 2 and 3). In addition, an internal publications pipeline spreadsheet is in use which enables the progress of all staff publications to be monitored from concept to publication.

## Public relations support for CABI's scientific papers published in 2022

The CABI communications team supports its scientists with a full range of public relations (PR), marketing and design functions including the drafting and issuing of press releases using the EurekAlert! and AlphaGalileo platforms and databases, the writing of news stories for [CABI News](#), the writing of blogs for the [CABI Blog](#), [Invasives Blog](#) and [PlantwisePlus Blog](#), as well as writing thought leadership articles for placement in external media. Social media posts are made on CABI's News, Invasives and PlantwisePlus Twitter accounts, and the CABI Facebook and LinkedIn accounts (linking to the news stories on CABI's website and/or the paper).

During 2022, the CABI communications team provided PR support for 21 papers. These were selected based on CABI's role, the impact of the journal and the perceived newsworthiness of the science published. For these 21 papers, a total of 76 items of media coverage were generated, with combined estimated views of over 655,000.

The three papers with the most media coverage achieved were:

**Lowry, A., Durocher-Granger, L., Oronje, M., Mutisya, D., Mfune, T., Gitonga, C., Musesha, M., Taylor, B., Wood, S., Chacha, D., Beale, T., Finch, E.A. and Murphy, S.T.** (2022) Optimizing the timing of management interventions against fall armyworm in African smallholder maize: modelling the pattern of larval population emergence and development. *Crop Protection* 157, 105966, 13 pp.  
<https://doi.org/10.1016/j.cropro.2022.105966>

11 items of coverage and estimated views of 153,000.

**Seehausen, M.L., Valenti, R., Fontes, J., Meier, M., Marazzi, C., Mazzi, D. and Kenis, M.** (2022) Large-arena field cage releases of a candidate classical biological control agent for spotted wing drosophila suggest low risk to non-target species. *Journal of Pest Science* 95(3), 1057–1065.  
<https://doi.org/10.1007/s10340-022-01487-3>

Ten items of coverage and estimated views of 61,000.

**Mulema, J., Day, R., Nunda, W., Akutse, K.S., Bruce, A.Y., Gachamba, S., Haukeland, S., Kahuthia-Gathu, R., Kibet, S., Koech, A., Kosiom, T., Miano, D.W., Momanyi, G., Murungi, L.K., Muthomi, J.W., Mwangi, J., Mwangi, M., Mwendo, N., Nderitu, J.H., Nyasani, J., Otipa, M., Wambugu, S., Were, E., Makale, F., Doughty, L., Edgington, S., Rwomushana, I. and Kenis, M.** (2022) Prioritization of invasive alien species with the potential to threaten agriculture and biodiversity in Kenya through horizon scanning. *Biological Invasions* 24(9), 2933–2949. <https://doi.org/10.1007/s10530-022-02824-4>

Six items of coverage and estimated views of 20,000.

Selected highlights from the media coverage can be seen in this [Coverage Book](#).

## **Research students (MSc, PhD etc.) and interns (summer students)**

In 2022, we hosted 31 research students (section 4.3, 19 MSc and 12 PhD) and 17 interns, of whom eight were at the CABI centre in Switzerland (section 4.8).

## **Strategically important scientific review/synthesis papers published**

The CABI Science Strategy calls for CABI staff to be involved in the publication of strategically important scientific review/synthesis papers. Examples from 2022 in which CABI staff took a lead include:

**Babendreier, D., Toepfer, S., Bateman, M. and Kenis, M.** (2022) Potential management options for the invasive moth *Spodoptera frugiperda* in Europe. *Journal of Economic Entomology* 115(6) 1772–1782. <https://doi.org/10.1093/jee/toac089>

**Casey, J.P.** (2022) Policy coherence for national climate change adaptation and invasive species management in four countries. *CABI Agriculture and Bioscience* 3, 10, 15 pp. <https://doi.org/10.1186/s43170-022-00077-8>

**Day, R.**, Haggblade, S., Moephuli, S., Mwang'ombe, A. and Nouala, S. (2022) Institutional and policy bottlenecks to IPM. *Current Opinion in Insect Science* 52, 100946, 7 pp. <https://doi.org/10.1016/j.cois.2022.100946>

**Gurmessa, N.E., Agwanda, C., Oduor, G., Musebe, R.O., Akiri, M. and Romney, D.** (2022) Sustainability and gender dynamics of coffee value-chain development intervention: lessons from Ethiopia. *Sustainability* 14(19), 11928, 16 pp. <https://doi.org/10.3390/su141911928>

**Tambo, J.A.** and Matimelo, M. (2022) An act of defiance? Measuring farmer deviation from personalised extension recommendations in Zambia. *Journal of Agricultural Economics* 73(2), 396–413. <https://doi.org/10.1111/1477-9552.12455>

## **The BIOCAT database**

CABI's BIOCAT database is a record of the use of insect biological control agents for the control of insect pests. In 2022 work to update the database was continued. The following paper not listed in the CABI Science Report 2021 included data or statistics compiled from BIOCAT:

**Seehausen, M.L., Afonso, C., Jactel, H. and Kenis, M.** (2021) Classical biological control against insect pests in Europe, North Africa, and the Middle East: what influences its success? *NeoBiota* 65, 169–191. <https://doi.org/10.3897/neobiota.65.66276>

## 2. Scientific outputs

### 2.1. Honours, honorary roles

Location	Name	Honour / role	Date(s)
Austria	Valverde, Alvaro	Member of Steering Committee of AGRA's Agribusiness Deal Room	From 2020
Brazil	Colmenarez, Yelizza	Member of the Steering Committee of the International Organisation for Biological Control – Neotropical Regional Section	From 2010
China	Zhang, Feng	Adjunct Professor, Chinese Academy of Agricultural Sciences – Institute of Plant Protection	From 2013
China	Zhang, Feng	Adjunct Professor, Hexi University, Gansu, China	From 2021
China	Zhang, Feng	Vice Chair, ASEAN FAW Taskforce	From 2022
China	Zhang, Feng	Member, Academic Committee, Key Laboratory of Natural Enemy Insects, Chinese Ministry of Agriculture and Rural Affairs	From 2022
China	Zhang, Feng	Associate Member, International Tropical Fruits Network (TFNet) Board of Trustees	From 2022
China	Li, Hong-Mei	Adjunct Professor, Chinese Academy of Agricultural Sciences – Institute of Plant Protection	From 2019
China	Li, Hong-Mei	Master student supervisor, Beijing University of Agriculture	From 2019
China	Zhang, Jin-Ping	Adjunct Professor, Jilin Agricultural University	From 2018
China	Zhang, Jin-Ping	Adjunct Professor, Yangtze University	From 2021
China	Zhang, Jin-Ping	Senior Agronomist, Beijing Human Resources and Social Security Bureau	From 2021
Global	Day, Roger	Member of the International Plant Protection Convention Focus Group on Pest Outbreak Alert and Response Systems	From 2021
Hungary	Toepfer, Stefan	Adjunct Professor and member of plant science PhD school, Plant Protection Institute, Hungarian University of Agriculture and Life Sciences MATE (formerly Szent Istvan University), Godollo, Hungary	From 2012
Hungary	Toepfer, Stefan	Visiting Professorship, Chinese Academy of Agricultural Sciences – Institute of Plant Protection	From 2015
India	Chaudhary, Malvika	National Advisory Committee, TNAU, Coimbatore India	From 2020
India	Chaudhary, Malvika	Member of the International Organisation for Biological Control	From 2019
India	Pandit, Vinod	IPPC working group to develop guidelines for implementation of ISPM 15	From 2020
Kenya	Rwomushana, Ivan	Member of the Locust Drone Technology Advisory Group	From 2022
Kenya	Oronje, MaryLucy	Member of the STDF P-IMA Practitioner Group	From 2020
Malaysia	Annamalai, Sivapragasam	Member of Panel of Reviewers "The Planter" Journal of the Incorporated Society of Planters, Malaysia	Ongoing
Malaysia	Annamalai, Sivapragasam	Member, Editorial Board, Vietnam Academy of Agricultural Sciences	Ongoing
Malaysia	Annamalai, Sivapragasam	Member, International Advisory Board, Journal of Tropical Agriculture and Food Science (JTAFS), MARDI	Ongoing
Switzerland	Babendreier, Dirk	Visiting Professorship, Chinese Academy of Agricultural Sciences – Institute of Plant Protection	From 2018
Switzerland	Eschen, René	Member of the International Forest Quarantine Research Group	From 2010

Switzerland	Eschen, René	Coordinator, Working Group 7.03.12 – Alien invasive species and international trade, International Union of Forest Research Organizations	From 2014
Switzerland	Eschen, René	Member of the International Union of Forest Research Organizations Task Force Forests and Biological Invasions	From 2015
Switzerland	Haye, Tim	Member of Swiss Committee for Biosafety	From 2015
Switzerland	Haye, Tim	Member of the PhD Council in Agri-Food Sciences, Technologies and Bio-Technologies (STEBA), University of Modena und Reggio Emilia, Italy	From 2019
Switzerland	Hinz, Haret	Affiliated Professor, Department of Plant, Soil and Entomological Sciences, University of Idaho, USA	From 2002
Switzerland	Hinz, Haret	Member of the IOBC Global Commission on Access and Benefit Sharing	From 2021
Switzerland	Kenis, Marc	Member of the Scientific Committee of the Swiss Biological Records Center	From 2012
Switzerland	Kuhlmann, Ulrich	Convenor, International Working Group of Ostrinia and other maize pests – a global working group of the International Organisation of Biological Control	From 2005
Switzerland	Kuhlmann, Ulrich	Member, International Advisory Board of IPP-CAAS, China	From 2018
Switzerland	Kuhlmann, Ulrich	Visiting Professorship, Chinese Academy of Agricultural Sciences – Institute of Plant Protection	From 2013
Switzerland	Schaffner, Urs	Affiliated Professor, Department of Plant, Soil and Entomological Sciences, University of Idaho, USA	From 2008
Switzerland	Seehausen, Lukas	Deputy Coordinator, Working Group 7.03.13 – Biological control of forest insects and pathogens, International Union of Forest Research Organizations	From 2020
Switzerland	Weyl, Philip	Affiliated Professor, Department of Plant, Soil and Entomological Sciences, University of Idaho, USA	From 2020
Switzerland	Weyl, Philip	Member of the biological control committee for the North American Invasive Species Management Association	From 2020
Switzerland	Weyl, Philip	Member of the IOBC Global Commission on Access and Benefit Sharing	From 2021
Trinidad and Tobago	Ramnanan, Naitram	Member of the Regional Project Steering Committee: Strengthening Coastal and Marine Climate Resilience through Upland and Coastal Ecosystem Based Adaptation and Country Engagement	From 2021
Trinidad and Tobago	Ramnanan, Naitram	Chair, Regional Pest Prioritization Technical Working Group of the Caribbean Plant Health Directors Forum (CPHD)	From 2014
UK	Buddie, Alan	Member Cup-fungi, Truffles and their Allies SSC Specialist Group (International Union for Conservation of Nature)	Ongoing
UK	Cock, Matthew	Honorary Life Member of the International Organisation for Biological Control	From 2015
UK	Cock, Matthew	Member Invasive Species Specialist Group (International Union for Conservation of Nature)	Ongoing
UK	Djeddour, Djami	Honorary Lecturer in the School of Biological Sciences, Royal Holloway, University of London	From 2016
UK	Edgington, Steve	Visiting Research Fellow, Reading University	2016–2023
UK	Edginton, Steve	Convenor for the Association of Applied Biologists, Nematology division	2015–2023
UK	Edginton, Steve	Council member for the Association of Applied Biologists	2015–2023
UK	Flood, Julie	Honorary Life Member of the British Society of Plant Pathology	From 2018

UK	Flood, Julie	Fellow of the Royal Society for Biology	From 2014
UK	Kurose, Daisuke	Part-time Lecturer in School of Agriculture, Kyushu University, Japan	2021–2023
UK	Murphy, Sean	Honorary Lecturer in the School of Biological Sciences, Royal Holloway, University of London	From 2016
UK	Neave, Suzanne	STDF Working Group	From 2021
UK	Pratt, Corin	Invited lecturer, Harper Adams University, UK	2022
UK	Ryan, Matthew	Board of Directors. International Alliance for Phytobiomes Research	From 2019
UK	Ryan, Matthew	Member of KTN Microbiome Steering Advisory Group & Lead, Microbiome Biobanking	From 2019
UK	Ryan, Matthew	Member of BBSRC EDI Expert Advisory Group	From 2021
UK	Shaw, Richard	Member Invasive Species Specialist Group (International Union for Conservation of Nature)	From 2014
UK	Shaw, Richard	Member of the European Commission Expert Working Group on Invasive Alien Species	From 2014
UK	Shaw, Richard	Science Advisory Board Member for the UK Animal and Plant Health Agency	From 2019
UK	Shaw, Richard	Fellow of the Royal Society for Biology	From 2022
UK	Smith, David	Fellow of the Royal Society for Biology	From 2011
UK	Taylor, Phil	Board member of the British Society for Plant Pathology	From 2017
UK	Taylor, Phil	Member of the Quadripartite Technical Group on Antimicrobial Resistance and Use Integrated Surveillance (QTG-AIS) of the Quadripartite Joint Secretariat on Antimicrobial Resistance (AMR)	2022–2026



## 2.2. Support to international scientific meetings

CABI staff have played significant roles in the organization of several scientific meetings in 2022:

Meeting	Staff member	Role
6th International Symposium on Biological Control of Arthropods (ISBCA). British Columbia, Canada (online), 15–17 and 22–24 March 2022	Dirk Babendreier, Malvika Chaudhary, Yelitza Colmenarez, Nina Häner and Tim Haye	Session organizers/ session moderators
	Ulrich Kuhlmann	Member scientific committee
26th International Congress of Entomology. Session: Biological Control of <i>Halyomorpha halys</i> by its egg parasitoids: a worldwide perspective, Helsinki, Finland, 17–22 July 2022	Tim Haye	Session organizer
Advances in Nematology 2022. Annual conference hosted by the Association of Applied Biologists Nematology Specialist Group, 8 December 2022, The Linnean Society, London, UK	Steve Edginton	Co-organizer/host/session moderator
ADX – Climate (The Africa Delivery Exchange – Climate)  'Channeling climate finance to local initiatives' and 'Bridging the agricultural climate finance gap'. 6 October 2022. Event hosted by Nelson Mandela School of Public Governance at the University of Cape Town with support from the Tony Blair Institute (online)	Jonathan Casey	Panel speaker
Atos Climate Summit: Technology innovation for climate action in Africa. 7–9 November 2022, Sharm El Sheikh, Egypt	Jonathan Casey	Panel speaker
CABI-Natural England Weed Biocontrol Priorities workshop. 30 March 2022 (online)	Corin Pratt and Richard Shaw	Co-organizers
	Djami Djeddour and Norbert Maczey	Moderators
CASA organized a two-part event at AGRF 'Tipping the climate finance balance – investing in climate adaptation to prevent food insecurity'. Kigali, Rwanda, 5 and 7 September 2022	Alvaro Valverde	Organizer
Catalyzing Climate Finance for Low-Carbon Agriculture Enterprises. Duke University event hosted by Nicholas Institute for Energy, Environment & Sustainability, 25 May 2022 (online)	Jonathan Casey	Panel speaker
G4AW 'Space for Food Security: On the Right Track' conference. Panel organization and side event: Evidence of success and challenges in how EO is used to assist tackling pests, diseases and weeds in agriculture. Utrecht, Netherlands, 3–6 October 2022	Janny Vos, Bryony Taylor and Charlotte Day	Panel organizers
	Charlotte Day	Moderator
FAO Science and Innovation Forum side event: Global Burden of Crop Loss: Evidence-based systems to tackle food security. 14 October 2022 (online)	Anna Szyniszewska, Cambria Finegold and Charlotte Day	Organizer/panel organizer
	Ulrich Kuhlmann	Moderator
International Plant Health Conference, London, UK, 21–23 September 2022  Scientific Symposium: IPM and nature-based solutions Technical Symposium: Soil health, the soil microbiome and plant health		
	Ulrich Kuhlmann	Facilitator
	Dannie Romney	Panellist
International Symposium on Joint Management of Cross-border Crop Pests in China and Southeast Asian Countries. Yunnan, China, 7–9 November 2022	Feng Zhang	Organizing committee member
	Hongmei Li	Secretariat

IPM strategies for Fall Armyworm ( <i>Spodoptera frugiperda</i> Smith) management. Online conference, Zambia, 21–23 September 2022	Marc Kenis	Session organizer, facilitator
IPM Task Force meeting for Sustainable Management of Tea pest in Assam with Rain Forest Alliance and its partners. Jorhat, Assam, India, 30 August – 2 September 2022	Malvika Chaudhary	Panellist
IWGO Digital Meeting. International Working Group on Ostrinia and other maize pests. 5–6 May 2022 (online)	Ulrich Kuhlmann	Organizer
	Marc Kenis	Session organizer
Session “Role of Fungicide Use in Food Safety and Security” at the National academy of science meeting: “The Role of Plant Agricultural Practices on Development of Antimicrobial Resistant Fungi Affecting Human Health”, 21–22 June and 27 June 2022 (online)	Phil Taylor	Moderator
Nepal Agriculture Investment Meeting. Kathmandu, Nepal, 8 December 2022	Alvaro Valverde	Organizer
Pest risk assessment writeshop meeting, organized by NPPO, Nepal, 21–22 December 2022	Manju Thakur	Trainer
	Vinod Pandit	Training facilitator
R4D Final Conference in East Africa ‘Land-use Planning for Sustainable Development’. Aberdare, Kenya, 3–5 May 2022	Urs Schaffner	Co-organizer
Seminar ‘Fall Armyworm Management and Biosecurity Risks’ in collaboration with CSIRO and MARDI, MARDI Headquarters, Serdang, Malaysia, 25 July 2022	Muhammad Faheem	Organizer and moderator
Session “Accelerating Climate Finance to Achieve Food Security in Southeast Asia” at the Grow Asia Forum in collaboration with Grow Asia and the Smallholder and Agri-SME Finance and Investment Network (SAFIN), Singapore, 18 October 2022	Alvaro Valverde	Co-organizer
Side event ‘Integrated Landscape Management (ILM) for sustainable control of invasive non-native plants.’ UN Biodiversity Conference (COP 15), Montréal, Canada, 13 December 2022	Hariet Hinz	Co-organizer
Research & Innovations supporting Fruits, Vegetables & Herbs. Panellist at the Enhancing Productivity, Quality, Food Safety and Market Access for Fruits, Vegetables, and Herbs Conference, 9–10 November 2022, Nairobi, Kenya	MaryLucy Oronje	Panellist
Webinar ‘Risk Factors for invasion, dispersal and migration of Fall Armyworm’, 29 November 2022	Muhammad Faheem	Organizer and moderator
XXVIII Congresso Brasileiro de Entomologia. Fortaleza, Brazil, 30 August – 2 September 2022	Yelitza Colmenarez	Session moderator

## 2.3. Journal contributions

CABI staff acted on the editorial boards of the following journals in 2022:

- *BioControl* (D. Babendreier)
- *Biology Methods and Protocols* (M. Reeve)
- *Brazilian Journal of Forestry and Environment* (N. Corniani)
- *CAB Reviews* (M.J.W. Cock)
- *CABI Agriculture and Bioscience* (S. Danielsen, M. Kansiime, M. Ryan, F. Zhang)
- *CBSUA Research and Innovation Multidisciplinary Journal* (S.S. Thanarajoo)
- *Chilean Journal of Agricultural Research* (S. Edgington)
- *Frontiers in Horticulture* (F. Zhang)
- *Frontiers in Insect Science* (T. Haye)
- *International Journal of Pest Management* (M. Kansiime)
- *Insects* (J. Zhang)
- *Journal of Applied Entomology* (S. Toepfer)
- *Journal of Asia Pacific Entomology* (A. Sivapragasam)
- *Journal of Insects as Food and Feed* (M. Kenis)
- *Journal of Oil Palm Research* (J. Flood)
- *Journal of Pest Science* (T. Haye)
- *Journal of Tropical Agriculture and Food Science* (J. Flood, A. Sivapragasam)
- *Journal of Vietnam Agricultural Science and Technology* (A. Sivapragasam)
- *NeoBiota* (R.H. Shaw)
- *Neotropical Entomology* (Y. Colmenarez)
- *New Disease Reports* (A. Buddie, R. Reeder, P. Taylor)
- *Redia* (T. Haye)
- *The Planter* (A. Sivapragasam)
- *World Agriculture* (P. Taylor)

CABI staff were also involved in reviewing more than 100 papers for journals as follows:

- *African Entomology*
- *African Journal of Environmental and Science Technology*
- *Annales de la Société entomologique de France*
- *Aquaculture*
- *Archives of Phytopathology and Plant Protection*
- *BioControl*
- *Biocontrol Science and Technology*
- *Biological Control*
- *Biological Invasions*
- *Biology Methods and Protocols*
- *CABI Agriculture and Bioscience*
- *CABI Reviews*

- *Campo Digital*
- *Chilean Journal of Agricultural Science*
- *Crop Protection*
- *Diversity*
- *Ecological Economics*
- *Economic Entomology*
- *Entomologia Experimentalis et Applicata*
- *Floresta e Ambiente*
- *Food Security*
- *Frontiers in Insect Science*
- *Heliyon*
- *Hydrobiologia*
- *Insects*
- *International Journal of Pest Management*
- *International Journal of Tropical Insect Science*
- *Journal of Agricultural Education and Extension*
- *Journal of Agriculture, Food Systems, and Community Development*
- *Journal of Applied Life Sciences and Environment*
- *Journal of Development Studies*
- *Journal of Economic Entomology*
- *Journal of General Plant Pathology*
- *Journal of International Development*
- *Journal of Pest Science*
- *Journal of Rural Studies*
- *Journal of the Plant Protection Society Nepal*
- *Journal of Visualized Experiments*
- *Journal on Insects as Food and Feed*
- *Nature Ecology and Evolution*
- *NeoBiota*
- *Neotropical Entomology*
- *New Disease Reports*
- *Pest Management Science*
- *Pesticide Biochemistry and Physiology*
- *Philippine Journal of Science*
- *Planta Daninha*
- *Science of the Total Environment*
- *Scientific Reports*
- *Summa Phytopathologica*
- *World Development*

## 2.4. Publications

CABI authors are shown in **bold**, the corresponding author(s) where designated are underlined, 'IF>2' refers to papers in journals with a 2021 impact factor greater than 2.0, and an open access symbol is placed at the end of all open access publications.

### 2.4.1. Books, proceedings and manuals

In 2022, no books, proceedings or manuals were published.

### 2.4.2. Peer-reviewed papers (115)

Adoyo, B., **Schaffner, U.**, Mukhovi, S., Kiteme, B., Mbaabu, P.R., Eckert, S., Choge, S. and Ehrensperger, A. (2022) Pathways towards the sustainable management of woody invasive species: understanding what drives land users' decisions to adopt and use land management practices. *Land* 11(4), 550, 21 pp. <https://doi.org/10.3390/land11040550> IF>2 

Adoyo, B., **Schaffner, U.**, Mukhovi, S., Kiteme, B., Mbaabu, P.R., Eckert, S., Choge, S. and Ehrensperger, A. (2022) Spatiotemporal trajectories of invasive tree species reveal the importance of collective action for successful invasion management. *Journal of Land Use Science* 17(1), 487–504. <https://doi.org/10.1080/1747423X.2022.2128914> IF>2 

**Ali, M.Y.**, Naseem, T., **Zhang, J.**, Pan, M., **Zhang, F.** and Liu, T.-X. (2022) Plant volatiles and herbivore induced plant volatiles from chili pepper act as attractant of the aphid parasitoid *Aphelinus varipes* (Hymenoptera: Aphelinidae). *Plants* 11(10), 1350, 18 pp. <https://doi.org/10.3390/plants11101350> IF>2 

Amouzou, K., Fening, K.O., **Hevi, W.**, Forchibe, E.E. and Billah, M.K. (2022) Efficacy of promising insecticides and lures for the management of insect pests of quarantine importance on ridged gourd (*Luffa acutangula* L.). *West African Journal of Applied Ecology* 30(1), 97–108. <https://www.ajol.info/index.php/wajae/article/view/229622/216791> 

Araújo, J.P.M., Lebert, B.M., Vermeulen, S., Brachmann, A., Ohm, R.A., **Evans, H.C.** and de Bekker, C. (2022) Masters of the manipulator: two new hypocrealean genera, *Niveomyces* (Cordycipitaceae) and *Torrubiellomyces* (Ophiocordycipitaceae), parasitic on the zombie ant fungus *Ophiocordyceps camponoti-floridani*. *Persoonia* 49, 171–194. <https://doi.org/10.3767/persoonia.2022.49.05> IF>2 

**Augustinus, B.A.**, Blum, M., Citterio, S., Gentili, R., Helman, D., Nestel, D., **Schaffner, U.**, Müller-Schärer, H. and Lensky, I.M. (2022) Ground-truthing predictions of a demographic model driven by land surface temperatures with a weed biocontrol cage experiment. *Ecological Modelling* 466, 109897, 9 pp. <https://doi.org/10.1016/j.ecolmodel.2022.109897> IF>2 

**Babendreier, D.**, Tang, R. and Horgan, F.G. (2022) Prospects for integrating augmentative and conservation biological control of leaffolders and stemborers in rice. *Agronomy* 12(12), 2958, 28 pp. <https://doi.org/10.3390/agronomy12122958> IF>2 

**Babendreier, D.**, **Toepfer, S.**, **Bateman, M.** and **Kenis, M.** (2022) Potential management options for the invasive moth *Spodoptera frugiperda* in Europe. *Journal of Economic Entomology* 115(6) 1772–1782. <https://doi.org/10.1093/jee/toac089> IF>2 

Bebber, D.P. and **Chaloner, T.M.** (2022) Specialists, generalists, and the shape of the ecological niche in fungi. *New Phytologist* 234(2), 345–349. <https://doi.org/10.1111/nph.18005> IF>2 

Bekele, K., **Linders, T.E.W.**, **Eschen, R.**, Shiferaw, H., Haji, J., Legesse, B., Choge, S., Eckert, S., Mbaabu, P.R. and **Schaffner, U.** (2022) How well do local stakeholders' perceptions of environmental impacts of an invasive alien plant species relate to ecological data? *Ecological Indicators* 137, 108748, 11 pp. <https://doi.org/10.1016/j.ecolind.2022.108748> IF>2 

**Bhutto, N.N.**, **Jiskani, A.M.** and **Nizamani, G.M.** (2022) Better cotton: an approach to sustainable agriculture. *Journal of Applied Agricultural Science and Technology* 6(1), 85–89. <https://doi.org/10.55043/jaast.v6i1.35> 

Bras, A., Lombaert, E., Kenis, M., Li, H., Bernard, A., Rousselet, J., Roques, A. and Auger-Rozenberg, M.-A. (2022) The fast invasion of Europe by the box tree moth: an additional example coupling multiple introduction events, bridgehead effects and admixture events. *Biological Invasions* 24(12), 3865–3883. <https://doi.org/10.1007/s10530-022-02887-3> IF>2 ⚡

Brunn, A., Kadri-Alabi, Z., Moodley, A., Guardabassi, L., **Taylor, P.**, Mateus, A. and Waage, J. (2022) Characteristics and global occurrence of human pathogens harboring antimicrobial resistance in food crops: a scoping review. *Frontiers in Sustainable Food Systems* 6, 824714, 19 pp. <https://doi.org/10.3389/fsufs.2022.824714> IF>2 ⚡

Caldara, R., **Toševski, I.**, Mendel, H. and Germann, C. (2022) In search of some type-specimens of *Rhamphus* [Clairville], 1798 (Coleoptera: Curculionidae). *Zootaxa* 5169(4), 371–380. <https://mapress.com/zt/article/view/zootaxa.5169.4.6>

Camargo, A.M., Kurose, D., Post, M.J.C. and Lommen, S.T.E. (2022) A new population of the biocontrol agent *Aphalara itadori* performs best on the hybrid host *Reynoutria × bohemica*. *Biological Control* 174, 105007, 10 pp. <https://doi.org/10.1016/j.bioco.2022.105007> IF>2 ⚡

**Casey, J.P.** (2022) Policy coherence for national climate change adaptation and invasive species management in four countries. *CABI Agriculture and Bioscience* 3, 10, 15 pp. <https://doi.org/10.1186/s43170-022-00077-8> ⚡

Cernava, T., Rybakova, D., Buscot, F., Clavel, T., McHardy, A.C., Meyer, F., Meyer, F., Overmann, J., Stecher, B., Sessitsch, A., Schloter, M., Berg, G. and The MicrobiomeSupport Team [including **Ryan, M.**] (2022) Metadata harmonization – standards are the key for a better usage of omics data for integrative microbiome analysis. *Environmental Microbiome* 17, 33, 10 pp. <https://doi.org/10.1186/s40793-022-00425-1> IF>2 ⚡

**Chen, J.-H., Li, W.-J.,** Li, J.-J., Yao, C.-C., Ma, G., Shi, S.-S., **Zhang, F.** and **Zhang, J.-P.** (2022) 茶翅蝽对猕猴桃果实的为害研究 [Identifying damage inflicted by *Halyomorpha halys* on kiwifruit crops]. 应用昆虫学报 [*Chinese Journal of Applied Entomology*] 59(3), 652–661. <https://doi.org/10.7679/j.issn.2095-1353.2022.071> [In Chinese with English abstract]. ⚡

Chen, H., Xie, M., Lin, L., Zhong, Y., Zhang, F. and Su, W. (2022) Transcriptome analysis of detoxification-related genes in *Spodoptera frugiperda*. *Journal of Insect Science* 22(1), 1–8. <https://doi.org/10.1093/jisesa/ieab108> ⚡

Cheng, Y., **Li, H.**, Liu, L., Wang, G., Gu, H. and **Luke, B.** (2022) Sex and body colour affect the variation in internal body temperature of *Oedaleus decorus asiaticus* in natural habitats in Inner Mongolia, China. *Agriculture* 12(6), 878, 11 pp. <https://doi.org/10.3390/agriculture12060878> IF>2 ⚡

Cisterna-Oyarce, V., Carrasco-Fernández, J., **Castro, J.F.**, Santelices, C., Muñoz-Reyes, V., Millas, P., **Buddie, A.G.** and France, A. (2022) *Gnomoniopsis smithogiliyi*: identification, characterization and incidence of the main pathogen causing brown rot in postharvest sweet chestnut fruits (*Castanea sativa*) in Chile. *Australasian Plant Disease Notes* 17, 2, 3 pp. <https://doi.org/10.1007/s13314-022-00450-6> ⚡

**Cock, M.J.W.**, Kelly, M., Deacon, A.E. and Gibson, M. (2022) New records and identifications of butterflies and moths (Lepidoptera) from Tobago, West Indies. *Living World, Journal of the Trinidad and Tobago Field Naturalists' Club* 2022, 12–29. <https://ttfnc.org/livingworld/index.php/lwj/article/view/cock2022b/cock2022b> ⚡

**Cock, M.J.W.** and Laguerre, M. (2022) Taxonomic changes in the Neotropical wasp moths, Euchromiina and Ctenuchina (Lepidoptera, Erebidae, Arctiinae, Arctiini) relating to the fauna of Trinidad & Tobago, with descriptions of new species. *Zootaxa* 5222(2), 101–132. <https://doi.org/10.11646/zootaxa.5222.2.1>

Collinge, D.B., Jensen, D.F., Rabiey, M., Sarrocco, S., Shaw, M.W. and **Shaw, R.** (2022) Biological control of plant diseases – what has been achieved and what is the direction? *Plant Pathology* 71(5), 1024–1047. <https://doi.org/10.1111/ppa.13555> IF>2 ⚡

**Colmenarez, Y.C., Babendreier, D.**, Ferrer Wurst, F.R., Vasquez-Freytaz, C.L. and de Freitas Bueno, A. (2022) The use of *Telenomus remus* (Nixon, 1937) (Hymenoptera: Scelionidae) in the management of *Spodoptera* spp.: potential, challenges and major benefits. *CABI Agriculture and Bioscience* 3, 5, 13 pp. <https://doi.org/10.1186/s43170-021-00071-6> ⚡

**Colmenárez, Y.C.**, Vásquez, C., de Freitas Bueno, A., Cantor, F., **Hidalgo, E.**, **Corniani, N.** and Lagrava, J.J. (2022) Sustainable management of the invasive *Tuta absoluta* (Lepidoptera: Gelechiidae): an overview of case studies from Latin American countries participating in Plantwise. *Journal of Integrated Pest Management* 13(1), 15, 16 pp. <https://doi.org/10.1093/jipm/pmac012> IF>2 ⚡

**Cvrković, T.**, Jović, J., Krstić, O., Marinković, S., Jakovljević, M., Mitrović, M. and **Toševski, I.** (2022) Epidemiological role of *Dictyophara europaea* (Hemiptera: Dictyopharidae) in the transmission of 'Candidatus Phytoplasma solani'. *Horticulturae* 8(7), 654, 14 pp. <https://doi.org/10.3390/horticulturae8070654> IF>2 ⚡

**Cyamweshi, A.**, **Nabahungu, N.**, Mirali, J., Kihara, J., **Oduor, G.**, **Rware, H.** and Sileshi, G. (2022) Sustainable intensification of wheat production under smallholder farming systems in Burera, Musanze and Nyamagabe districts of Rwanda. *Experimental Agriculture* 58, e20, 14 pp. <https://doi.org/10.1017/S0014479722000096> IF>2 ⚡

**Dao, A.N.C.**, Sankara, F., Pousga, S., Coulibaly, K., Nacoulma, J.P., Somda, I. and **Kenis, M.** (2022) Sustainable use of *Macrotermes* spp. to improve traditional poultry farming through an efficient trapping system in Burkina Faso. *Insects* 13(1), 62, 16 pp. <https://doi.org/10.3390/insects13010062> IF>2 ⚡

**Day, R.**, Haggblade, S., Moephuli, S., Mwang'ombe, A. and Nouala, S. (2022) Institutional and policy bottlenecks to IPM. *Current Opinion in Insect Science* 52, 100946, 7 pp. <https://doi.org/10.1016/j.cois.2022.100946> IF>2 ⚡

Desneux, N., **Han, P.**, **Mansour, R.**, Arnó, J., Brévault, T., Campos, M.R., Chailleux, A., Guedes, R.N.C., Karimi, J., Konan, K.A.J., Lavoir, A.-V., Luna, M.G., Perez-Hedo, M., Urbaneja, A., Verheggen, F.J., Zappalà, L., Abbes, K., Ali, A., Bayram, Y., Cantor, F., Cuthbertson, A.G.S., De Vis, R., Erler, F., Firake, D.M., Haddi, K., Hajjar, M.J., Ismoilov, K., Jaworski, C.C., **Kenis, M.**, Liu, H.-T., Madadi, H., Martin, T., Mazih, A., Messelink, G.J., Mohamed, S.A., Nofemela, R.S., Oke, A., Ramos, C., Ricupero, M., Roditakis, E., Shashank, P.R., Wan, F.-H., Wang, M.-H., Wang, S., Zhang, Y.-B. and Biondi, A. (2022) Integrated pest management of *Tuta absoluta*: practical implementations across different world regions. *Journal of Pest Science* 95(1), 17–39. <https://doi.org/10.1007/s10340-021-01442-8> IF>2

**Dhileepan, K.**, Musili, P.M., Ntandu, J.E., Chukwuma, E., **Kurose, D.**, **Seier, M.K.**, **Ellison, C.A.** and Shivas, R.G. (2022) Fungal pathogens of Navua sedge (*Cyperus aromaticus*) in equatorial Africa as prospective weed biological control agents. *Biocontrol Science and Technology* 32, 114–120. <https://doi.org/10.1080/09583157.2021.1968344>

**Early, R.**, **Rwomushana, I.**, Chipabika, G. and **Day, R.** (2022) Comparing, evaluating and combining statistical species distribution models and CLIMEX to forecast the distributions of emerging crop pests. *Pest Management Science* 78(2), 671–683. <https://doi.org/10.1002/ps.6677> IF>2 ⚡

**Ebenezer, T.G.E.**, Muigai, A.W.T., Nouala, S., Badaoui, B., Blaxter, M., **Buddie, A.G.**, Jarvis, E.D., Korlach, J., Kuja, J.O., Lewin, H.A., Majewska, R., Mapholi, N., Maslamoney, S., Mbo'o-Tchouawou, M., Osuji, J.O., Seehausen, O., Shorinola, O., Tiambo, C.K., Mulder, N., Ziyomo, C. and **Djikeng, A.** (2022) Africa: sequence 100,000 species to safeguard biodiversity. *Nature* 603, 388–392. <https://doi.org/10.1038/d41586-022-00712-4> IF>2 ⚡

**Eleftheriadou, N.**, Lubanga, U., Lefoe, G., **Seehausen, M.L.**, **Kenis, M.**, Kavalieratos, N.G. and Avtzis, D.N. (2022) Phenology and potential fecundity of *Neoleucopis kartliana* in Greece. *Insects* 13(2), 143, 10 pp. <https://doi.org/10.3390/insects13020143> IF>2 ⚡

**Fallet, P.**, Bazagwira, D., Guenat, J.M., Bustos-Segura, C., Karangwa, P., Mukundwa, I.P., Kajuga, J., Degen, T., **Toepfer, S.** and **Turlings, T.C.J.** (2022) Laboratory and field trials reveal the potential of a gel formulation of entomopathogenic nematodes for the biological control of fall armyworm caterpillars (*Spodoptera frugiperda*). *Biological Control* 176, 105086, 11 pp. <https://doi.org/10.1016/j.bioc.2022.105086> IF>2 ⚡

**Fallet, P.**, **De Gianni, L.**, Machado, R.A.R., Bruno, P., Bernal, J.S., Karangwa, P., Kajuga, J., Waweru, B., Bazagwira, D., Degen, T., **Toepfer, S.** and **Turlings, T.C.J.** (2022) Comparative screening of Mexican, Rwandan and commercial entomopathogenic nematodes to be used against invasive fall armyworm, *Spodoptera frugiperda*. *Insects* 13(2), 205, 16 pp. <https://doi.org/10.3390/insects13020205> IF>2 ⚡

**Fazlullah, Farooq, M. and Zada, N.** (2022) Parasitism potential of biological control agents of fruit fly under natural enemy field reservoirs (NEFR) technology. *Bulgarian Journal of Agricultural Science* 28(5), 876–881. <https://www.agrojournal.org/28/05-24.pdf> 

Fening, K.O., Amouzou, K., **Hevi, W.**, Forchibe, E.E., Billah, M.K. and Wamonje, F.O. (2022) First report and population dynamics of the tobacco thrips, *Thrips parvispinus* (Karny) (Thysanoptera: Thripidae) on ridged gourd, *Luffa acutangula* (L.) Roxy in selected export fields in southern Ghana. *Journal of Agriculture and Rural Development in the Tropics and Subtropics* 123(2), 235–245. <https://doi.org/10.17170/kobra-202212057193> 

**Finch, E.A.**, Rajoelison, E.T., Hamer, M.T., Caruso, T., Farnsworth, K.D., Fisher, B.L. and Cameron, A. (2022) The effect of swidden agriculture on ant communities in Madagascar. *Biological Conservation* 265, 109400, 8 pp. <https://doi.org/10.1016/j.biocon.2021.109400> IF>2 

**Flood, J., Bridge, P.D.** and Pilotti, C. (2022) Basal stem rot of oil palm revisited. *Annals of Applied Biology* 181(2), 160–181. <https://doi.org/10.1111/aab.12772> IF>2 

**Franić, I.** and 81 co-authors, including **Kenis, M., Li, H. and Eschen, R.** (2022) Worldwide diversity of endophytic fungi and insects associated with dormant tree twigs. *Scientific Data* 9, 62, 9 pp. <https://doi.org/10.1038/s41597-022-01162-3> IF>2 

**Ganda, H.**, Zannou, E.T., **Kenis, M.**, Abihona, H.A., Houndonougbo, F.M., Chrysostome, C.A.A.M., Chougourou, D.C. and Mensah, G.A. (2022) Effect of four rearing substrates on the yield and the chemical composition of housefly larvae, *Musca domestica* L. 1758 (Diptera: Muscidae). *International Journal of Tropical Insect Science* 42(2), 1331–1339. <https://doi.org/10.1007/s42690-021-00651-z>

**García, L.F.**, Velasco, A., **Colmenárez, Y.C.**, Pétillon, J. and Cantor, F. (2022) Intra- and inter-specific effects in prey size capture by wolf spiders (Araneae: Lycosidae) against the fall armyworm *Spodoptera frugiperda* under laboratory conditions. *Biocontrol Science and Technology* 32(9), 1132–1138. <https://doi.org/10.1080/09583157.2022.2067321>

**Gómez-Undiano, I.**, Musavi, F., Mushobozi, W.L., David, G.M., **Day, R.**, Early, R. and Wilson, K. (2022) Predicting potential global and future distributions of the African armyworm (*Spodoptera exempta*) using species distribution models. *Scientific Reports* 12, 16234, 12 pp. <https://doi.org/10.1038/s41598-022-19983-y> IF>2 

**Grevstad, F.S.**, Wepprich, T., Barker, B., Coop, L.B., **Shaw, R.** and Bourchier, R.S. (2022) Combining photoperiod and thermal responses to predict phenological mismatch for introduced insects. *Ecological Applications* 32(3), e2557, pp. 16. <https://doi.org/10.1002/eap.2557> IF>2

**Gupta, A.**, Bin Zeya, S., **Pratt, C.F.**, Joshi, S. and Ballal, C.R. (2022) First description of the male of *Anagyrus almoriensis* Shafee, Alam & Agarwal (Hymenoptera: Encyrtidae) with details of new host *Pseudococcus calceolariae* (Maskell) (Hemiptera: Pseudococcidae) on *Rubus ellipticus* (Rosaceae) from Himalayas. *Zootaxa* 5159(4), 593–600. <https://doi.org/10.11646/zootaxa.5159.4.8>

**Gurmessa, N.E., Agwanda, C., Oduor, G., Musebe, R.O., Akiri, M. and Romney, D.** (2022) Sustainability and gender dynamics of coffee value-chain development intervention: lessons from Ethiopia. *Sustainability* 14(19), 11928, 16 pp. <https://doi.org/10.3390/su141911928> IF>2 

**Gurmessa, N.E.**, Ndinda, C., **Agwanda, C.** and **Akiri, M.** (2022) Partial credit guarantee and financial additionality for smallholders coffee cooperatives: experience from Ethiopia. *Development in Practice* 32(8), 1049–1062. <https://doi.org/10.1080/09614524.2021.1958161> 

**Haelewaters, D.**, Hiller, T., Ceryngier, P., **Eschen, R.**, Gorczak, M., Houston, M.L., Kisło, K., Knapp, M., Landeka, N., Pflieger, W.P., Zach, P., Aime, M.C. and Nedvěd, O. (2022) Do biotic and abiotic factors influence the prevalence of a common parasite of the invasive alien ladybird *Harmonia axyridis*? *Frontiers in Ecology and Evolution* 10, 773423, 8 pp. <https://doi.org/10.3389/fevo.2022.773423> IF>2 

Hamad, A.A., Kashaigili, J.J., Eckert, S., **Eschen, R., Schaffner, U.** and **Mbwambo, J.R.** (2022) Impact of invasive *Lantana camara* on maize and cassava growth in East Usambara, Tanzania. *Plant-Environment Interactions* 3(5), 193–202. <https://doi.org/10.1002/pei3.10090> 

Harris, J., van Zonneveld, M., Achigan-Dako, E.G., **Bajwa, B.**, Brouwer, I.D., Choudhury, D., de Jager, I., de Steenhuijsen Piters, B., Dulloo, M.E., Guarino, L., Kindt, R., Mayes, S., McMullin, S., Quintero, M. and Schreinemachers, P. (2022) Fruit and vegetable biodiversity for nutritionally diverse diets: challenges, opportunities, and knowledge gaps. *Global Food Security* 33, 100618, 10 pp. <https://doi.org/10.1016/j.gfs.2022.100618> IF>2 

Jacobi, J., Llanque, A., Mukhovi, S.M., Birachi, E., von Groote, P., **Eschen, R.**, Hilber-Schöb, I., Kiba, D.I., Frossard, E. and Robledo-Abad, C. (2022) Transdisciplinary co-creation increases the utilization of knowledge from sustainable development research. *Environmental Science and Policy* 12, 107–115. <https://doi.org/10.1016/j.envsci.2021.12.017> IF>2 

**Kadzamira, M.A.T.J.**, **Chaudhary, M.**, **Williams, F.** and Dutta, N.K. (2022) A non-linear approach to the establishment of local biological control agent production units: a case study of fall armyworm in Bangladesh. *CABI Agriculture and Bioscience* 3, 48, 12 pp. <https://doi.org/10.1186/s43170-022-00115-5> 

**Kansiime, M.K.**, **Mugambi, I.**, **Rware, H.**, **Alokit, C.**, **Aliamo, C.**, **Zhang, F.**, Latzko, J., Yang, P., **Karanja, D.** and **Romney, D.** (2022) Challenges and capacity gaps in smallholder access to digital extension and advisory services in Kenya and Uganda. *Frontiers of Agricultural Science and Engineering* 9(4), 642–654. <https://doi.org/10.15302/J-FASE-2021423> 

**Kansiime, M.K.**, **Njunge, R.**, Okuku, I., Baars, E., **Alokit, C.**, **Duah, S.**, **Gakuo, S.**, **Karanja, L.**, **Mchana, A.**, **Mibei, H.**, **Musebe, R.**, **Romney, D.**, **Rware, H.**, **Silvestri, S.**, **Sones, D.** and **Watiti, J.** (2022) Bringing sustainable agricultural intensification practices and technologies to scale through campaign-based extension approaches: lessons from Africa Soil Health Consortium. *International Journal of Agricultural Sustainability* 20(5), 743–757. <https://doi.org/10.1080/14735903.2021.1976495> IF>2 

**Kasoma, C.**, Shimelis, H., Laing, M.D. and Mekonnen, B. (2022) Fall armyworm infestation and development: screening tropical maize genotypes for resistance in Zambia. *Insects* 13(11), 1020, 22 pp. <https://doi.org/10.3390/insects13111020> IF>2 

**Kenis, M.**, **Agboyi, L.K.**, Adu-Acheampong, R., Ansong, M., Arthur, S., Attipoe, P.T., Baba, A.-S.M., Beseh, P., **Clottey, V.A.**, Combey, R., Dzomeku, I., Eddy-Doh, M.A., Fening, K.O., Frimpong-Anin, K., **Hevi, W.**, Lekete-Lawson, E., Nboyine, J.A., Ohene-Mensah, G., **Oppong-Mensah, B.**, Nuamah, H.S.A., van der Puije, G. and **Mulema, J.** (2022) Horizon scanning for prioritizing invasive alien species with potential to threaten agriculture and biodiversity in Ghana. *NeoBiota* 71, 129–148. <https://doi.org/10.3897/neobiota.71.72577> IF>2 

**Kiptoo, J.J.**, Mutisya, D.L., Ndegwa, P.N., Irungu, L., Godfrey, R., **Oduor, G.I.** and Kiptoo, G.J. (2022) Effect of agro-ecological zones on predacious mites (Acari: Phytoseiidae) and pest mite, *Eutetranychus africanus* (Acari: Tetranychidae) populations in citrus orchards in Kenya. *Persian Journal of Acarology* 11(3), 515–529. <https://doi.org/10.22073/pja.v11i3.73549> 

Krstić, O., Cvrković, T., Marinković, S., Jakovljević, M., Mitrović, M., **Toševski, I.** and Jović, J. (2022) Genetic diversity of Flavescence dorée phytoplasmas in vineyards of Serbia: from the widespread occurrence of autochthonous Map-M51 to the emergence of endemic Map-FD2 (Vectotype II) and new Map-FD3 (Vectotype III) epidemic genotypes. *Agronomy* 12(2), 448, 18 pp. <https://doi.org/10.3390/agronomy12020448> IF>2 

**Lange, L.**, Berg, G., Cernava, T., Champomier-Vergès, M.-C., Charles, T., Cocolin, L., Cotter, P., D'Hondt, K., Kostic, T., Maguin, E., Makhalaanyane, T., Meisner, A., **Ryan, M.**, Seghal Kiran, G., Soares de Souza, R., Sanz, Y., Schloter, M., Smidt, H., Wakelin, S. and **Sessitsch, A.** (2022) Microbiome ethics, guiding principles for microbiome research, use and knowledge management. *Environmental Microbiome* 17, 50, 8 pp. <https://doi.org/10.1186/s40793-022-00444-y> IF>2 

**Leite, S.A.**, Guedes, R.N.C., da Costa, D.R., **Colmenarez, Y.C.**, Matsumoto, S.N., dos Santos, M.P., Coelho, B.S., Moreira, A.A. and Castellani, M.A. (2022) The effects of thiamephoxam on coffee seedling morphophysiology and Neotropical leaf miner (*Leucoptera coffeella*) infestations. *Pest Management Science* 78(6), 2581–2587. <https://doi.org/10.1002/ps.6889> IF>2

**Levente, V.**, Abraham, R., Nagy, K., **Toth, S.** and **Toepfer, S.** (2022) Can *Heterorhabditis bacteriophora* still control western corn rootworm larvae when applied with low amounts of water? *Növényvédelem* 83(58), 5, 192–200. [In Hungarian with English abstract].

**Li, H.**, Wang, J., Zhuo, F., Zhu, J., Tu, X., Zhang, G. and **Luke, B.** (2022) 黃脊竹蝗在中国的发生及防控技术 [Review on the occurrence and management technology of *Ceracris kiangsu* in China]. 中国生物防治学报 [Chinese Journal of Biological Control] 38(2), 531–536. <http://www.zgswfz.com.cn/CN/10.16409/j.cnki.2095-039x.2021.05.001> [In Chinese with English abstract].

**Lowry, A., Durocher-Granger, L., Oronje, M., Mutisya, D., Mfune, T., Gitonga, C., Musesha, M., Taylor, B., Wood, S., Chacha, D., Beale, T., Finch, E.A. and Murphy, S.T.** (2022) Optimizing the timing of management interventions against fall armyworm in African smallholder maize: modelling the pattern of larval population emergence and development. *Crop Protection* 157, 105966, 13 pp. <https://doi.org/10.1016/j.cropro.2022.105966> IF>2

**Luo, S., Bardgett, R.D., Schmid, B., Johnson, D., Png, K., Schaffner, U., Zhou, H., Yao, B., Hou, X. and Ostle, N.J.** (2022) Historical context modifies plant diversity–community productivity relationships in alpine grassland. *Journal of Ecology* 110(9), 2205–2218. <https://doi.org/10.1111/1365-2745.13943> IF>2

**Machado, R.A.R., Bhat, A.H., Abolafia, J., Shokoohi, E., Fallet, P., Turlings, T.C.J., Tarasco, E., Půža, V., Kajuga, J., Yan, X. and Toepfer, S.** (2022) *Steinerinema africanum* n. sp. (Rhabditida, Steinernematidae), a new entomopathogenic nematode species isolated in the Republic of Rwanda. *Journal of Nematology* 54(1), e2022-1, 28 pp. <https://doi.org/10.2478/jofnem-2022-0049>

**Makale, F., Mugambi, I., Kansiime, M.K., Yuka, I., Abang, M., Lechina, B.S., Rampeba, M. and Rwomushana, I.** (2022) Fall armyworm in Botswana: impacts, farmer management practices and implications for sustainable pest management. *Pest Management Science* 78(3), 1060–1070. <https://doi.org/10.1002/ps.6717> IF>2

**Mason, P.G., Dancau, T., Abram, P.K., Noronha, C., Dixon, P.L., Parsons, C.K., Bahar, M.H., Bennett, A.M.R., Fernández-Triana, J., Brauner, A.M., Clarke, P., Thiessen, J., Gillespie, D.R. and Haye, T.** (2022) The parasitoid complex of diamondback moth, *Plutella xylostella* (Linnaeus) (Lepidoptera: Plutellidae), in Canada: impact and status. *The Canadian Entomologist* 154(1), E12, 26 pp. <https://doi.org/10.4039/tce.2021.51>

Mehrabi, Z., Delzeit, R., Ignaciuk, A., Levers, C., Braich, G., Bajaj, K., Amo-Aidoo, A., Anderson, W., Balgah, R.A., Benton, T.G., Chari, M.M., Ellis, E.C., Gahi, N.Z., Gaupp, F., Garibaldi, L.A., Gerber, J.S., Godde, C.M., Grass, I., Heimann, T., Hirons, M., Hoogenboom, G., Jain, M., James, D., Makowski, D., Masamha, B., Meng, S., Monprapussorn, S., Müller, D., Nelson, A., Newlands, N.K., Noack, F., **Oronje, M.**, Raymond, C., Reichstein, M., Rieseberg, L.H., Rodriguez-Llanes, J.M., Rosenstock, T., Rowhani, P., Sarhadi, A., Seppelt, R., Sidhu, B.S., Snapp, S., Soma, T., Sparks, A.H., Teh, L., Tigchelaar, M., Vogel, M.M., West, P.C., Wittman, H. and You, L. (2022) Research priorities for global food security under extreme events. *One Earth* 5(7), 756–766. <https://doi.org/10.1016/j.oneear.2022.06.008> IF>2

Mi, Q.-Q., **Zhang, J.-P.**, Ali, M.Y., Zhong, Y.-Z., Mills, N.J., Li, D.-S., Lei, Y.-M. and **Zhang, F.** (2022) Reproductive attributes and functional response of *Anastatus japonicus* on eggs of *Antheraea pernyi*, a factitious host. *Pest Management Science* 78(11), 4679–4688. <https://doi.org/10.1002/ps.7088> IF>2

Miño, C., Santana, R., León, O., **Colmenárez, Y.**, Villa-Murillo, A. and **Vásquez, C.** (2022) Biology and life table of *Eotetranychus lewisi* (Acarı: Tetranychidae) on *Prunus persica* cultivars from the Ecuadorian Andean region. *International Journal of Acarology* 48(3), 275–278. <https://doi.org/10.1080/01647954.2022.2060305>

**Misawa, T., Kurose, D.** and Sato, T. (2022) 日本産ブドウ晚腐病菌 *Colletotrichum gloeosporioides* 種複合体所属菌株の分子再同定 [Molecular re-identification of Japanese isolates of the *Colletotrichum gloeosporioides* species complex associated with grape ripe rot]. 北日本病虫研報 [Annual Report of the Society of Plant Protection of North Japan] 73, 113–118. [https://doi.org/10.11455/kitanihon.2022.73\\_113](https://doi.org/10.11455/kitanihon.2022.73_113) [In Japanese with English abstract].

**Mulema, J., Day, R., Nunda, W., Akutse, K.S., Bruce, A.Y., Gachamba, S., Haukeland, S., Kahuthia-Gathu, R., Kibet, S., Koech, A., Kosiom, T., Miano, D.W., Momanyi, G., Murungi, L.K., Muthomi, J.W., Mwangi, J., Mwangi, M., Mwendwa, N., Nderitu, J.H., Nyasani, J., Otipa, M., Wambugu, S., Were, E., Makale, F., Doughty, L., Edgington, S., Rwomushana, I. and Kenis, M.** (2022) Prioritization of invasive alien species with the potential to threaten agriculture and biodiversity in Kenya through horizon scanning. *Biological Invasions* 24(9), 2933–2949. <https://doi.org/10.1007/s10530-022-02824-4> IF>2

Musolin, D.L., Dolgovskaya, M.Y., Zakharchenko, V.Y., Karpun, N.N., **Haye, T.**, Saulich, A.K. and Reznik, S.Y. (2022) Flying over Eurasia: geographic variation of photoperiodic control of nymphal development and adult diapause induction in native and invasive populations of the brown marmorated stink bug, *Halyomorpha halys* (Hemiptera: Pentatomidae). *Insects* 13(6), 522, 16 pp. <https://doi.org/10.3390/insects13060522> IF>2 

Myint, Y.Y., Bai, S., Zhang, T., **Babendreier, D.**, He, K. and Wang, Z. (2022) Ovipositional preference of *Trichogramma dendrolimi* and *Trichogramma ostriniae* strains from Myanmar on different host egg ages of Asian corn borer, *Ostrinia furnacalis* (Lepidoptera: Crambidae). *Biocontrol Science and Technology* 32(6), 700–714. <https://doi.org/10.1080/09583157.2022.2044015>

Myint, Y.Y., Bai, S., Zhang, T., **Babendreier, D.**, He, K. and Wang, Z. (2022) Selection of the most effective *Trichogramma* strains (Hymenoptera: Trichogrammatidae) from Myanmar to control Asian corn borer, *Ostrinia furnacalis* (Lepidoptera: Crambidae). *Journal of Economic Entomology* 115(1), 81–92. <https://doi.org/10.1093/jee/toab241> IF>2

Naderi, R., Bijani, F., **Weyl, P.S.R.** and Mueller-Schaerer, H. (2022) Intercropping sweet corn with summer savory to increase weed suppression and yield. *Weed Technology* 36(4), 544–547. <http://doi.org/10.1017/wet.2022.54> 

**Nawaz, A.**, Ur Rehman, A., Rehman, A., **Ahmad, S.**, Siddique, K.H.M. and Farooq, M. (2022) Increasing sustainability for rice production systems. *Journal of Cereal Science* 103, 103400, 8 pp. <https://doi.org/10.1016/j.cjs.2021.103400> IF>2 

Nboyine, J.A., Asamani, E., **Agboyi, L.**, Yahaya, I., Kusi, G.A. and Badii, B.K. (2022) Assessment of the optimal frequency of insecticide sprays required to manage fall armyworm (*Spodoptera frugiperda* J.E Smith) in maize (*Zea mays* L.) in northern Ghana. *CABI Agriculture and Bioscience* 3, 3, 11 pp. <https://doi.org/10.1186/s43170-021-00070-7> 

Nyanaphah, J.O., Ayiecho, P.O., Nyabundi, J.O., **Otieno, W.** and Ojiambo, P.S. (2022) Genetic association of agronomic traits with partial resistance to gray leaf spot in elite maize (*Zea mays* L.) germplasm. *Crop Science* 62(6), 2151–2168. <https://doi.org/10.1002/csc2.20792> IF>2 

Ochieng, J., Afari-Sefa, V., Muthoni, F., **Kansiime, M.**, Hoeschle-Zeledon, I., Bekunda, M. and Dubois, T. (2022) Adoption of sustainable agricultural technologies for vegetable production in rural Tanzania: trade-offs, complementarities and diffusion. *International Journal of Agricultural Sustainability* 20(4), 478–496. <https://doi.org/10.1080/14735903.2021.1943235> IF>2

**Ochilo, W.N.**, **Toepfer, S.**, Ndayihanzamaso, P., **Mugambi, I.**, **Vos, J.** and Niyongere, C. (2022) Assessing the plant health system of Burundi: what it is, who matters and why. *Sustainability* 14(21), 14293, 19 pp. <https://doi.org/10.3390/su142114293> IF>2 

**Ogunmodeode, A.M.**, **Tambo, J.A.**, Adeleke, A.T., Gulak, D.M. and Ogunsanwo, M.O. (2022) Farmers' willingness to pay towards the sustainability of plant clinics: evidence from Bangladesh, Rwanda and Zambia. *International Journal of Agricultural Sustainability* 20(7), 1360–1372. <https://doi.org/10.1080/14735903.2022.2082018> IF>2 

**Pollard, K.M.**, Gange, A.C., **Seier, M.K.** and **Ellison, C.A.** (2022) A semi-natural evaluation of the potential of the rust fungus *Puccinia komarovii* var. *glanduliferae* as a biocontrol agent of *Impatiens glandulifera*. *Biological Control* 165, 104786, 10 pp. <https://doi.org/10.1016/j.biocontrol.2021.104786> IF>2 

**Pratt, C.F.**, **Constantine, K.** and **Wood, S.V.** (2022) A century of *Azolla filiculoides* biocontrol: the economic value of *Stenopelmus rufinasus* to Great Britain. *CABI Agriculture and Bioscience* 3, 70, 14 pp. <https://doi.org/10.1186/s43170-022-00136-0> 

Rathakrishnan, T., **Suntharalingam, C.**, Lim, Y.S., Loong, S.K., Lee, H.Y., Tee, K.K., **Thanarajoo, S.S.** and Balasundram, S.K. (2022) Adoption of sustainable agricultural practices among smallholder dairy farmers in Malaysia: contributing factors and smart farming prospects. *Journal of Smart Science and Technology* 2(2), 16–31. <https://doi.org/10.24191/jsst.v2i2.34> 

Salamanca, A.J.A., Navarro-Cerrillo, R.M., **Crozier, J.**, Stirling, C. and González-Moreno, P. (2022) Linking growth models and allometric equations to estimate carbon sequestration potential of cocoa agroforestry systems in West Africa. *Agroforestry Systems* 96(8), 1249–1261. <https://doi.org/10.1007/s10457-022-00786-z> IF>2

Sankara, F., Sankara, F., Pousga, S., Bamogo, W.J.M., Coulibaly, K., Nacoulma, J.P., Somda, I. and **Kenis, M.** (2022) Influence des attractifs sur la production des larves de la mouche domestique (*Musca domestica* L. (1758)) pour l'alimentation avicole dans la zone ouest du Burkina Faso [Influence of attractants on the production of housefly larvae (*Musca domestica* L. (1758)) for poultry feed in the western zone of Burkina Faso]. *International Journal of Biological and Chemical Sciences* 16(3), 1217–1231. <https://doi.org/10.4314/ijbcs.v16i3.25> [In French with English abstract].

Sawadogo, A., Zida, I., **Kenis, M.** and Nacro, S. (2022) Estimation of yield loss of *Jatropha curcas* due to *Aphthona whitfieldi* in Burkina Faso. *BioEnergy Research* 15(4), 1927–1932. <https://doi.org/10.1007/s12155-022-10427-z> IF>2

**Seehausen, M.L.**, Valenti, R., **Fontes, J.**, Meier, M., Marazzi, C., Mazzi, D. and **Kenis, M.** (2022) Large-arena field cage releases of a candidate classical biological control agent for spotted wing drosophila suggest low risk to non-target species. *Journal of Pest Science* 95(3), 1057–1065. <https://doi.org/10.1007/s10340-022-01487-3> IF>2

Sebakira, H., Tepa-Yotto, G.T., Djouaka, R., **Clottey, V.**, Gaitu, C., Tamò, M., Kaweesa, Y. and Ddungu, S.P. (2022) Determinants for deployment of climate-smart integrated pest management practices: a meta-analysis approach. *Agriculture* 12(7), 1052, 19 pp. <https://doi.org/10.3390/agriculture12071052> IF>2

Senay, S.D., Pardey, P.G., Chai, Y., **Doughty, L.** and **Day, R.** (2022) Fall armyworm from a maize multi-peril pest risk perspective. *Frontiers in Insect Science* 2, 971396, 17 pp. <https://doi.org/10.3389/finsc.2022.971396>

Singh, G.M., Goldberg, S., Schaefer, D., **Zhang, F.**, Sharma, S., Mishra, V.K. and Xu, J. (2022) Biochemical, gas exchange, and chlorophyll fluorescence analysis of maize genotypes under drought stress reveals important insights into their interaction and homeostasis. *Photosynthetica* 60(3), 376–388. <https://doi.org/10.32615/ps.2022.024> IF>2

**Singh, G.**, Xu, J., Schaefer, D., **Day, R.**, Wang, Z. and **Zhang, F.** (2022) Maize diversity for fall armyworm resistance in a warming world. *Crop Science* 62(1), 1–19. <https://doi.org/10.1002/csc2.20649> IF>2

Singh, G.M., **Zhang, F.**, Schaefer, D.A., Goldberg, S. and Xu, J. (2022) Smoke induced seed germination in maize in response to self and other plants biomass-derived smoke. *Ecology, Environment and Conservation* 28 (May Suppl. Issue), S288–S293. <http://doi.org/10.53550/EEC.2022.v28i03s.043>

Skuhrovec, J., Gosik, R., Caldara, R., **Toševski, I.** and Batyra, A. (2022) Description of immature stages of *Gymnetron* species (Coleoptera, Curculionidae, Curculioninae), with particular emphasis on the diagnostic morphological characters at the generic and specific levels. *ZooKeys* 1090, 45–84. <https://doi.org/10.3897/zookeys.1090.78741>

**Smith, D.**, **Casey, J.**, **Ryan, M.J.**, **Offord, L.**, **Rendell-Dunn, A.** and **Reeder, R.** (2022) CABI's 100 years in identifying and combating emerging fungal diseases in response to climate change. *Microbiology Australia* 43(4), 160–167. <https://doi.org/10.1071/MA22054>

Sun, Y., Müller-Schärer, H. and **Schaffner, U.** (2022) Fighting neobiota with neobiota: consider it more often and do it more rigorously. *Biological Conservation* 268, 109506, 10 pp. <https://doi.org/10.1016/j.biocon.2022.109506> IF>2

Tai, H., **Zhang, F.**, Xiao, C., Tang, R., Liu, Z., Bai, S. and Wang, Z. (2022) Toxicity of chemical pesticides commonly used in maize to *Trichogramma ostriniae* (Hymenoptera: Trichogrammatidae), an egg parasitoid of Asian corn borer. *Ecotoxicology and Environmental Safety* 241, 113802, 8 pp. <https://doi.org/10.1016/j.ecoenv.2022.113802> IF>2

**Tambo, J.A.** and Matimelo, M. (2022) An act of defiance? Measuring farmer deviation from personalised extension recommendations in Zambia. *Journal of Agricultural Economics* 73(2), 396–413. <https://doi.org/10.1111/1477-9552.12455> IF>2

**Tarigan, S.I.**, **Toth, S.**, Szalai, M., Kiss, J., Turoczi, G. and **Toepfer, S.** (2022) Biological control properties of microbial plant biostimulants. A review. *Biocontrol Science and Technology* 32(12), 1351–1371. <https://doi.org/10.1080/09583157.2022.2129589>

**Taylor, P.** (2022) *Xylella*: the greatest threat to Australian agriculture? *Microbiology Australia* 43(4), 165–168. <https://doi.org/10.1071/MA22055> ⓘ

**Tepa-Yotto, G.T.**, Chinwada, P., **Rwomushana, I.**, Goergen, G. and Subramanian, S. (2022) Integrated management of *Spodoptera frugiperda* 6 years post-detection in Africa: a review. *Current Opinion in Insect Science* 52, 100928, 7 pp. <https://doi.org/10.1016/j.cois.2022.100928> IF>2 ⓘ

**Toth, S.**, Szalai, M. and **Toepfer, S.** (2022) On understanding and manipulating the hatching patterns of *Diabrotica virgifera virgifera* eggs to improve the design of experiments. *Entomologia Experimentalis et Applicata* 170(2), 122–133. <https://doi.org/10.1111/eea.13127> IF>2

Toth, S., **Toepfer, S.**, Szalai, M. and **Kiss, J.** (2022) Limited influence of abiotic and biotic factors on the efficacy of soil insecticides and entomopathogenic nematodes when managing the maize pest *Diabrotica v. virgifera* (Coleoptera: Chrysomelidae). *Agronomy* 12(11), 2697, 19 pp. <https://doi.org/10.3390/agronomy12112697> IF>2 ⓘ

**Varia, S.**, **Wood, S.V.**, Allen, R.M.S. and **Murphy, S.T.** (2022) Assessment of the host-range and impact of the mite, *Aculus crassulae*, a potential biological control agent for Australian swamp stonecrop, *Crassula helmsii*. *Biological Control* 167, 104854, 8 pp. <https://doi.org/10.1016/j.biocntrol.2022.104854> IF>2 ⓘ

**Wan, M.**, Tai, H., Gu, R., Wang, G., **Liu, Z.**, **Mi, Q.**, **Zhang, J.**, **Li, H.**, Wang, Z., Nie, F. and **Zhang, F.** (2022) 草地贪夜蛾对云南德宏玉米经济损失评估及防治措施调查 [Economic loss assessment of maize production caused by the fall armyworm *Spodoptera frugiperda* in Dehong prefecture of Yunnan province]. 植物保护 [Plant Protection] 48(1), 220–226. <http://doi.org/10.16688/j.zwbh.2020603> [In Chinese with English abstract]. ⓘ

**Wang, J.**, **Li, H.**, Cheng, Y., Wang, G., Nong, X., **Luke, B.**, Davaasambuu, U. and **Zhang, G.** (2022) Feeding dsSerpin1 enhanced *Metarhizium anisopliae* insecticidal efficiency against *Locusta migratoria manilensis*. *Agriculture* 12(4), 538. 9 pp. <https://doi.org/10.3390/agriculture12040538> IF>2 ⓘ

**Wang, J.**, **Li, H.**, Zhu, J., Tian, W., **Wang, M.**, Zhang, G. and **Zhang, F.** (2022) 基于 CABI有害生物风险分析工具的沙漠蝗风险分析 [Risk analysis of desert locust *Schistocerca gregaria* (Forskål) with CABI PRA Tool]. 中国植保导刊 [China Plant Protection] 42(1), 30–35. [In Chinese with English abstract].

**Whittard, D.**, Ritchie, F., **Musker, R.** and **Rose, M.** (2022) Measuring the value of data governance in agricultural investments: a case study. *Experimental Agriculture* 58, e8, 20 pp. <https://doi.org/10.1017/S0014479721000314> IF>2 ⓘ

**Wyckhuys, K.A.G.**, Zhang, W., **Colmenarez, Y.C.**, Simelton, E., Sander, B.O. and Lu, Y. (2022) Tritrophic defenses as a central pivot of low-emission, pest-suppressive farming systems. *Current Opinion in Environmental Sustainability* 58, 101208, 9 pp. <https://doi.org/10.1016/j.cosust.2022.101208> IF>2 ⓘ

**Yousaf, S.**, **Rehman, A.**, Masood, M., **Ali, K.** and Suleman, N. (2022) Occurrence and molecular identification of an invasive rice strain of fall armyworm *Spodoptera frugiperda* (Lepidoptera: Noctuidae) from Sindh, Pakistan, using mitochondrial cytochrome c oxidase I gene sequences. *Journal of Plant Diseases and Protection* 129(1), 71–78. <https://doi.org/10.1007/s41348-021-00548-6> ⓘ

Zhong, Y., Xie, M., Di, Z., Li, F., Chen, J., Kong, X., Lin, L., Su, W., Xu, L., **Zhang, F.**, Tang, R. and Chen, H. (2022) PBP1 plays key roles in sex pheromone reception of the fall armyworm. *International Journal of Biological Macromolecules* 214, 162–169. <https://doi.org/10.1016/j.ijbiomac.2022.06.068> IF>2

Zhong, Y.-Z., Xie, M.-H., Huang, C., Zhang, X., Cao, L., Chen, H.-L., **Zhang, F.**, Wan, F.-H., Han, R.-C. and **Tang, R.** (2022) Characterizations of botanical attractant of *Halyomorpha halys* and selection of relevant deorphanization candidates via computational approach. *Scientific Reports* 12, 4170, 11 pp. <https://doi.org/10.1038/s41598-022-07840-x> IF>2 ⓘ

#### 2.4.3. Book chapters and proceedings papers (12)

**Chaudhary, M.** and **Kadzamira, M.** (2022) Needs assessment of setting up biocontrol agent production units at the rural community level to address fall armyworm in Bangladesh. [Extended abstract]. In: Weber, D., Gariepy, T.D. and Morrison, W.R. III (eds) *Proceedings of the 6th International Symposium on Biological Control of Arthropods*, 15–17 and 22–24 March 2022. Online from British

Columbia, Canada, pp. 7.8–7.11. <http://dx.doi.org/10.6084/m9.figshare.19349348> Ⓢ

**Day, R.** and **Chaudhary, M.** (2022) Chapter 10. Combatting invasive species: the case study of fall armyworm. In: Attaluri, S., Gyeletshen, K., Sultana, N. and Hossain, B.Md. (eds) *Fall Armyworm (FAW) Spodoptera frugiperda (J. E. Smith) – The Status, Challenges and Experiences among the SAARC Member States*. SAARC Agriculture Centre, SAARC, Dhaka, Bangladesh, pp. 75–84. <https://www.sac.org.bd/fall-armyworm-faw-spodoptera-frugiperda-j-e-smith-the-status-challenges-and-experiences-among-the-saarc-member-states/> Ⓢ

**Dhileepan, K.**, **Kurose, D.**, Taylor, D., Shi, B., **Seier, M.**, Yu Pei, T. and Shivas, R. (2022) Biological control of Navua sedge (*Cyperus aromaticus*) in Australia. In: Melland, R., Brodie, C., Emms, J., Feuerherdt, L., Ivory, S. and Potter, S. (eds) *Proceedings of the 22nd Australasian Weeds Conference*, 25–29 September 2022. Weed Management Society of South Australia, Adelaide, Australia, pp. 48–51. [https://www.dropbox.com/s/dd8lpjh8jve7uc/22AWC\\_Proceedings\\_Rev\\_B\\_SEC\\_IDX.pdf?dl=0](https://www.dropbox.com/s/dd8lpjh8jve7uc/22AWC_Proceedings_Rev_B_SEC_IDX.pdf?dl=0) Ⓢ

**Flood, J.** (2022) Coffee wilt disease. In: Muschler, R. (ed.) *Climate-smart production of coffee: Improving social and environmental sustainability*. Burleigh Dodds Science Publishing, Cambridge, UK, 24 pp. <http://dx.doi.org/10.19103/AS.2021.0096.25> Ⓢ

Klötzli, J., Suter, M., **Schaffner, U.**, Müller-Schärer, H. and Lüscher, A. (2022) Joint effects of biocontrol herbivory and plant competition greatly reduce the growth of *Rumex obtusifolius*. [Presentation summary]. In: Delaby, L., Baumont, R., Brocard, V., Lemauviel-Lavenant, S., Plantureux, S., Vertès, F. and Peyraud, J.L. (eds) *Grassland at the Heart of Circular and Sustainable Food Systems*. Grassland Science in Europe, vol. 27. The Organising Committee of the 29th General Meeting of the European Grassland Federation, INRAE, Paris, France, pp. 415–417. [https://www.europeangrassland.org/fileadmin/documents/Infos/Printed\\_Matter/Proceedings/EGF2022.pdf](https://www.europeangrassland.org/fileadmin/documents/Infos/Printed_Matter/Proceedings/EGF2022.pdf) Ⓢ

Paterson, I. and **Witt, A.** (2022) Biological control of pest cactus and cactus pests in Africa. In: X International Congress on Cactus Pear and Cochineal: Cactus – the New Green Revolution in Drylands. *Acta Horticulturae* 1343, 563–568. <https://doi.org/10.17660/ActaHortic.2022.1343.71> Ⓢ

Richardson, D.M., **Witt, A.B.R.**, Pergl, J., Dawson, W., Essl, F., Kreft, H., van Kleunen, M., Weigelt, P., Winter, M. and Pyšek, P. (2022) Plant invasions in Africa. In: Clements, D.R., Upadhyaya, M.K., Joshi, S. and Shrestha, A. (eds) *Global Plant Invasions*. Springer, Cham, Switzerland, pp. 225–252.

**Schaffner, U.**, Müller-Schärer, H. and Lüscher, A. (2022) Integrated weed management in grasslands. In: Kudsk, P. (ed.) *Advances in Integrated Weed Management*. Burleigh Dodds Science Publishing, Cambridge, UK, 21 pp. <http://dx.doi.org/10.19103/AS.2021.0098.15> Ⓢ

**Shrestha, B.B.**, **Witt, A.B.R.**, Shen, S., Khuroo, A.A., Shrestha, U.B. and Naqinezhad, A. (2022) Plant invasions in Asia. In: Clements, D.R., Upadhyaya, M.K., Joshi, S. and Shrestha, A. (eds) *Global Plant Invasions*. Springer, Cham, Switzerland, pp. 89–127.

Sing, S.E., **Toševski, I.**, Ward, S.M., Randall, C.B., Weaver, D.K., Gaffke, A.M. and Nowierski, R.M. (2022) Chapter 26. Biological control of invasive *Linaria* spp. in the Western United States. In: van Driesche, R.G., Winston, R.L., Perring, T.M. and Lopez, V.M. (eds). *Contributions of Classical Biological Control to the U.S. Food Security, Forestry, and Biodiversity*. FIAAST-2019-05. USDA Forest Service, Morgantown, West Virginia, USA, pp. 294–311. <https://bugwoodcloud.org/resource/files/23194.pdf> Ⓢ

**Smith, D.**, **Ryan, M.J.** and **Caine, T.** (2022) Chapter 9 – Contribution of CABI and culture collections to a sustainable future through the utilisation of microbial genetic resources. In: Kurtböke, I. (ed.) *Importance of Microbiology Teaching and Microbial Resource Management for Sustainable Futures*. Academic Press, London, UK, pp. 229–273. <https://doi.org/10.1016/B978-0-12-818272-7.00010-9>

Vásquez, C.L. and **Colmenárez, Y.C.** (2022) Use of predatory mites in the suppression of agricultural pests in conservation biological control. [Extended abstract]. In: Weber, D., Gariepy, T.D. and Morrison, W.R. III (eds) *Proceedings of the 6th International Symposium on Biological Control of Arthropods*, 15–17 and 22–24 March 2022, Online from British Columbia, Canada, pp. 9.14–9.17. <http://dx.doi.org/10.6084/m9.figshare.19349348> Ⓢ

#### **2.4.4. Case studies, study briefs, working papers and publications that were not peer-reviewed (18)**

**Bundi, M., Mbugua, F., Williams, F., Rware, H. and Mibe, H.** (2022) Use of the CABI BioProtection Portal increases awareness and use of safer plant protection products among farmers and agricultural advisers in Kenya. *CABI Working Paper* 29, 30 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8169> 

Cannon, P.F. and **Minter, D.W.** (2022) Miscellaneous ascomycetes on woody substrata [*Acanthohelicospora scopula*, *Cainia passerinii*, *Daruvedia bacillata*, *Eutypella leprosa*, *Hyaloscypha albohyalina*, *Hypoxyylon subticinense*, *Ionomidotus fulvotingens*, *Mollisiopsis dennisii*, *Repetophragma cambrense*, *Stylocladus puccinioides*]. *Descriptions of Fungi and Bacteria* 233(2311–2320), 39 pp.

Cherix, D., **Seehausen, M.L.** and Ebener, A. (2022) Le frelon asiatique – une espèce invasive en Suisse [French]. Die Asiatische Hornisse – eine invasive Spezies in der Schweiz [German]. Il calabrone asiatico – Una specie invasiva in Svizzera [Italian]. *Revue suisse d'apiculture* 143(8), 325–331 [French]. *Schweizerische Bienen-Zeitung* 145(8), 17–19. Available at: [https://austausch.bienen.ch/\\_bienenzzeitung/magazine/2022/0822-SBZ-web.pdf](https://austausch.bienen.ch/_bienenzzeitung/magazine/2022/0822-SBZ-web.pdf) [German]. *Rivista svizzera di apicoltura* 105, 4–9. Available at: [https://www.apicoltura.ch/fileadmin/user\\_upload\\_ticino/STA-Documents/L\\_APE/Ape2022/Ape\\_7\\_8\\_2022.pdf](https://www.apicoltura.ch/fileadmin/user_upload_ticino/STA-Documents/L_APE/Ape2022/Ape_7_8_2022.pdf) [Italian]. 

**Constantine, K., Chaudhary, M. and Williams, F.** (2022) An assessment of the invasive species system in Bangladesh. *CABI Working Paper* 28, 22 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8166> 

**Constantine, K.**, Mulila-Mitti, J. and **Williams, F.** (2022) An invasive species system assessment in Zambia. *CABI Working Paper* 27, 21 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8167> 

**Danielsen, S., Alokit, C., Aliamo, C. and Mugambi, I.** (2022) How crop–livestock clinics are advancing One Health: a pilot case from Uganda. *One Health Cases*, 17 pp., CAB International. <https://doi.org/10.1079/onehealthcases.2022.0002> 

de Freitas Bueno, A., **Colmenarez, Y.C.** and Carvalho, G.A. (2022) Tecnologia consolidada. *Cultivar Grandes Culturas* 274, 30–33. [In Portuguese].

de Freitas Bueno, A., **Colmenarez, Y.C.**, Antunes, R.M. and Bernardi, O. (2022) Pragas resistentes. *Cultivar Grandes Culturas* 275, 26–28. [In Portuguese].

**Hinz, H., Grossrieder, M.**, Jurt Vicuña Muñoz, C. and **Williams, F.** (2022) Evaluation of MAS-ICM 2015–2020. *CABI Study Brief* 43: *Learning*, 14 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8170> 

**Kadzamira, M., Chaudhary, M., Rajkumar, R. and Williams, F.** (2022) Local biopesticide production hubs and the empowerment of rural woman in Tamil Nadu, India. *Rural* 21 56(1), 41–43. 

**Kadzamira, M., Ogunmodede, A., Iqbal, M., Williams, F., Hill, S. and Curry, C.** (2022) Assessment of the use and benefits of the Plantwise Knowledge Bank. *CABI Working Paper* 30, 36 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8168> 

Lamichhaney, D., Sah, L., Gurung, K.J., O'Hara, C. and **Pandit, V.** (2022) Gender Integration into the Plantwise programme: identifying strengths and limitations in Nepal. *CABI Study Brief* 42: *Learning*, 11 pp. <https://dx.doi.org/10.1079/CABICOMM-62-8165> 

**Mack, A. and Haye, T.** (2022) Erster Nachweis von *Leiophron reclinator* (Ruthe, 1856) (Hymenoptera: Braconidae) als Adultparasitoid zweier Miriden in Schleswig-Holstein. *Heteropteron* 67, 13–15. <http://www.heteropteron.de/downloads/hetero-67.pdf> [In German with English abstract]. 

**Minter, D.W.** and Cannon, P.F. (2022) British *Puccinia* species [*Puccinia angelicae*, *P. betonicae*, *P. calthicola*, *P. cancellata*, *P. chaerophylli*, *P. cladii*, *P. difformis*, *P. pulverulenta*, *P. smyrnii*, *P. vincae*]. *Descriptions of Fungi and Bacteria* 232(2301–2310), 52 pp.

**Minter, D.W.** and Soliman, G.S. (2022) Basidiomycetes significant in biotechnology and medicine, part 2 [*Innonotus obliquus*, *Laetiporus sulphureus*, *Phallus impudicus*, *Trametes versicolor*, *Tremella mesenterica*]. *IMI Descriptions of Fungi and Bacteria* 231(2296–2300), 63 pp.

Sharp, C. and **Minter, D.W.** (2022) Some *Termitomyces* species (1) [*Termitomyces aurantiacus*, *T. clypeatus*, *T. fuliginosus*, *T. globulus*, *T. le-testui*]. *Descriptions of Fungi and Bacteria* 234(2321–2325), 60 pp.

Sing, S.E., De Clerck-Floate, R.A., Randall, C.B., Ward, S.M. and **Toševski, I.** (2022) Toadflaxes (*Linaria* spp.): History and Ecology in North America. In: Winston, R.L. (ed.) *Biological Control of Weeds in North America*. North American Invasive Species Management Association, Milwaukee, WI, USA. NAISMA-BCW-2022-29-TOADFLAXES-P. <https://bugwoodcloud.org/resource/files/27418.pdf> 

Sing, S.E., De Clerck-Floate, R.A., Randall, C.B. and **Toševski, I.** (2022) Toadflax Biocontrol Agents: History and Ecology in North America. In: Winston, R.L. (ed.) *Biological Control of Weeds in North America*. North American Invasive Species Management Association, Milwaukee, WI, USA. NAISMA-BCW2022-29-TOADFLAXES-A. <https://bugwoodcloud.org/resource/files/27419.pdf> 

#### 2.4.5. Completed theses (6)

**Boafo, H.A.** (2022) Assessment of the rearing technique for the black soldier fly and termite collection technique for use by smallholder poultry and fish farmers in Ghana. PhD thesis, University of Ghana, Legon, Ghana, 171 pp. Supervised: Eziah, V.Y., Timpong-Jones, E. and Billah, M.

Rania, J. (2022) Identification et caractérisation de protéines ayant des propriétés entomotoxiques contre deux principaux ravageurs du maïs. [Identification and characterization of proteins with entomotoxic properties against two major corn pests]. PhD thesis, École doctorale GAIA, Université de Montpellier, France, 188 pp. Supervised: Volkoff, A. and Sallaud, C.; PhD committee: Le Goff, G., Berry, C., Lopez-Ferber, M., German-Retana, S., Gosselin-Grenet, A.S. and **Toepfer, S.**

Rossi, J. (2022) Augmentative biological control of the Comstock mealybug *Pseudococcus comstocki* using the Asian parasitoid *Acerophagus malinus*. MSc thesis, Bern University of Applied Sciences, Switzerland, 32 pp. Supervised: Norgrove, L. and **Seehausen, M.L.**

Spence, E. (2022) Multiple stressor effects on biological control; improving efficacy in challenging environments. PhD thesis, University of Warwick, UK. Supervised: Chandler, D., Hesketh, H., Svendsen, C., Berry, S., Martin, G. and **Edgington, S.**

Toth, Sz. (2022) Improving methods in studying the invasive alien maize pest, *Diabrotica v. virgifera* under laboratory and field conditions to better access success and failure of diverse control methods. PhD thesis, MATE University, Godollo, Hungary, 112 pp. Supervised: **Toepfer, S.**, Szalai, M. and Kiss, J.

**Wang, J.** (2022) 基于RNA干扰的东亚飞蝗基因功能研究及转录组分析. [Study on gene function and transcriptome analysis of *Locusta migratoria manilensis* based on RNA interference]. MSc thesis, Northeast Forestry University, China, 52 pp. Supervised: Zhang, G. and **Li, H.**

### 2.5. Scientific project reports (81)

**Alexander, T., Djeddour, D., Maczey, N., Pratt, C., Stutz, S. and Tilling, A.** (2022) Biocontrol feasibility dossiers for *Lysichiton americanus*, *Carpobrotus edulis*, *Acaena novae-zelandiae*, *Polygonum polystachyum*, *Gunnera* spp., *Cotula coronopifolia*, *Solidago canadensis*, *Hippophae rhamnoides*, *Cotoneaster* spp. and *Rosa rugosa*. Unpublished report, CABI-UK, Egham, UK, 180 pp.

**Ali, K.** and Malik, A.H. (2022) Report on good practices of climate adaptive crop protection in response to the impact of COVID-19 and locust attack. Unpublished report, CABI, Rawalpindi, Pakistan, 30 pp.

**Annamalai, S., Faheem, M., Zhang, F.**, Laboh, R.B. and Haron, F.F. (2022) Terminal Report: Improving MARDI's facility, capacity building and R&D in biological control. November 2018 – November 2021. Unpublished report, MARDI and CABI, Selangor, Malaysia, 30 pp.

**CABI-UK** (2022) Progress with Weed Biocontrol Projects, May 2022. Compiled by **Seier, M., Kurose, D., Djeddour, D., Pratt, C. and Varia, S.**, CABI-UK, Egham, UK, 4 pp. [https://www.cabi.org/wp-content/uploads/CABI-weed-biocontrol-Public-Summary-WFD\\_May-2022.pdf](https://www.cabi.org/wp-content/uploads/CABI-weed-biocontrol-Public-Summary-WFD_May-2022.pdf)

**CABI-UK** (2022) Progress with Weed Biocontrol Projects, November 2022. Compiled by **Seier, M., Kurose, D., Djeddour, D., Pollard, K., Pratt, C. and Varia, S.**, CABI-UK, Egham, UK, 4 pp. <https://www.nonnativespecies.org/resources-and-projects/publications-and-reports/>

**Casey, J.** (2022) Climate finance mobilization initiatives – promoting climate adaptation in agriculture. CASA Programme. Commercial Agriculture for Smallholders and Agribusiness (CASA) Report, Wallingford, UK, 47 pp. <https://www.casaprogramme.com/wp-content/uploads/2022/11/climate-finance-mobilization-initiatives.pdf>

Chapple, A. and **Valverde, A.** (2022) Mobilizing climate finance towards agricultural adaptation and nature-based solutions. CASA Programme. Commercial Agriculture for Smallholders and Agribusiness (CASA) Report, Wallingford, UK, 54 pp. <https://www.casaprogramme.com/wp-content/uploads/2022/11/mobilizing-climate-finance-adaptation-nbs.pdf>

**Chaudhary, M.** and **Jayaprakash, K.S.** (eds) (2022) Training Report. Capacity building in Bio Inputs Concepts and Production for Better Cotton Initiative, India. Unpublished report, CABI, New Delhi, India, 31 pp.

**Chaudhary, M.** and **Jayaprakash, K.S.** (2022) Training Report. Phase 2: Capacity building on mass production of biocontrol agents for Better Cotton Initiative, India. Unpublished report, CABI, New Delhi, India, 36 pp.

**Chaudhary, M.** and **Jayaprakash, K.S.** (2022) Final Report. An exploratory study on management practices influencing the health, environment, and socio-economic status of small growers in peppermint production systems. Unpublished report, CABI, New Delhi, India, 49 pp.

**Cortat, G., Jego, L.** and **Hinz, H.L.** (2022) Biological control of garlic mustard, *Alliaria petiolata*. Annual report 2021. Unpublished report, CABI, Delémont, Switzerland, 15 pp.

**Cortat, G., Toševski, I., Jego, L.** and **Hinz, H.L.** (2022) Biological control of field bindweed, *Convolvulus arvensis*. Annual report 2021. Unpublished report, CABI, Delémont, Switzerland, 19 pp.

**Cortat, G.** and **Jego, L.** (2022) Biological control of hawkweeds, *Pilosella* spp. Annual report 2021. Unpublished report, CABI, Delémont, Switzerland, 22 pp.

**Cortat, G., Jego, L.** and **Hinz, H.L.** (2022) Biological control of swallow-worts, *Vincetoxicum rossicum* and *V. nigrum*. Annual report 2021. Unpublished report, CABI, Delémont, Switzerland, 11 pp.

**Danielsen, S., Musker, R., Chege, F., Efa, N., Romney, D., Rose, M., Godwin, J.** and **Cameron, K.** (2022) ACES Landscape Analysis: Surveillance, Early Warning and Response in Ethiopia and Kenya. Deliverable under Work Area 3.1. Unpublished report, CABI, 172 pp.

**Djedhour, D., Pratt, C., Wood, S.** and **Tilling, A.** (2022) Biocontrol of floating pennywort; progress March 2022. Unpublished report, CABI, Egham, UK, 6 pp.

**Djedhour, D., Kurose, D., Pratt, C., Shaw, R., Seier, M., Varia, S.** and **Wood, S.** (2022) Biological Control of invasive non-native Plants. 1 October 2021 – 31 March 2022, compiled with support from Ana Faithhauser and Alejandro Sosa (FuEDEI). Unpublished report, CABI, Egham, UK, 47 pp.

**Djedhour, D., Kurose, D., Pollard, K., Pratt, C., Seier, M., Shaw, R.** and **Varia, S.** (2022) Biocontrol of Water Framework Directive Weeds; Progress December 2021 – March 2022. Unpublished report, CABI, Egham, UK, 75 pp.

**Djedhour, D., Kurose, D., Pollard, K., Pratt, C., Seier, M., Shaw, R., Thomas, S., Varia, S.** and **Wood, S.** (2022) Biocontrol of Water Framework Directive Weeds; Progress April – November 2022. Unpublished report, CABI, Egham, UK, 43 pp.

**Djedhour, D.** and **Pratt, C.** (2022) Biocontrol of *Hydrocotyle ranunculoides*; progress July – December 2022. Unpublished report, CABI, Egham, UK, 3 pp.

**Edgington, S.** (2022) Development, testing and scale-up of fungus as a seed treatment and foliar treatment for cabbage stem flea beetle. Unpublished final report, CABI, Egham, UK, 14 pp.

**Faheem, M., Zhang, F., Li, H.** and **Annamalai, S.** (2022) Technical Report - Efficacy of Lepigen against Diamondback Moth (*Plutella xylostella*) on Cabbage. Unpublished report, CABI Malaysia, 19 pp.

**Faheem, M., Zhang, F., Li, H.** and **Annamalai, S.** (2022) Technical Report - Lab Bioassay of Fall Armyworm (*Spodoptera frugiperda* J.E Smith) larva using Fawligen (SfMNPV). Unpublished report, CABI Malaysia, 10 pp.

**Faheem, M., Annamalai, S., Zhang, F.**, Laboh, R.B., Haron, F.F. et al. (2022) Standard Operating Procedure: Mass Production of *Trichogramma* Species. MARDI, Malaysia, 31 pp.

**Faheem, M., Thanarajoo, S.S., Annamalai, S., Zhang, F. and Flood, J.** (2022) Pesticide Use in the Malaysian Oil Palm Sector – Survey and literature results. SAN-Ferrero Project “Towards a Healthy & Biodiverse Oil Palm Production System”. Unpublished report. CABI, Selangor, Malaysia, 64 pp. + Annexes.

Ganapathy, A., **Jadhav, A.**, Searle, B., **Nagpal, A.**, **Stone, S.**, **Parr, M.** and **Musker, R.** (2022) Evidence-Based Assessment: An analysis of three projects in ACIAR using a data and systems thinking lens. Final Report for the project: An assessment of data management and FAIR data principles across the ACIAR research portfolio. ACIAR and CABI, 45 pp.

Gossner, M., Eisenring, M., **Kenis, M.** and **Seehausen, M.L.** (2022) PARASEARCH: Test der Wirksamkeit verschiedener europäischer Parasitoide des Eschenprachtkäfers und Abklärung von ökologischen Nebenwirkungen. Interim Report 2022. Unpublished report. WSL, Birmensdorf, Switzerland, 24 pp.

**Häfliger, P., Frei, N., Majnarić, S., Cloșca, C., Thomas, S.E., Kurose, D. and Hinz, H.L.** (2022) Biological control of flowering rush, *Butomus umbellatus*. Annual report 2021. Unpublished report, CABI, Delémont, Switzerland, 22 pp.

**Haye, T.** and **Häner, N.** (2022) Interim Report 2022 – Estimating the potential impact of *Trissolcus japonicus* on *Pentatomidae rufipes*. Unpublished report, CABI, Delémont, Switzerland, 24 pp.

**Haye, T., Sherwood, J., Wiltse, J. and von Berg, L.** (2022) Arthropod Biological Control – Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 51 pp.

IPP-CAAS, **CABI East Asia**, **CABI South-East Asia** and **CABI Switzerland** (2022) MARA-CABI Joint Lab for Bio-safety Annual Report 2021–2022. Unpublished report, CABI, Beijing, China, 60 pp.

**Kenis, M., Seehausen, M.L. and Haye, T.** (2022) Classical Biological Control of Japanese Beetle. Interim Report 2022. Unpublished report, CABI, Delémont, Switzerland, 13 pp.

**Kenis, M. and Seehausen, M.L.** (2022) *Vespa mandarinia*. In: European Commission, Directorate-General for Environment, Study on invasive alien species: Development of risk assessments to tackle priority species and enhance prevention. Final report (and annexes). Publications Office of the European Union, Luxembourg, 88 pp. <https://data.europa.eu/doi/10.2779/302048>

**Kothari, R., Ohara, C., Pandit, V., Romney, D. and Khanna, K.** (2022) Community Business Facilitator Sustainability Assessment. Unpublished report, CABI, New Delhi, India, 54 pp.

**Kurose, D., Ellison, C.A.† and Seier, M.K.** (2022) Biological control of navua sedge (*Cyperus aromaticus* (Ridl.) Mattf. & Kük.) using the flower smut fungus *Cintractia kyllingae*, Progress Report 3. Unpublished report, CABI, Egham, UK, 14 pp.

**Kurose, D. and Seier, M.K.** (2022) Classical biological control of navua sedge (*Cyperus aromaticus*) using the rust fungus *Uredo kyllingae-erectae*, Progress report 2. Unpublished report, CABI, Egham, UK, 9 pp.

**Kurose, D. and Seier, M.K.** (2022) Classical biological control of navua sedge (*Cyperus aromaticus*) using the rust fungus *Uredo kyllingae-erectae*, Progress report 3. Unpublished report, CABI, Egham, UK, 8 pp.

**Kurose, D. and Seier, M.K.** (2022) Classical biological control of navua sedge (*Cyperus aromaticus*) using the rust fungus *Uredo kyllingae-erectae*, Progress report 4. Unpublished report, CABI, Egham, UK, 15 pp.

**Maczey, N., Offord, L., Pratt, C. and Kurose, D.** (2022) Survey of herbivores and pathogens on *Rubus anglocandicans* in its natural geographical range within the UK. Final project report. Unpublished report, CABI, Egham, UK, 46 pp.

**Pandit, V., Flood, J., Praveen, S. and Khanna, K.** (2022) Regional Report on Opportunities and challenges in Sanitary and Phytosanitary Measures - Modernizing SPS to Facilitate Agriculture Trade in Asia. Unpublished report, CAB International, 59 pp.

**Pollard, K.M. and Seier, M.K.** (2022) The biological control of cat's claw creeper, *Dolichandra unguis-cati* (L.) L.G. Lohmann. Progress report 1 June – 31 December 2022. Unpublished report, CABI, Egham, UK, 4 pp.

**Pratt, C., Maczey, N. and Seier, M.** (2022) Assessment of natural enemies for *Carpobrotus edulis* biocontrol. Natural England Progress Report. Unpublished report, CABI, Egham, UK, 12 pp.

**Pratt, C. and Varia, S.** (2022) Biological control of *Crassula helmsii* using the mite *Aculus crassulae* at Potteric Carr, Doncaster and Rossett Nature Reserve, Harrogate. Unpublished progress report, CABI, Egham, UK, 3 pp.

**Reeder, R., Maczey, N., Taylor, P.** and Webster, A. (with contributions from SHRI and ENRD) (2022) DPLUS157, Managing the pathogens threatening St Helena's biodiversity and food security. Annual project report. Unpublished report, CABI, Egham, UK, 33 pp.

Searle, B., **Jadhav, A.**, Ganapathy, A., **Nagpal, A.**, **Stone, S.**, **Parr, M.** and **Musker, R.** (2022) An assessment of data management and FAIR data principles across the ACIAR research portfolio. SLAM/2021/156. Final Report. ACIAR and CABI, 121 pp. <https://www.aciar.gov.au/publication/slam-2021-156-final-report>

**Seehausen, M.L., Nacambo, S. and Kenis, M.** (2022) Suivi des insectes du hêtre dans le canton de Jura. Report 2021. Unpublished report, CABI, Delémont, Switzerland, 8 pp.

**Seehausen, M.L., Valenti, R., Fontes, J.**, Meier, M., Marazzi, C., Mazzi, D. and **Kenis, M.** (2022) Méthode d'évaluation des potentiels agents de lutte biologique classique en Suisse. Final Report 2022. Unpublished report, CABI, Delémont, Switzerland, 16 pp.

**Seehausen, M.L., Park, I., Kim, S., Kim, J., Lim, E., Deiss, F. and Kenis, M.** (2022) The parasitoid complex of the box tree moth in Asia for classical biological control in North America. Interim Report 2022. Unpublished report, CABI, Delémont, Switzerland, 8 pp.

**Seehausen, M.L., Humair, L., Rossi, J. and Haye, T.** (2022) Augmentative releases of *Acerophagus malinus* in fruit orchards of the Valais. Report 2021. Unpublished report, CABI, Delémont, Switzerland, 14 pp.

**Seier, M., Ellison, C.t., Kurose, D. and Pollard, K.** (2022) Consultancy Development of an Agent for the Biological Control of the invasive Blackberry (*Rubus niveus*) in the Galapagos Islands. Fourth report 1 January – 30 April 2022. Unpublished report, CABI, Egham, UK, 27 pp.

**Seier, M., Ellison, C.t., Kurose, D. and Pollard, K.** (2022) Consultancy Development of an Agent for the Biological Control of the invasive Blackberry (*Rubus niveus*) in the Galapagos Islands. Fifth report 1 May – 31 August 2022. Unpublished report, CABI, Egham, UK, 33 pp.

**Seier, M., Ellison, C.t., Kurose, D., Tilling, A. and Pollard, K.** (2022) Consultancy Development of an Agent for the Biological Control of the invasive Blackberry (*Rubus niveus*) in the Galapagos Islands (with contributions from Abdul Rehman, Khalid Rasheed and Daud Hussain). Sixth report 1 September – 31 December 2022. Unpublished report, CABI, Egham, UK, 40 pp.

**Seier, M.K. and Kurose, D.** (2022) The potential for biological control of the two invasive *Rubus* species, *R. ellipticus* var. *obcordatus* and *R. niveus* in Hawaii (Phase 5), Final Report. Unpublished report CABI, Egham, UK, 27 pp.

**Seier, M.K., Kurose, D., Lowry, A. and Shaw, R.H.** (2022) Biological control of Japanese knotweed in the Netherlands; *Aphalara itadori* (psyllid) & *Mycosphaerella polygoni-cuspidati* (leaf-spot). Unpublished final report, CABI, Egham, UK, 66 pp.

**Seier, M.K. and Pollard, K.M.** (2022) The biological control of cat's claw creeper, *Dolichandra unguis-cati* (L.) L.G. Lohmann. Phase 2, 6-Months Progress report. Unpublished report, CABI, Egham, UK, 8 pp.

**Seier, M.K., Pollard, K. and Kurose, D.** (2022) The biological control of invasive devil's claw (*Cryptostegia madagascariensis* Bojer ex Decne) in north-eastern Brazil, Fourth Annual Report. Unpublished report, CABI, Egham, UK, 19 pp.

**Sivapragasam, A., Rozeita, L., Faheem, M.** and Farah, F.H. (2022) Terminal Report: Improving MARDI's facility, capacity building and R&D in biological control. MARDI - CABI Joint Laboratory Collaboration. Unpublished report, Head Office, MARDI, Serdang, Malaysia, 32 pp.

**Sivapragasam, A., Thanarajoo, S.S. and Faheem, M.** (2022) Annual Progress Report: Integrated Pest Management (IPM) Against the Invasive Fall Armyworm (FAW) in Malaysia. Collaborative project between MARDI and CABI. Unpublished report, CABI, Serdang, Malaysia, 5 pp.

**Szyniszewska, A.**, Milne, A., Mead, A., **Oliver, G.**, Hull, R., Hood, J., **Beale, T.**, Gilhespy, S., **Lowry, A.** and Bebber, D. (2022) Yield benefits through crop protection products - A pilot study. Unpublished final report, CABI, Wallingford, UK, 22 pp.

**Stutz, S., Cloșca, C. and Forgione, L.** (2022) Biological control of perennial pepperweed, *Lepidium latifolium*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 11 pp.

**Stutz, S. and Forgione, L.** (2022) Prospects for the biological control of oxeye daisy, *Leucanthemum vulgare*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 24 pp.

**Stutz, S., Forgione, L.**, Dolgovskaya, M.Yu., Volkovitch, M. and Reznik, S. (2022) Biological control of common tansy, *Tanacetum vulgare*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 23 pp.

**Stutz, S., Häfliger, P., Cloșca, C., Guala, M., Forgione, L., Stettler, P., Taylor, P.**, Diaconu, A. and **Hinz H.L.** (2022) Prospects for the biological control of yellow floating heart, *Nymphoides peltata*. Final report 2019–2021. Unpublished report, CABI, Delémont, Switzerland, 16 pp.

**Suntharalingam, C., Zhang, F., Kuhlmann, U.**, Velautham, S. and Chandran, V.G.R. (2022) Issues and Challenges in Tackling Climate Change through Nature-Based Solutions in ASEAN: Mainstreaming Nbs Framework, Financing and Advisory Services and Knowledge Tools. Unpublished report, ASEAN Secretariat, 19 pp.

**Taylor, B., Casey, J., Luke, B., Beale, T., Beeken, J., Edgington, S., Whelan, R. and Godwin, J.** (2022) EO4AgroClimate: Improving modelling of pests and biological control agents to adapt to changing climates. Unpublished final report, CABI, 91 pp.

Terrettaz, M., Gilli, C., **Seehausen, M.L., Humair, L.** and Mazzi, D. (2022) Développement de la lutte biologique contre la cochenille farineuse dans les cultures arboricoles en Suisse. Interim Report 2021. CABI, Delémont, Switzerland, 45 pp.

**Toepfer, S.** (2022) Comparing two methods in assessing the mating disruption of *Diabrotica v. virgifera* adults in maize field trials in Hungary, through spraying a commercial sex-pheromone formulation (2021, 2022). Final project report for Lithos Crop Protect GmbH Austria. Confidential unpublished report, CABI, Delémont, Switzerland and CABI, Hodmezovasarhely, Hungary, pp. 55.

**Toepfer, S.** (2022) Testing different doses of sex pheromones on the mating disruption of *Diabrotica v. virgifera* adults in maize field trials in Hungary (trial no.2, April to September 2022). Project report for Lithos Crop Protect GmbH Austria. Confidential unpublished report, CABI, Delémont, Switzerland, and CABI, Hodmezovasarhely, Hungary, pp. 32.

**Toepfer, S.** (2022) Testing the dose-response of a sex pheromone in novel formulations in dispensers on mating disruptions of *Diabrotica v. virgifera* in a greenhouse trial (trial no.3, June 2022). Project report for Lithos Crop Protect GmbH Austria. Confidential unpublished report, CABI, Delémont, Switzerland, and CABI, Hodmezovasarhely, Hungary, pp. 25.

**Toepfer, S.** (2022) Testing mating disruption of *Diabrotica v. virgifera* adults through applying different sex-pheromone formulations at different pest densities in greenhouse trials (1 and 2). Project report for Lithos Crop Protect GmbH Austria. Confidential unpublished report, CABI, Delémont, Switzerland, and CABI, Hodmezovasarhely, Hungary, pp. 24.

**Thomas, S.E. and Seier, M.K.** (2022) Biocontrol of *Clematis vitalba*. Unpublished Progress Report, CABI, Egham, UK, 11 pp.

**Wan, M., Thanarajoo, S., Hevi, W., Neave, S. and Flood, J.** (2022) Producer co-operatives as possible opportunities for CABI PlantwisePlus. Unpublished report, CABI, 21 pp.

**Wan, M. and Zhang, J.** (2022) Summary report on kiwifruit value chain case study in Shannxi province. Unpublished report, CABI East Asia, Beijing, China, 10 pp.

**Weyl, P., Cloșca, C., Fraschini, C. and Hinz, H.L.** (2022) Biological control of whitetops, *Lepidium draba*, *L. chalepense* and *L. appelianum*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 12 pp.

**Weyl, P., Cloșca, C.**, Marini, F. and **Hinz, H.L.**, (2022) Biological control of dyer's woad, *Isatis tinctoria*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 11 pp.

**Weyl, P.** and **Humair, L.** (2022) Biological control of Russian knapweed, *Rhaponticum repens*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 11 pp.

**Weyl, P.** and **Humair, L.** (2022) Biological control of Russian olive, *Elaeagnus angustifolia*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 8 pp.

**Weyl, P., Humair, L.** and Ensing, D. (2022) Biological control of parrot's feather, *Myriophyllum aquaticum*. Annual Report 2021. Unpublished report, CABI, Delémont, Switzerland, 18 pp.

Wong, C.Y., Shwe, M.T., **Sivapragasam, A.** and **Sathis, S.T.** (2022) Analysis of Fruit and Vegetable Value Chains in Myanmar: Closing Report for ADB-VC Project Number: TA-9689 REG (52239-001). Technical Assistance, Asian Development Bank, Manila, The Philippines. Unpublished report. CAB International and Asian Development Bank, Manila, The Philippines, 80 pp.

**Zhang, J., Bai, Y., Tian, X., Luo, Z.** and **Zhang, F.** (2022) Field assessment of seasonal occurrence of *Lycorma delicatula* White (Hemiptera:Fulgoridae), the spotted lanternfly, and its potential impacts to kiwifruit orchards. Unpublished report, CABI East Asia, Beijing, China, 23 pp.

**Zhang, J., Tian, X., Bai, Y., Luo, Z.** and **Zhang, F.** (2022) BMSB impacts and phenology on kiwifruit and associated parasitoids. Unpublished report, CABI East Asia, Beijing, China, 25 pp.

## 2.6. Oral presentations at scientific meetings (130)

CABI authors are shown in **bold**, the presenting author is underlined.

Afonso, C., Hurley, B., Wilcken, C., Martinez, G., Barbosa, L., **Seehausen, M.L.**, Branco, M. and Mendel, Z. (2022) Challenges to the use and exchange of classical biological control agents: the case of *Cleruchoides noackae*. XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Agboyi, L.K.**, Babendreier, D. and **Kenis, M.** (2022) Perspectives for sustainable management of fall armyworm in Africa. IOBC IWGO Digital Meeting, 5–6 May 2022 (online).

Andreas, J., **Häfliger, P.**, **Hinz, H.**, Gaskin, J., Bourchier, R. and Winston, R. (2022) Petition for Field Release of *Bagous nodulosus* in North America for biocontrol of flowering rush. Annual TAG (USDA Technical Advisory Group for Biological Control Agents of Weeds) meeting, 26–27 April 2022 (online).

**Asad, H.U.**, **Hayder, A.**, **Asif, M.**, Sun, T., Dunne, T., Collins, R., Palaniappan, G. and Rajput, I.S. (2022) Empowering smallholder onion farmers through value chain approach. International Horticulture Conference 2023, Pakistan Society of Horticultural Sciences, 17–19 May 2022, Gomal University, Dera Ismail Khan, Pakistan (online).

**Beale, T.** (2022) Improving irrigation data for pest modelling using Earth observation data and techniques. International Pest Risk Research Group, Annual Meeting, 10 October 2022, Athens, Greece. <https://doi.org/10.34857/0034092>

**Casey, J.** (2022) Climate Finance Mobilisation Initiatives: Promoting Climate Adaptation in Agriculture. AGRA Climate Finance Summit, 9 November 2022, Sharm El Sheikh, Egypt (key speaker).

**Costa, A.**, **Sivapragasam, A.** and **Hanh, T.M.T.** (2022) Effectiveness of sex pheromone used on Wota-T traps to control the Sweet Potato Weevil *Cylas formicarius* (Fabr.) in Vietnam. 3rd ISCE-APACE Joint Meeting, 8–12 August 2022, Kuala Lumpur, Malaysia.

**Chaudhary, M.** (2022) Coordinated surveillance and an early warning system for the sustainable management of Fall armyworm (*Spodoptera frugiperda* [J.E. Smith]) in South and Southeast Asia. Seminar organized by CABI-Phil RiCE, 28 November 2022 (online).

**Chaudhary, M.**, Ghosh, S.K., Shylesha, A.N. and Natraj, T. (2022) Advances in the integrated pest management of FAW in India. 2022 ESA, ESC and ESBC Joint Annual Meeting, 13–16 November 2022, Vancouver, British Columbia, Canada (online).

**Chaudhary, M.** and **Kadzamira, M.** (2022) Needs assessment of setting up biocontrol agent production units at rural community level to address fall armyworm in Bangladesh. 6th International Symposium on Biological Control of Arthropods, 15–17 and 22–24 March 2022, British Columbia, Canada (online).

**Colmenarez, Y.** (2022) Desarrollo y Producción de Agentes de Control Biológico en Venezuela. IICA Virtual Seminar, 23 February 2022 (online).

**Colmenarez, Y., Corniani, N., Edgington, S.**, Vasquez, C. and Torres, L. (2022) Climate change adaptation strategies in Latin America as part of a resilient agricultural production system. XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Colmenarez, Y.C.**, Gómez, L.M., Rivadeneira, G., del Valle Sánchez, A. and Soto, P.J. (2022) Importance of bioprospection and technology transfer for the adoption of conservation biological control practices in Latin America. 6th International Symposium on Biological Control of Arthropods, 15–17 and 22–24 March 2022, British Columbia, Canada (online).

**Colmenarez, Y.** and Vargas, G. (2022) Conservation biological control as an important tool in the Neotropics and the role of the IOBC NTRS and key collaboration platforms for its adoption. XXVIII Congresso Brasileiro de Entomologia, 30 August – 2 September 2022, Fortaleza, Brazil.

**Colmenarez, Y.**, Vásquez, C. and **Corniani, N.** (2022) The use of biological control for sustainable food production in Latin America in the Plantwise Program. Joint ESA, ESC and ESBC Annual Meeting, 13–16 November 2022, Vancouver, Canada

**Colmenarez, Y.**, Vasquez, C., Rivadeneira, G. and Gómez, L.M. (2022) Social benefits of biological control programmes of invasive arthropod species in Latin America. XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Corniani, N., Colmenarez, Y.**, Rivadeneria, G. and Del Valle, A. (2022) Importância da Transferência de Tecnologia na adoção de práticas MIP em soja no Programa Plantwise. IX Congresso Brasileiro de Soja, 16–19 May 2022, Foz do Iguaçu, Brazil.

**Corniani, N., Colmenarez, Y.** and Vásquez, C. (2022) Controle biológico em programas de manejo integrado de pragas e sua contribuição para a produção agrícola sustentável na América Latina. XXVIII Congresso Brasileiro de Entomologia, 30 August – 2 September 2022, Fortaleza, Brazil.

de Freitas Bueno, A.F., **Colmenarez, Y.C.** and Maciel, R.M.A. (2022) The use of *Telenomus podisi* in augmentative biological control of *Euschistus heros* in soybean. 6th International Symposium on Biological Control of Arthropods, 15–17 and 22–24 March 2022, British Columbia, Canada (online).

de Freitas Bueno, A.F., **Colmenarez, Y.C.** and da Silva, D.M. (2022) The importance of biological control in the management of *Helicoverpa armigera* in Brazil: The example of soybean. 6th International Symposium on Biological Control of Arthropods, 15–17 and 22–24 March 2022, British Columbia, Canada (online).

Dhileepan, K., **Kurose, D.**, Taylor, D., Shi, B., **Seier, M.**, Yu Pei, T. and Shivas, R. (2022) Biological control of Navua sedge (*Cyperus aromaticus*) in Australia. The 22nd Australasian Weeds Conference, 25–29 September 2022, Adelaide, Australia.

**Durocher-Granger, L., Finch, E., Dicke, M. and Kenis, M.** (2022) Effect of planting dates on fall armyworm infestation and its parasitoids. IPM strategies for FAW management, 21–23 September 2022, Zambia (online).

**Edginton, S.** (2022) Supporting biopesticide decision making amongst female coffee farmers in Colombia. New IPM: A modern and multidisciplinary approach to crop protection, 12–14 September 2022, Swansea University, UK.

Eleftheriadou, N., Lubanga, U.K., LeFoe, G., **Seehausen, M.L., Kenis, M.**, Kavallieratos, N.G. and Avtzis, D.N. (2022) Assessing the impact of *Neoleucopis kartliana* (Diptera: Chamaemyiidae) on *Marchalina hellenica* (Hemiptera: Margarodidae). IUFRO Conference Division 7 – Forest Health Pathology and Entomology, 6–9 September 2022, Lisbon, Portugal.

**Evans, H.C.** (2022) Invasive Alien Species: Classical biological control as a management strategy. Taller participativo sobre el desarrollo de un agente para el control biológico de la mora invasora (*Rubus niveus*) en las Islas Galápagos, 22–24 March 2022, Charles Darwin Research Station, Puerto Ayora, Santa Cruz, Galápagos.

**Faheem, M.** (2022) STDF PROJECT – INFORMATION SYSTEMS FOR SURVEILLANCE & PEST REPORTING. Final Steering Committee & Technical Committee Members Meeting, 22–25 August 2022, Bangkok, Thailand.

**Faheem, M.** (2022) Fall Armyworm Management and Biosecurity Risks. Seminar in collaboration with CSIRO and MARDI at MARDI Headquarters, 25 July 2022, Serdang, Malaysia.

**Fallet, P.**, Bazagwira, D., De Gianni, L., Guenat, J., Kajuga, J., Mukundwa, I.P., Waweru, B., Segura Bustos, C., Turlings, T.C.J. and **Toepfer, S.** (2022) Steps to develop an effective nematode-based biological control solution for the fall armyworm. IOBC IWGO Digital Meeting, 5–6 May 2022 (online).

**Harms, N.E.**, Purcell, M., Harlo, M., **Häfliger, P.**, Sun-hee, H., Zhang, J., **Stutz, S.**, Knight, I.A. and Lui, C. (2022) Results of international natural enemy surveys for biological control of yellow floating hearts in the US. Annual Meeting of the Aquatic Plant Management Society Meeting, 18–22 July 2022, Greenville, South Carolina, USA.

**Hayder, A.**, **Asad, H.U.**, Panhwar, A.A., Sun, X., Palaniappan, G., **Asif, M.** and Rajput, I.S. (2022) A case study on value addition business led by rural women in district Khairpur, Pakistan. International Horticulture Conference 2023, Pakistan Society of Horticultural Sciences, 17–19 May 2022, Gomal University, Dera Ismail Khan, Pakistan (online).

**Haye, T.** (2022) Consequences of competitive interactions between parasitoids for biological control. #Hymathon2022, 31 March – 1 April 2022 (online, invited keynote).

**Haye, T.** (2022) New knowledge on the Brown Marmorated Stink Bug and its antagonist, *Trissolcus japonicus* [in German] 38. Tagung des Arbeitskreises „Nutzarthropoden und Entomopathogene Nematoden“, 24–25 November 2022, e-nema, Schwentinental, Germany.

**Haye, T.** (2022) Opportunities and risks of classical biological control [in German]. Meeting on the use of biological control agents for plant protection in Germany, 4 October 2022, Julius Kühn-Institut (JKI), Dossenheim, Germany (online).

**Haye, T.**, Moraglio, S., Tortorici, F., Gariepy, T. and Tavella, L. (2022) Influence of habitat and seasonality on the ecological host range of *Trissolcus japonicus* in Europe. Joint Annual Meeting of the Entomological Society of America (ESA), Entomological Society of Canada (ESC), and the Entomological Society of British Columbia (ESBC), 13–16 November 2022, Vancouver, Canada.

**Haye, T.**, Moraglio, S., Tortorici, F., Gariepy, T. and **Tavella, L.** (2022) Potential impact of *Trissolcus japonicus* on populations of *Halyomorpha halys* and non-target species in Europe. 26th International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Hinz, H.L.** (2022) CABI's contribution to the prevention and management of non-native species threats. International Symposium on Joint Management of Crop Pests in China and Southeast Asian Countries, 7–9 November 2022 (online, invited).

**Hinz, H.L.** (2022) Integrated Landscape Management (ILM) for sustainable control of invasive non-native plants. COP15 Side Event, 13 December 2022, Montreal, Canada.

**Hinz, H.L.**, Panta, S., Schwarzaender, M. and Winston, R. (2022) What makes a good classical weed biological control agent? 26th International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Hinz, H.L.**, **Weyl, P.S.R.**, **Closca, C.**, Bourchier, R., Littlefield, J. and Schwarzaender, M. (2022) Biocontrol initiatives against Brassicaceae invasives: challenges and update on progress. 30th Annual North American Invasive Species Management Association Conference (NAISMA), 7–10 November 2022, Kissimmee, Florida, USA.

**Holmes, K.**, Bollhalder, F., Chen, J., Qiu, X., Cao, L., Kang, S.I., Ryang, Y.S., Pak, S.G., Son, K.N., Li, H. and **Toepfer, S.** (2022) Entomopathogenic nematode production technology transfer: A case study from the Democratic People's Republic of Korea. Biocontrol Workshop Series 5: Nematodes and Fungi, 29 September 2022, Asean FAW Action Plan Secretariat (webinar).

**Kansiime, M.** (2022) Perspectives on the sustainability of seed business models and African smallholder seed supply. Thematic session (Seed Systems) at the Global Conference on Sustainable Plant Production (GPC), 2–4 November 2022, Rome, Italy.

**Kansiime, M.K., Njung'e, R., Romney, D. and Mchana, A.** (2022) Good practices for empowering smallholder access to digital agricultural extension and advisory service in Sub-Saharan Africa. FAO Capacity Development Workshop on Promoting Rural Youth Employment and Entrepreneurship through Digital Innovation, 11–15 July 2022 (online).

**Kasoma, C.** (2022) Cassava brown streak disease: Impacts for management in Zambia. 19th ISTR Symposium, 21–25 November 2022, Nairobi, Kenya.

**Kasoma, C.** (2022) Prospects for host resistance breeding in the management of fall armyworm (*Spodoptera frugiperda* J.E. Smith) using tropical maize germplasm. 24th AAIS Meeting, 21–25 March 2022, Addis Ababa, Ethiopia.

**Kasoma, C.**, Shimelis, H., Laing, M., Shayanowako, A. and Mathew, I. (2022) Fall armyworm (*Spodoptera frugiperda*) outbreaks, maize production constraints and farmers' coping strategies in Zambia. IPM strategies for FAW management, 21–23 September 2022, Zambia (online).

**Kenis, M.** (2022) Classical biological control of Asian Insects in Europe. 1st Annual meeting of "Anhui-CABI Joint Laboratory for Agricultural Pest Control" and academic seminar on pest control, 17 June 2022 (online).

**Kenis, M.** (2022) Classical biological control of fall armyworm: should we choose the most efficient parasitoid or the safest? IOBC IWGO Digital Meeting, 5–6 May 2022 (online).

**Kenis, M.** (2022) Prospects and constraints of biological control against invasive ants. IUCN online workshop on the Management of invasive alien ant species, 8 September 2022 (online).

**Kenis, M. and Seehausen, M.L.** (2022) Criteria for selecting natural enemies for classical biological control of tree pests. IUFRO Conference Division 7 – Forest Health Pathology and Entomology, 6–9 September 2022, Lisbon, Portugal.

**Kenis, M. and Seehausen, M.L.** (2022) Modification of PM6/4 for classical biological control and testing on *Ganaspis brasiliensis*, parasitoid of *Drosophila suzukii*. 15th Joint EPPO/IOBC Panel Meeting on Biological Control Agents, 11–13 October 2022, EPPO Headquarters, Paris, France (online).

**Kenis, M. and Seehausen, M.L.** (2022) Potential for classical biological control of *Drosophila suzukii* using parasitoids from Asia. XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Kenis, M.** (2022) Progress in classical biological control of fall armyworm in Africa and Asia using exotic parasitoids. IPM strategies for Fall Armyworm (*Spodoptera frugiperda* Smith) management, 21–23 September 2022, Zambia (online).

**Kenis, M.** et al. (2022) Classical biological control of fall armyworm In Africa and Asia. Symposium on FAW Biological control at the XLIV CONGRESO NACIONAL DE CONTROL BIOLÓGICO, 9 November 2022, Santiago de Querétaro, Querétaro, Mexico (online).

**Kuhlmann, U. and Jenner, W.** (2022) PlantwisePlus – empowering smallholders to confidently face challenges of plant health threats through the promotion of sustainable approaches to crop production. Visions for a Sustainable Agriculture, 4–6 May 2022, Neuchâtel, Switzerland.

**Kuhlmann, U., Reeder, R., Jenner, E. and Curry, C.** (2022) Agricultural digital decision support tools: a landscape analysis. 11th Meeting of G20 Agricultural Chief Scientists (MACS-G20), 5–7 July 2022, Bali, Indonesia.

**Kurose, D., Seier, M.K. and Evans, H.C.** (2022) Exploiting exotic pathogens for the mycoherbicide approach onto invasive weeds: an overview for Japanese knotweed as a case study. Bioherbicides 2022, 25–29 September 2022, Bari, Italy (invited).

Levente, V., Abraham, R., Toth, Sz., Nagy, K. and Toepfer, S. (2022) Sustainable control methods against the larvae of the western corn rootworm. 68th Hungarian Plant Protection Days, 22 February 2022, Budapest, Hungary.

**Li, H.** (2022) Opportunities and challenges in Sanitary and Phytosanitary measures – Modernizing SPS to facilitate agricultural trade in Asia and Pacific-Lao PDR Country Report. Proceedings of Focus Group Discussion of stakeholders from Lao PDR, 22 April 2022 (online).

**Li, H.** (2022) Opportunities and challenges in Sanitary and Phytosanitary measures – Modernizing SPS to facilitate agricultural trade in Asia and Pacific-Vietnam Country Report. Proceedings of Focus Group Discussion of stakeholders from Vietnam, 29 April 2022 (online).

**Li, H.** (2022) SPS Issues – Challenges and Opportunities in Laos and Vietnam. The regional webinar on issues related to SPS compliances under the joint initiative of FAO-CABI study, 11 May 2022 (online).

**Li, H., Charles, L. and Zhang, F.** (2022) CABI Decision-Support Tools for precision agriculture. Smart Farming Technology Training Workshop, 19–23 November 2022, UK and China.

**Li, H., Toepper, S., Fallet, P.** Turlings, T.C.J., Kajuga, J., **Holmes, K., Zhang, F. and Kuhlmann, U.** (2022) Green direct control of pests – Usage of beneficial nematodes: the case studies in Rwanda. Biocontrol Workshop Series 5: Nematodes and Fungi, 29 September 2022, Asean FAW Action Plan Secretariat.

**Li, H., Wang, M., Zhang, F., Kuhlmann, U.** Zhuo, F., Zhu, J., Sykaysone, P., Songvilay, P. and Soysouvanh, P. (2022) Prevention and Control on Yellow-Spined Bamboo Locust. International Symposium on Joint Management of Cross-border Crop Pests in China and Southeast Asian Countries, 7–9 November 2022, Yunnan, China.

**Li, H., Zhang, F., Luke, B. and Kuhlmann, U.** (2022) The sustainable management to control locusts. 3rd Conference on Remote Sensing of Vegetation Pests and Diseases, 27–28 August 2022, Beijing, China.

**Li, H., Zhang, F., Toepper, S., Jenner, E., Kuhlmann, U.** and Liu, Z. (2022) Global progress in biological control of agricultural pests and diseases. 23–27 September 2022, Shandong, China.

**Lowry, A.** (2022) Pest Risk Information Service: Modelling Fall Armyworm (*Spodoptera frugiperda*) in the field. International Pest Risk Research Group, Annual Meeting, 10 October 2022, Athens, Greece [price for best presentation].

**Makale, F.** (2022) First report and distribution of the Golden Apple Snail, *Pomacea canaliculata* in Kenya. 24th AAIS Meeting, 21–25 March 2022, Addis Ababa, Ethiopia.

**Marini, F., Weyl, P., Stutz, S., Hinz, H.L.**, Williams, H., Moffat, C., de Lillo, E., Petanović, R., Vidović, B., Rančić, D., Kashefi, J., Sforza, R.F.H. and Cristofaro, M. (2022) David against Goliath: *Aculus taihangensis*, an eriophyid mite to control tree of heaven (*Ailanthus altissima*). 30th Annual North American Invasive Species Management Association conference (NAISMA), 7–10 November 2022, Kissimmee, Florida, USA.

**Marini, F., Weyl, P., Stutz S., Hinz, H.L.**, Williams H., Moffat, C., de Lillo, E., Petanović, R., Vidović, B., Rančić, D., Cvrković, T., Sforza, R.F.H., Bon, M-C., Kashefi, J. and Cristofaro, M. (2022) An overview of existing ecological and biological knowledge on *Aculus taihangensis* (Acari: Eriophyoidea): A potential biological control agent of tree of heaven (*Ailanthus altissima*). IX Symposium of the European Association of Acarologists “Acarology 1.0 to 2.0: Progress in Changing Times”, 12–15 July 2022, Bari, Italy.

**McConnachie, A.J., Stutz, S. and Patterson, A.** (2022) Progress on the biocontrol of Ox-eye daisy (*Leucanthemum vulgare*) in Australia. New South Wales & Victoria Combined Weeds Conference, 21–24 March 2022, Albury, New South Wales, Australia.

**Oronje, M.** (2022) Multi-country coordination to limit the spread of transboundary. Royal Society of Biology plant health series on International standards in Africa, 14 September 2022 (online).

**Oronje, M.** (2022) Databases and tools for pest risk assessment – capacity development opportunities for countries. WTO SPS Committee Thematic Session on International Standards and Best Practices in Pest Risk Identification, Assessment and Management, 8 November 2022, Geneva, Switzerland.

**Oronje, M.** (2022) Emerging Biotic and Sporadic Threats to Food Security in Kenya. University of Nairobi Graduate Seminar Series, 9 December 2022, Nairobi, Kenya.

**Pandit, V.** (2022) The Invasive Fall Armyworm. FCDO Science and Innovation Network Smart farm club event, 31 March 2022 (online).

**Pandit, V., Chaudhary, M. and Khanna, K.** (2022) Affordable Sentinel Networks to Fight Invasive Alien Species in India (FAW). Consultative stakeholder workshop, 25 March 2022, Pudukkottai, India.

**Pollard, K.** (2022) The biological control of Himalayan balsam. New IPM Conference, 12–14 September 2022, Swansea University, Wales, UK.

**Rajput, I.S., Asad, H.U., Hayder, A.**, Palaniappan, G., Sun, X. and **Asif, M.** (2022) A whole family approach improves gender inclusion in onion value chain in rural Sindh. International Horticulture Conference 2023, Pakistan Society of Horticultural Sciences, 17–19 May 2022, Gomal University, Dera Ismail Khan, Pakistan (online).

**Reeder, R.** (2022) Management of Fusarium wilt. Webinar ‘Management of *Fusarium oxysporum* f.sp. *cubense* tropical race 4’ organized by **Colmenarez, Y.** and **Zhang, Q.**, CABI, 6 June 2022 (online).

**Rehman, H.M., Ishaq, R., Asif, M., Ahmad, Q., Sun, X. and Palaniappan, G.** (2022) Does value chain approach enhance the profitability of small potato farmers in Punjab? International Horticulture Conference 2023, Pakistan Society of Horticultural Sciences, 17–19 May 2022, Gomal University, Dera Ismail Khan, Pakistan.

**Rwomushana, I.** (2022) Towards a classical biological strategy for the sustainable management of papaya mealybug (*Paracoccus marginatus*) in East Africa. 24th AAIS Meeting, 21–25 March 2022, Addis Ababa, Ethiopia.

**Rwomushana, I.** (2022) Implementing classical biological control in Africa: The case of papaya mealybug biocontrol. ESA, ESC, and ESBC Joint Annual Meeting, 13–16 November 2022, Vancouver, Canada.

**Ryan, M.** (2022) Conserving the microbiome: Underpinning Phytobiomes Research. Phytobiomes 2022, 14 September 2022, Denver, Colorado, USA (invited speaker).

**Ryan, M.** (2022) European microbial collections & microbiome biobanks: opportunities and challenges & invited panellist ‘There’s a collection for that!’ Plant Health 2022, 9 August 2022, Pittsburgh, PA, USA.

**Ryan, M.** (2022) Conserving the Microbiome – Unravelling the Conundrum. International Plant Microbiome Symposium, 26 May 2022, Dundee, Scotland, UK.

**Seehausen, M.L.** (2022) Le frelon asiatique : biologie et écologie. Néobiontes en Romandie, 10 March 2022, Switzerland (online)

**Seehausen, M.L.** (2022) La drosophile suzukii - Relever le défi de la lutte contre une espèce invasive. O’Vergers d’Ajoie, 19 March 2022, Porrentruy, Switzerland.

**Seehausen, M.L., Valenti, R., Fontes, J., Meier, M., Marazzi, C., Mazzi, D. and Kenis, M.** (2022) La lutte biologique classique contre la drosophile à ailes tachetées en Suisse. Annual Meeting of the Swiss Entomological Society, 20–21 May 2022, Lugano, Switzerland.

**Seehausen, M.L., Nacambo, S., Fontes, J. and Kenis, M.** (2022) Ambrosia beetle abundance and attack in drought stressed beech forests in the canton Jura. Drought & Beech workshop, 8 June 2022, Birmensdorf, Switzerland.

**Seehausen, M.L.**, Paine, T.D. and Allison, J.D. (2022) Opportunities and constraints of biological control in forest ecosystems. IUFRO Conference Division 7 – Forest Health Pathology and Entomology, 6–9 September 2022, Lisbon, Portugal.

**Seehausen, M.L.**, Castagnyrol, B., **Nacambo, S.** and **Kenis, M.** (2022) The associational resistance hypothesis in practice: Are mixed *Buxus* stands more resistant to the box tree moth than pure stands? XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Seehausen, M.L.** and **Kenis, M.** (2022) Selecting natural enemies for classical biological control: Can life-history traits increase success? XXVI International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Seehausen, M.L.**, Cherix, D. and **Kenis, M.** (2022) Situation of the *Vespa velutina* invasion in Switzerland. COLOSS *Vespa velutina* workshop, 20 October 2022 (online).

**Seehausen, M.L., Valenti, R., Fontes, J.**, Meier, M., Marazzi, C., Mazzi, D. and **Kenis, M.** (2022) Host specificity of the Asian *Drosophila suzukii* parasitoid G1 *Ganaspis cf. brasiliensis* in large-area field cages. Joint Annual Meeting of the Entomological Society of America and the Entomological Society of Canada, 13–16 November 2022, Vancouver, Canada.

**Seehausen, M.L.** (2022) Flächendeckende Kontrolle der Kirschessigfliege durch integrierten Pflanzenschutz. 47. Bundessteinobstseminar, 28 November – 1 December 2022, Bad Neuenahr-Ahrweiler, Germany.

**Seier, M., Ellison, C., Kurose, D. and Pollard, K.** (2022) Biological control of *Rubus niveus* with a co-evolved rust fungus; a tool for integrated management in Galapagos. Taller participativo sobre es desarrollo de un agente para el control biológico de la mora invasora (*Rubus niveus*) en las Islas Galápagos, 22–24 March 2022, Charles Darwin Research Station, Puerto Ayora, Santa Cruz, Galápagos.

**Shaw, R.H.** (2022) Collaborations between researchers and governments to improve plant health –the CABI experience. Royal Society of Biology Plant Health Summer Conference, 21 June 2022, University of Birmingham, UK.

**Shaw, R.H.** and ISM Team (2022) Update on Weed Biocontrol Initiatives at CABI UK. Property Care Invasive Weeds Conference, 23 November 2022, The Slate, Warwick University, UK.

Sherwood, J., Wong, W., **Haye, T.**, Baur, H., Gibson, G., Carrillo, J. and Franklin, M. (2022) Bottom-up effects of host plant bud sizes on the emerging strawberry blossom weevil and their associated parasitoids. Joint Annual Meeting of the Entomological Society of America (ESA), Entomological Society of Canada (ESC), and the Entomological Society of British Columbia (ESBC), 13–16 November 2022, Vancouver, Canada.

**Stutz, S.**, Dolgovskaya, M., De Clerck-Floate, R., McClay, A. and Littlefield, J. (2022) Update on the biological control program for common tansy (*Tanacetum vulgare*). Upper Midwest Invasive Species Conference, 25–27 October 2022, Green Bay, Wisconsin, USA.

**Sivapragasam, A.** (2022) Abiotic factors affecting insect populations: An overview of their effect with reference to the FAW. Online training for PhilRice and DA-BAR officials on “Risk factors influencing the FAW occurrence/infestation, distribution and damage in rice and rice-based farming systems”, 29 November 2022 (online).

**Sivapragasam, A.** (2022) Integrated pest management for rice/fruits/vegetable: experiences and insights. Joint Online Training Programme on “Role of Healthy Soil Plant Interactions towards achieving resilient agriculture”, MARDI-African-Asian Rural Development Organization (AARDO), 21 February – 3 March 2022 (online).

**Sivapragasam, A., Faheem, M., Zhang, F. and Thanarajoo, S.S.** (2022) IPM against the invasive Fall Armyworm (FAW) in Malaysia. 3rd FAW Meeting, MARDI-CABI Collaborative Project, 28 April 2022, Malaysia.

**Sivapragasam, A. and Thanarajoo, S.S.** (2022) Plant Resistance to pests & diseases: Potency to Coconut. 1st International Symposium on Coconut IPM, organized by International Coconut Community (ICC), Jakarta, Indonesia, 23–26 August 2022 (online).

**Smith, D., Ryan, M.J and Buddie, A.** (2022) DSI and the conservation and sustainable use of GRFA – an overview. Global Workshop on Digital Sequence Information and Genetic Resources for Food and Agriculture, FAO co-convened by the Commission, the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture, CABI, the Alliance of Bioversity International and CIAT, 14–15 November 2022 (online).

**Szyniszewska, A., Bebber, D., Brown, M., Milne, A., Pounder, N., Reid, J., Sonder, K., Chaloner, T., Lowry, A., Day, C., Taylor, B. and Finegold, C.** (2022) Global Burden of Crop Loss: The global challenge of crop loss and the lack of rigorous evidence: The GBCL initiative and closing the evidence gap. FAO Science and Innovation Forum Side Event, 14 October 2022 (online).

**Tambo, J.A.** and Matimelo, M. (2022) An Act of Defiance? Measuring Farmer Deviation from Personalised Extension Recommendations in Zambia. Early Career Development Seminar for Agricultural Economists in Europe, 5–7 October 2022, Göttingen, Germany.

**Tarigan, S.I., Toth, Sz.**, Szalai, M., Turoczi, G. and **Toepfer, S.** (2022) Can microbial plant biostimulants be useful for soil insect pest control? A review. 18th meeting of the IOBC/WPRS Working Group Microbial and Nematode Control of Invertebrate Pests: Microbial Control Agents in the Age of Global Change, 19–22 June 2022, České Budějovice, Czech Republic.

**Taylor, P.** (2022) Documentation of azole fungicide use in plants in low- and middle-income countries. National Academy of Science Meeting 'The Role of Plant Agricultural Practices on Development of Antimicrobial Resistant Fungi Affecting Human Health', 21–22 June and 27 June 2022 (online).

**Taylor, B., Murphy, S.T., Lowry, L., Finch, E.A., Beale, T. and Beeken, J.** (2022) Application of data derived from Earth Observation sources in pest modelling. G4AW side event: Evidence of success and challenges in how EO is used to assist tackling pests, diseases and weeds in agriculture, 4 October 2022, Utrecht, Netherlands.

**Thanarajoo, S.S.** (2022) Developing a Monitoring and Reporting System of Pests and Diseases of Coconut to Prevent Economic Yield Losses. 50th International Cocotech Conference & Exhibition, 7–11 November 2022, Kuala Lumpur, Malaysia.

**Thanarajoo, S.S., Faheem, M., Sivapragasam, A. and Zhang, F.** (2022) Highlights of FAW Biosassays, Management and Awareness in South East Asia. Final Project Partners Meeting: Characterisation of *Spodoptera frugiperda* (fall armyworm) populations in South-East Asia and Northern Australia, 23 July 2022, Singapore.

**Toepfer, S., Fallet, P., Turlings, T.C.J., Kajuga, J. and Toth, Sz.** (2022) Nematode-based biological control solutions against invasive insect pests. Minisymposium: Alternative strategies of plant protection against invasive insect pests, 28 September 2022, Ljubljana, Slovenia (invited speaker).

**Toepfer, S., Ivanyi, D., Dorner, Z., Zalai, M., Kortschan, J., Kiss, J., Kiss, B., Sun, Y., Müller-Schärer, H. and Schaffner, U.** (2022) Improving our understanding of nature-based management against *Ambrosia artemisiifolia*: testing projections of the impact of *Ophraella communa* across Central and Southeastern Europe. IRS Conference: RAGWEED: A SUCCESS STORY - Tackling Ragweed: a multidisciplinary and international approach, 8–9 September 2022, Budapest, Hungary.

**Toth, Sz., Toepfer, S.**, Szalai, M. and Kiss, J. (2022) Challenges in controlling the maize pest *Diabrotica v. virgifera* (Coleoptera: Chrysomelidae) under field conditions. Alternative strategies of plant protection against invasive insect pests, 28 September 2022, Ljubljana, Slovenia (invited speaker).

**Valverde, A.** (2022) Tipping the climate finance balance – investing in climate adaptation to prevent food insecurity. AGRF, 5 September 2022, Kigali, Rwanda.

**Valverde, A.** (2022) Tipping the climate finance balance – investing in climate adaptation to prevent food insecurity. Grow Asia Forum, 19 October 2022, Singapore.

**Valverde, A.** (2022) Facilitating agriculture investment for promoting climate adaptation in Nepal. Nepal Agriculture Investment Meeting, 8 December 2022, Kathmandu, Nepal.

**Varia, S., Djeddour, D., Kurose, D., Pratt, C. and Seier, M.** (2022) Updates on Biocontrol initiatives for GB in the UK. 13th Local Action Groups Workshop, 16 February 2022.

**Varia, S., Pratt, C.F., Shaw, R.H. and Djeddour, D.H.** (2022) The strategic use of weed biological control for the management of invasive aquatic species in the UK: a review of current status, future targets and European opportunities. International Conference on Aquatic Invasive Species, 20 April 2022, Oostende, Belgium.

Vásquez, C.L. and **Colmenarez, Y.C.** (2022) Use of predatory mites in the suppression of agricultural pests in conservation biological control. 6th International Symposium on Biological Control of Arthropods, 15–17 and 22–24 March 2022, British Columbia, Canada (online).

**Weyl, P.** (2022) Western weeds and their new agents: Weed biocontrol agents that are in the petitioning process, CABI Switzerland. NAISMA Biocontrol Summit, 1 December 2022 (online).

**Weyl, P., Hinz, H.L. and Smith, D.** (2022) The role CABI plays in building trust for sustainable access and benefit-sharing of biological control genetic resources. 26th International Congress of Entomology, 17–22 July 2022, Helsinki, Finland.

**Weyl, P., Varia, S., Constantine, K., Pratt, C., Humair, L. and Ensing, D.** (2022) The biological control of parrot's feather, *Myriophyllum aquaticum* in a cold climate. 22nd International Conference on Aquatic Invasive Species, 18–22 April 2022, Oostende, Belgium.

**Weyl, P., Häfliger, P., Humair, L., Closca, C., Andreas, J., Ensing, D. and Hinz, H. L.** (2022) Advances in the biological control of two aquatic weeds in western North America, flowering rush, *Batumus umbellatus* and parrot feather, *Myriophyllum aquaticum*. 30th annual North American Invasive Species Management Association conference (NAISMA), 7–10 November 2022, Kissimmee, Florida, USA.

**Zhang, F.** (2022) International Cooperation in Plant Protection: Theory and CABI practices. 2nd Shandong Plant Protection Youth Forum, 9 August 2022, Jinan, China.

**Zhang, F.** (2022) Strengthening CABI's Partnership with ICC for Sustainable Development of the Coconut Sector. 58th ICC Session & Ministerial Meeting, 28–30 November 2022 (online).

**Zhang, F., Faheem, M., Chaudhary, M., Sivapragasam, A. and Day, R.** (2022) Action on fall armyworm in the SEA region: update on CABI's contributions. 3rd Meeting of the ASEAN FAW Taskforce, 24 February 2022 (online).

**Zhang, F., Suntharalingam, C. and Kuhlmann, U.** (2022) Promotion of nature based solutions through improved agricultural advisory service in SE Asia. 4th ASEAN ASCCD Forum, 12 September 2022 (online).

**Zhang, J.P. and Zhang, F.** (2022) Biological control of brown marmorated stink bug. 2nd Shandong Plant Protection Youth Forum, 9 August 2022, Jinan, China.

**Zhou, X., Kuhlmann, U., Tian, F., Li, H. and Zhang, F.** (2022) Joint Laboratory Annual Review 2021 & Plan 2022. 14th Joint Lab SC meeting & 4th annual meeting of European Lab, 23 March 2022, Beijing, China.



## 2.7. Poster presentations at scientific meetings (7)

CABI authors are shown in **bold**, the presenting author is underlined.

Cruz, K.D., Valdez, E., Rillon, G., Sandoval, F., Donayre, D.K., Martin, E., Joshi, R., Quilang, E.J., Aquino, M.F., Mariano, J. Jr, Pascual, M.K., **Faheem, M.** and **Annamalai, S.** (2022) Re-invasion of Fall Armyworm (*Spodoptera frugiperda*) (J.E. Smith) in Rice in Cagayan Province, Philippines. IPM strategies for Fall Armyworm (*Spodoptera frugiperda* Smith) Management, 21–23 September 2022, FAO and CIFOR-ICRAF (online).

**Fazlullah, Farooq, M., Rehman, A.** and **Rashid, K.** (2022) Parasitism potential of *Microplitis manilae* (Hymenoptera: Braconidae) on *Spodoptera frugiperda* Fabricius (Lepidoptera: Noctuidae) at variable exposure durations. Online conference: IPM strategies for Fall Armyworm (*Spodoptera frugiperda* Smith) management, 21–23 September 2022, Zambia (online).

**Li, H., Zhang, J.**, and **Zhang, F.** (2022) A glance and summary of key achievements of MARA-CABI Joint Lab for Biosafety. International Symposium on Joint Management of Cross-border Crop Pests in China and Southeast Asian Countries, 7–9 November 2022, Yunnan, China.

**Tagiran, S.I.**, Szalai, M., **Toth, Sz.** and **Toepfer, S.** (2022) What role play microbial plant biostimulants in plant protection? [Milyen szerepet játszanak a mikrobiális novényi biostimulátorok a novényvedelemben?] 68th Hungarian Plant Protection Days, 22 February 2022, Budapest, Hungary.

**Toepfer, S., Toth, Sz.**, Ladanyi, M. and Sabotic, J. (2022) Fungal proteins against the maize pest *Diabrotica v. virgifera*. [Magasabb rendű Gombák feherjei a kukorica rovarkartévo, *Diabrotica v. virgifera* ellen]. 68th Hungarian Plant Protection Days, 22 February 2022, Budapest, Hungary.

**Toepfer, S.**, Vandenbossche, B., **Toth, Sz.** and Ehlers, R.-U. (2022) Novel strains of *Heterorhabditis bacteriophora* and symbiotic bacteria for a better control of the invasive maize pest western corn rootworm, *Diabrotica v. virgifera* (Coleoptera: Chrysomelidae). 18th meeting of the IOBC/WPRS Working Group Microbial and Nematode Control of Invertebrate Pests: Microbial Control Agents in the Age of Global Change, 19–22 June 2022, Ceske Budejovice, Czech Republic.

**Zhang, J.**, Tang, R., **Ali, M., Tian, X., Luo, Z.** and **Zhang, F.** (2022) Occurrence of *Drosophila suzukii* population monitored by sugar-vinegar liquid trap and the trap with liquid volatile compounds. ISCE-APACE 3rd joint meeting, 8–12 August 2022, Kuala Lumpur, Malaysia.



### 3. Other outputs

#### 3.1. Support for introduction of classical biological control agents

For many years, CABI has been known for its work supporting national agencies to implement classical biological control programmes against insect and weed pests. Here we list those classical biological control agents for which applications to release have been made, or which have been released, in 2022, based on CABI's research and technical support.

Biological control agent studied	Target weed/insect pest	Status end 2022	Released in 2022	Country of release or intended release
<i>Acerophagus papaya</i> (Encyrtidae)	<i>Paracoccus marginatus</i> (papaya mealybug)	Application to release in Uganda and South Sudan, releases in Kenya	Yes	Kenya, South Sudan and Uganda
<i>Aculus crassulae</i> (Eriophyidae)	<i>Crassula helmsii</i> (Australian swamp stonecrop)	Field releases made across England and Wales	Yes	UK
<i>Aphalaria itadori</i> (Aphalaridae)	<i>Fallopia japonica</i> (Japanese knotweed) / <i>F. x bohemica</i> (bohemian knotweed)	Permission to release granted by Canada, UK and USA authorities	Yes	Canada, Netherlands, UK and USA
<i>Bagous nodulosus</i> (Curculionidae)	<i>Butomus umbellatus</i> (flowering rush)	In 2022, USDA Technical Advisory Group (TAG) recommended release. Permission for release granted by CFIA, Canada	No	Canada and USA
<i>Dichrorampha aeratana</i> (Tortricidae)	<i>Leucanthemum vulgare</i> (oxeye daisy)	In 2022 USDA Technical Advisory Group (TAG) recommended release Permission for release granted by CFIA, Canada	No	Canada and USA
<i>Listronotus elongatus</i> (Curculionidae)	<i>Hydrocotyle ranunculoides</i> (floating pennywort)	Field releases made across the UK	Yes	UK
<i>Listronotus setosipennis</i> (Curculionidae)	<i>Parthenium hysterophorus</i> (parthenium weed)	Permission for experimental field release granted by Pakistan authority	Yes	Pakistan
<i>Microterys nietneri</i> (Encyrtidae)	<i>Coccus hesperidum</i> (brown soft scale)	Field releases made on Nightingale Island, Tristan da Cunha	Yes	Tristan da Cunha (UK Overseas Territory)
<i>Mogulones borraginis</i> (Curculionidae)	<i>Cynoglossum officinale</i> (houndstongue)	In 2021 USDA Technical Advisory Group (TAG) recommended release	No	USA
<i>Neohydronomus affinis</i> (Curculionidae)	<i>Pistia stratiotes</i> (water lettuce)	The target weed has been brought under complete control, but further releases needed due to extensive seed bank	Yes	Kenya
<i>Puccinia komarovii</i> var. <i>glanduliferae</i> (Pucciniaceae)	<i>Impatiens glandulifera</i> (Himalayan balsam)	Field releases made across England, Scotland and Wales	Yes	Great Britain
<i>Puccinia lantanae</i> (Pucciniaceae)	<i>Lantana camara</i> (lantana)	Rust undergoing biotype testing in containment facility	No	South Africa

## 3.2. Extension material

Katovich, E., Becker, R.L., **Cortat, G.**, Bourchier, R. and **Hinz, H.L.** (2022) Garlic Mustard (*Alliaria petiolata*): History and Ecology in North America. In: Winston, R.L., (ed.) Biological Control of Weeds in North America. North American Invasive Species Management Association, Milwaukee, WI. NAISMA-BCW-2022-38-GARLIC MUSTARD-P.

Katovich, E., Becker, R.L., **Cortat, G.**, Bourchier, R. and **Hinz, H.L.** (2022) Garlic Mustard Biocontrol Agents: History and Ecology in North America. In: Winston, R.L., (ed.) Biological Control of Weeds in North America. North American Invasive Species Management Association, Milwaukee, WI. NAISMA-BCW-2022-39-GARLIC MUSTARD-A.

**Wan, M.** and **Toepfer, S.** (2022) 智慧植保实践案例——CABI植物智慧全球项目 [Plantwise – a global practices on smart plant protection led by CABI], 20-min video, a part of an online course entitled "Smart Agriculture" in Zhejiang Agricultural and Forestry University, Zhejiang province, China.

CABI staff contributed to the technical edit of the following technical guidance:

FAO (2022) Technical guidance on fall armyworm – Coordinated surveillance and an early warning system for the sustainable management of transboundary pests, with special reference to fall armyworm (*Spodoptera frugiperda* [J.E. Smith]) in South and Southeast Asia. Bangkok, Thailand.

<https://doi.org/10.4060/cc0227en>

FAO (2022) Technical guidance on desert locust – Early warning system and sustainable management of transboundary pests, with special reference to desert locust (*Schistocerca gregaria* [Forskål]) in South Asia. Bangkok, Thailand. <https://doi.org/10.4060/cc0147en>

## 3.3. Distribution maps of plant pests/diseases

In 2022, 18 Distribution Maps of Plant Pests were issued and 36 Distribution Maps of Plant Diseases. The distribution maps of plant pests can be found [here](#) in the CABI Digital Library and the distribution maps of plant diseases [here](#).

## 3.4. CABI Bioscience identification service and Genetic Resources Collection

During 2022, the CABI Bioscience Microbial Identification Service issued 63 identification reports on 325 samples. Of these, 43 were for Member Countries other than the UK, with 20 for Ethiopia, 17 for Kenya, and six for Mauritius. The Service also provided 416 identifications for CABI projects, of which 160 were for the Darwin Tree of Life (DToL) Project, 71 were for the CABI Culture Collection (GRC), and 185 were for the CABI Diagnostics and Advisory Service (DAS), of which 144 were insect identifications.

The GRC sent out 269 cultures in response to 173 enquiries during 2022. 134 of these originated from 16 Member Countries (the UK, Australia, Bangladesh, Canada, Colombia, Ghana, India, Kenya, Malaysia, Nigeria, Pakistan, Papua New Guinea, South Africa, Sri Lanka, Switzerland, and Zimbabwe) and were sent to four Member Countries (the UK, Australia, Malaysia, and Switzerland). GRC staff also preserved 267 cultures, 224 of which were cultures from Member Countries, and 39 of which were from outside the UK (Australia, Canada, Colombia, India, Kenya, Madagascar, Nigeria, Pakistan, Switzerland, Uganda, and Tanzania).

In addition to the above, 22,090 samples of UK crop microbiomes have been cryopreserved as part of the CryoBank Project and 831 cultures were sent to the Netherlands for collaborative taxonomic characterisation (447 of these were from 27 Member Countries).

## 4. CABI staff, students and associates

### 4.1. Scientific staff

Location	Family name	First name	Highest degree
Austria	Valverde	Alvaro	MSc
Brazil	Colmenarez	Yelitza	PhD
Brazil	Corniani	Natália	PhD
China	Li	Hong-Mei	PhD
China	Wan	Min	PhD
China	Zhang	Feng	PhD
China	Zhang	Jin-Ping	PhD
Ethiopia	Gurmessa	Negussie	PhD
Ghana	Agboyi	Lakpo	PhD
Ghana	Boafo	Hettie Arwoh	PhD
Ghana	Clottey	Victor	PhD
Ghana	Duah	Solomon Agyeman	MA
Ghana	Hevi	Walter	MPhil
Ghana	Oppong-Mensah	Birgitta	MSc
Hungary	Toepfer	Stefan	DnatSc
India	Chaudhary	Malvika	PhD
India	Jadhav	Arun	BTech
India	Khanna	Kritika	MA
India	Nagpal	Akanksha	MTech
India	Pandit	Vinod	PhD
India	Ramasamy	Gopi	MPhil
India	Thakur	Manju	PhD
Kenya	Akiri	Morris	PhD
Kenya	Bitange	Naphis	PhD
Kenya	Bundi	Mary	MSc
Kenya	Chacha	Duncan	BSc
Kenya	Chege	Florence	MSc
Kenya	Kansiime	Monica	PhD
Kenya	Karanja	Daniel	PhD
Kenya	Karanja	Lucy	MSc
Kenya	Khonje	Makaiko	PhD
Kenya	Kouko	Edith	MSc
Kenya	Makale	Fernadis	MSc
Kenya	Mbugua	Fredrick	MSc
Kenya	Mibei	Henry	MSc
Kenya	Migiro	Lorna	PhD
Kenya	Miller	Selpha	PhD
Kenya	Mugambi	Idah	MSc
Kenya	Mulema	Joseph	PhD
Kenya	Nunda	Winnie	BSc

<b>Location</b>	<b>Family name</b>	<b>First name</b>	<b>Highest degree</b>
Kenya	Ochilo	Willis	PhD
Kenya	Onyango	David	MSc
Kenya	Oronje	MaryLucy	PhD
Kenya	Otieno	Washington	PhD
Kenya	Rangi	Dennis	PhD
Kenya	Romney	Dannie	PhD
Kenya	Rware	Harrison	MSc
Kenya	Rwomushana	Ivan	PhD
Kenya	Williams	Frances	MSc
Malaysia	Alaganthiran	Jayanthi	MSc
Malaysia	Chan	Fook Wing	BSc
Malaysia	Faheem	Muhammad	PhD
Malaysia	Suntharalingam	Chubashini	PhD
Malaysia	Thanarajoo	Sathis Sri	PhD
Netherlands	Boerefijn – van Schaaijk	Lieke	MSc
Netherlands	Danielsen	Solveig	PhD
Netherlands	Vos	Janny	PhD
Pakistan	Ahmed	Shakeel	PhD
Pakistan	Ali	Kazim	PhD
Pakistan	Asad	Haibat Ullah	PhD
Pakistan	Asif	Muhammad	MSc
Pakistan	Aslam	Naeem	PhD
Pakistan	Bajwa	Babar Ehsan	PhD
Pakistan	Baloch	Babar	MSc
Pakistan	Bhatti	Hamzah Shahbaz	MSc
Pakistan	Danish	Muhammad	MSc
Pakistan	Dhaunroo	Ashfaq Ali	MSc
Pakistan	Faisal	Shah	MSc
Pakistan	Farooq	Muzammil	PhD
Pakistan	Honey	Sabyan Faris	PhD
Pakistan	Imran	Muhammad	MSc
Pakistan	Khan	Kausar	PhD
Pakistan	Khan	Muhammad Hamza	MSc
Pakistan	Khan	Saad Muhammad	MSc
Pakistan	Mahmood	Riaz	MSc
Pakistan	Naqvi	Azeem Hayder	MMS
Pakistan	Rehman	Abdul	MSc
Pakistan	Rehman	Hafiz Mahmood	PhD
Pakistan	Riaz	Rehan	PhD
Pakistan	Safdar	Umair	PhD
Pakistan	Saleem	Yasir	MSc
Pakistan	Ullah	Fazl	MSc
South Africa	Witt	Arne	PhD
Switzerland	Babendreier	Dirk	DnatSc

<b>Location</b>	<b>Family name</b>	<b>First name</b>	<b>Highest degree</b>
Switzerland	Bateman	Melanie	PhD
Switzerland	Bell	Caroline	PhD
Switzerland	Cortat	Ghislaine	MSc
Switzerland	Eschen	René	DnatSc
Switzerland	Grossrieder	Manfred	MSc
Switzerland	Häfliger	Patrick	DnatSc
Switzerland	Haye	Tim	DnatSc
Switzerland	Hinz	Hariet	DnatSc
Switzerland	Holmes	Keith	PhD
Switzerland	Jenner	Emma	PhD
Switzerland	Jenner	Wade	PhD
Switzerland	Kenis	Marc	DnatSc
Switzerland	Kuhlmann	Ulrich	DnatSc
Switzerland	Nacambo	Saidou	MSc
Switzerland	Schaffner	Urs	DnatSc
Switzerland	Seehausen	Lukas	PhD
Switzerland	Stutz	Sonja	DnatSc
Switzerland	Tambo	Justice	PhD
Switzerland	Weyl	Philip	PhD
Switzerland	Wood	Anna	PhD
Trinidad & Tobago	Ramnanan	Naitram	MPhil
Uganda	Alokit	Christine	MSc
UK	Cock	Matthew	PhD
UK	Day	Roger	PhD
UK (Egham)	Ahmed	Fahad	MSc
UK (Egham)	Alexander	Tasmin	MSc
UK (Egham)	Ananda	Amrutha	MSc
UK (Egham)	Beeken	Joseph	MSc
UK (Egham)	Bonnin	Miguel	BSc
UK (Egham)	Buddie	Alan	PhD
UK (Egham)	Caine	Thelma	
UK (Egham)	Cobb	Emma	MSc
UK (Egham)	Constantine	Kate	MSc
UK (Egham)	Crozier	Jayne	PhD
UK (Egham)	Djeddour	Djami	MSc
UK (Egham)	Edgington	Steve	PhD
UK (Egham)	Flood	Julie	PhD
UK (Egham)	Hudson	Ken	MSc
UK (Egham)	Kadzamira	Mariam	PhD
UK (Egham)	Kermode	Anthony	BSc
UK (Egham)	Kopera	Anita	MSc
UK (Egham)	Kurose	Daisuke	PhD
UK (Egham)	Lamontagne-Godwin	Julien	PhD
UK (Egham)	Lowry	Alyssa	MSc

<b>Location</b>	<b>Family name</b>	<b>First name</b>	<b>Highest degree</b>
UK (Egham)	Luke	Belinda	PhD
UK (Egham)	Maczey	Norbert	PhD
UK (Egham)	Minter	David	PhD
UK (Egham)	Offord	Lisa	BSc
UK (Egham)	Ogunmodede	Adewale	MSc
UK (Egham)	Pollard	Kate	MRes
UK (Egham)	Pratt	Corin	MSc
UK (Egham)	Reeder	Rob	PhD
UK (Egham)	Reeve	Mike	PhD
UK (Egham)	Ryan	Matthew	PhD
UK (Egham)	Seier	Marion	PhD
UK (Egham)	Shaw	Richard	PhD
UK (Egham)	Smith	David	PhD
UK (Egham)	Smith	Vince	BSc
UK (Egham)	Stewart	Helen	BSc
UK (Egham)	Taylor	Phil	PhD
UK (Egham)	Tilling	Anna	BSc
UK (Egham)	Thom	Nikolai	BA
UK (Egham)	Thomas	Sarah	PhD
UK (Egham)	Varia	Sonal	PhD
UK (Egham)	Whelan	Rhian	BSc
UK (Egham)	White	Gretel	PhD
UK (Egham)	Wood	Suzy	BSc
UK (Egham)	Yeap	Yuen Ting	MSc
UK (HQ / Egham)	Alla	Melissa	MSc
UK (HQ / Egham)	Beale	Tim	BSc
UK (HQ / Egham)	Chaloner	Thomas	PhD
UK (HQ / Egham)	Curry	Claire	MSc
UK (HQ / Egham)	Day	Charlotte	MSc
UK (HQ / Egham)	Finegold	Cambria	MSc
UK (HQ / Egham)	Holland	William	MSc
UK (HQ / Egham)	Iqbal	Mariya	MSc
UK (HQ / Egham)	Isaac	Adaugo	MSc
UK (HQ / Egham)	King	Elizabeth	MSc
UK (HQ / Egham)	Lavender	Edward	PhD
UK (HQ / Egham)	Msengezi	Chipo	MSc
UK (HQ / Egham)	Musker	Ruthie	MSc
UK (HQ / Egham)	Oliver	Gaby	MSc
UK (HQ / Egham)	Parr	Martin	PhD
UK (HQ / Egham)	Szyniszewska	Anna	PhD
UK (HQ/Egham)	Taylor	Bryony	PhD
UK (HQ)	Allen	Uma	MSc
UK (HQ)	Antonian	Clara	BSc
UK (HQ)	Berthelemy	Mark	BSc
UK (HQ)	Bird	Damian	BSc

<b>Location</b>	<b>Family name</b>	<b>First name</b>	<b>Highest degree</b>
UK (HQ)	Bishop	James	BSc
UK (HQ)	Broom	Fiona	MSc
UK (HQ)	Cameron	Katherine	MSc
UK (HQ)	Campain	Alice	MSc
UK (HQ)	Casey	Jonathan	MSc
UK (HQ)	Charles	Lucinda	BSc
UK (HQ)	Cole	Steph	BSc
UK (HQ)	Cooper	Ward	BSc
UK (HQ)	Cullum	James	MSc
UK (HQ)	Davis	Tamsin	BSc
UK (HQ)	Dicks	Gareth	MSc
UK (HQ)	Elger	Daniel	PhD
UK (HQ)	Fielder	Hannah	PhD
UK (HQ)	Grell	Georgina	PhD
UK (HQ)	Head	Tracy	BSc
UK (HQ)	Hemming	David	PhD
UK (HQ)	Holt	Alistair	BSc
UK (HQ)	Makepeace	Caroline	BSc
UK (HQ)	Mcgillivray	Lesley	PhD
UK (HQ)	Neave	Suz	MSc
UK (HQ)	Newton	Erika	PhD
UK (HQ)	O'Brien	Tim	BSc
UK (HQ)	Osborn	Janice	BSc
UK (HQ)	Page	Anna	PhD
UK (HQ)	Palmer	Mark	MSc
UK (HQ)	Parfitt	Claire	BSc
UK (HQ)	Rendell-Dunn	Alexis	BSc
UK (HQ)	Richards	Gareth	PhD
UK (HQ)	Robinson	Andy	PhD
UK (HQ)	Stubbs	Rebecca	MSc
UK (HQ)	Swarbrick	Phil	PhD
UK (HQ)	Thay	Jess	BSc
UK (HQ)	Weeks	Lalitha	MSc
UK (HQ)	Wilford	Shankari	BSc
UK (HQ)	Willsher	Neil	MBa
UK (HQ)	Wood	Rachel	BSc
UK (HQ)	Zhang	Qiaoqiao	PhD
Zambia	Durocher-Granger	Léna	MSc
Zambia	Kasoma	Chapwa	PhD
Zambia	Phiri	Noah	PhD
Zambia	Phiri	Sydney	PhD

## 4.2. CABI staff working towards a research degree

Location	Name of staff member	Degree for which registered	University	CABI supervisor(s)
Ghana	Boafo, Hettie Arwoh	PhD	University of Ghana, Ghana	Marc Kenis
Ghana	Hevi, Walter	PhD	Kwame Nkrumah University of Science and Technology, Ghana	—
Ghana	Oppong-Mensah, Birgitta	PhD	University for Development Studies, Ghana	—
Kenya	Chacha, Duncan	MSc	University of Nairobi, Kenya	—
Kenya	Karanja, Lucy	PhD	University of Nairobi, Kenya	—
Kenya	Makale, Fernadis	PhD	University of Nairobi, Kenya	—
Kenya	Nunda, Winnie	MSc	University of Nairobi, Kenya	—
Netherlands	Durocher-Granger, Léna	PhD	Wageningen University, Netherlands	Marc Kenis
Pakistan	Fazlullah	PhD	University of Haripur, Pakistan	—
Pakistan	Khan, Yasir Saleem	PhD	Sindh Agriculture University, Pakistan	—
UK	Kermode, Anthony	PhD	Royal Holloway, University of London, UK	Matthew Ryan
UK	Pollard, Kate	PhD	Royal Holloway, University of London, UK	Marion Seier
UK	Wood, Suzy	PhD	Royal Holloway, University of London, UK	Norbert Maczey
UK	Constantine, Kate	PhD	Royal Holloway, University of London, UK	Frances Williams
UK	Adaugo, Isaac	PhD	Leicester Castle Business School, De Montfort University, Leicester, UK	Martin Parr

## 4.3. Research students

Location	Name of student	Degree to which attachment will contribute	University of student	CABI supervisor(s)
China	Ali, Muhammad Yasir	PhD	Graduate School of CAAS	Zhang Feng, Zhang Jin-Ping
China	Bukero, Abdul Azizi	PhD	Graduate School of Chinese Academy of Agricultural Sciences (CAAS), China	Zhang Feng, Li Hong-Mei
China	Cyrus, Terer Tareh	PhD	Graduate School of Chinese Academy of Agricultural Sciences (CAAS), China	Zhang Feng
China	Wang, Jun-Ya	MSc	Northeast Forestry University, China	Li Hong-Mei
China	Tian, Xin-Yue	MSc	Jilin Agriculture University, China	Zhang Jin-Ping
China	Luo, Zheng-Yu	MSc	Changjiang University, China	Zhang Jin-Ping
China	Wang, Mei-Zhi	MSc	Beijing University of Agriculture, China	Li Hong-Mei
Hungary – Switzerland	Toth, Szabolcs	MSc	Sz. Istvan University, Hungary	Stefan Toepfer
Kenya	Mellon, Florence	PhD	University of Nairobi, Kenya	Ivan Rwomushana
Kenya	Kabole Ochieng, Violet	MSc	University of Nairobi, Kenya	Ivan Rwomushana
Kenya	Chirchir, Jackline	MSc	Kenyatta University, Kenya	MaryLucy Oronje
Kenya	Odunga, Stacey	MSc	University of Nairobi, Kenya	MaryLucy Oronje
Malawi	Madalitso Jessie Sanitta Nkhata	MSc	Lilongwe University of Agriculture and Natural Resources, Malawi	Arne Witt

Malawi	Kanyinji, William K.	MSc	Lilongwe University of Agriculture and Natural Resources, Malawi	Arne Witt
Malawi	Dambo, Cosmas	MSc	Mzuzu University, Malawi	Arne Witt
Switzerland	Fallet, Patrick	MSc	Université de Neuchâtel, Switzerland	Stefan Toepfer
Switzerland	Pessina, Alice	MSc	Université de Neuchâtel, Switzerland	Philip Weyl
Switzerland	Haener, Nina	PhD	Université de Neuchâtel, Switzerland	Tim Haye
Switzerland	Rossi, Jeremy	MSc	Hochschule für Agrar-, Forst- und Lebensmittelwissenschaften (HAFL), Switzerland	Lukas Seehausen
Switzerland	Michels, Olivia	MSc	HAFL, Switzerland	Lukas Seehausen
Switzerland	Boss, Anja	PhD	University of Berne and University of Neuchâtel, Switzerland	Stefan Toepfer
Switzerland	Iványi, Dora	PhD	Hungarian University of Agriculture and Life Sciences (MATE), Hungary	Stefan Toepfer
Switzerland	Tagiran, Sri Ita	PhD	MATE, Hungary, and Universitas Kristen Wira Wacana Sumba, Indonesia	Stefan Toepfer
Switzerland	Toth, Szabolcs	PhD	MATE, Hungary	Stefan Toepfer
UK	Hull, Jasmine	MSc	Imperial College, UK	Corin Pratt, Norbert Maczey
UK	Peck, Lily	PhD	Imperial College, UK	Matthew Ryan
UK	Spence, Ellie	PhD	Warwick University, UK	Steve Edgington
UK	Davis, Tamsin	MSc	Reading University, UK	–
UK	Williams, Tamsin	PhD	Royal Holloway, University of London, UK	Steve Edgington
UK	Wilson, Ben	MSc	Imperial College, UK	Corin Pratt, Djami Djedhour
UK	Zhang, Leqi	MSc	Imperial College, UK	Sarah Thomas/ Belinda Luke

#### 4.4. Certificates and Diploma of Advances Studies in Integrated Crop Management

The postgraduate degree programmes of Advanced Studies in Integrated Crop Management (ICM) started in 2015 as a collaboration between CABI's centre in Switzerland, the University of Neuchâtel, and the Canton Jura. Scientists, teachers, extension officers and policy makers took part in the 9-month study programme to enrich their knowledge about the importance of ICM and how to support its adoption as a long-term strategy to address global challenges. During the first years of the programme (2015–2020), students followed a Master of Advanced Studies in ICM (MAS-ICM) course in Switzerland; however, due to COVID-19 and a general desire to make the course available to a larger number of participants globally, the MAS-ICM content was adapted to a digital learning format.

Three Certificate of Advances Studies in ICM (CAS-ICM) courses are now being offered by CABI and the University of Neuchâtel. These fully online courses run independently of one another but can be combined into a Diploma of Advances Studies in ICM (DAS-ICM). Between January and August in 2022, 22 participants from 14 countries across Africa, Asia and the Americas took part in a pilot of the first course (CAS 1 – Sustainable Production Practices). Fifteen of those participants successfully completed the course and received their CAS degree. The CAS 2 (Aspects of Implementation) and CAS 3 (Biological Control and Ecosystem Services) courses were launched in September 2022, with 22 and 17 participants registered, respectively. Those two courses will run until June 2023. It is then planned that all three of the CAS-ICM courses will be run simultaneously from September 2023 to June 2024 with new cohorts of international students.

## 4.5. CABI Associates

Location	Name	Highest Qualification	Role
Afghanistan	Faizi, Zakariya	MSc	CABI Associate, Afghanistan
Bangladesh	Ahmad, Md. Saleh	PhD	CABI Associate, Bangladesh
Bolivia	Bentley, Jeff	PhD	CABI Associate, Bolivia
Bolivia	Florido, Miguel	MSc	CABI Associate, Bolivia
Bolivia	Sainz, Claudia	MSc	CABI Associate, Bolivia
Costa Rica	Delgado, Juan Vicente O.	BSc	CABI Associate, Costa Rica
Ecuador	Vásquez, Carlos	PhD	CABI Associate, LAC
Ghana	Beseh, Patrick	MSc	CABI Associate, Ghana
India	Parveen, Shama	PhD	CABI Associate, India
India	Srinivas, Kavitha	MSc/MBA	CABI Associate, India
Kenya	Agwanda, Charles	PhD	CABI Associate, Kenya
Kenya	Oduor, George	PhD	CABI Associate, Kenya
Malaysia	Annamalai, Sivapragasam	PhD	CABI Associate, Malaysia
Malaysia	Loke Wai Hong	PhD	CABI Associate, Malaysia
Malaysia	Soetikno, Sastroutomo S.	PhD	CABI Associate, Malaysia
Nicaragua	Medina, Luis	MSc	CABI Associate, Nicaragua
Philippines	Joshi, Ravindra	PhD	CABI Associate, Malaysia
Switzerland	Gassmann, André	DnatSc	Consultant
UK	Cock, Matthew	PhD	Emeritus Fellow (from July)
UK	Evans, Harry C.	DSc	Emeritus Fellow
UK	Gonzalez-Moreno, Pablo	PhD	CABI Associate, UK
UK	Hunt, David	PhD	Emeritus Fellow
UK	Murphy, Sean T.	PhD	CABI Research Fellow
UK	Rutherford, Mike	PhD	CABI Associate, UK
UK	Smith, David	PhD	Emeritus Fellow (from November)
UK	Stewart, Janet	BSc	CABI Associate, UK
Vietnam	Costa, Arnaud	PhD	CABI Associate, Malaysia
Vietnam	Nguyen, Thi Kim Ngan	MSc	CABI Associate, Malaysia

## 4.6. Visiting scientists

Where located	Name	Highest degree	Home institute	Dates (2022)
UK-Egham	Brown, Bob	PhD	Landcare, New Zealand	August–October
Kenya	Velasco Hernandez, Maria	PhD	University of Puerto Rico, Center for Excellence in Quarantine and Invasive Species (CEQUIS)	June–July
Kenya	Honsberger, David	BSc	University of Hawaii, Department of Plant and Environmental Protection Sciences, USA	June–July
Switzerland	Xian Xiaoqing	PhD	Department of Biological invasions, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, China	September–December
Switzerland	Zhong Yongzhi	PhD	Institute of Plant Protection and Agro-Products Safety, Anhui Academy of Agricultural Sciences, China	April–July
UK-Egham	Jones, Ian	PhD	University of Toronto, Canada	2021–2022

## 4.7. Technical support

Centre	Name	Qualification
China	Chen, Xin	MSc
China	Yuan, Bo	MSc
Kenya	Karanja, Peter	HNDip
Malaysia	Baki, Haji Razali	Technician
Malaysia	Yahya, Hanifah	Technician
Pakistan	Ahmed, Ejaz	Matric
Pakistan	Ali, Saqib	Graduate
Pakistan	Anjum, Daud Hussain	Matric
Pakistan	Rasheed, Khalid	Intermediate
Switzerland	Cloşca, Cornelia	MSc
Switzerland	Donzé, Quentin	DiplGard
Switzerland	Humair, Lauréline	MSc
Switzerland	Willemin, Florence	DiplGard
UK (Egham)	Adamin, Tomasz	
UK (Egham)	Hannon, Janet	

## 4.8. Temporary research students / Interns

Where located	Name	Highest degree	University	Dates (2022)
Brazil	Johansson, Malin	MSc	Gothenburg University, Sweden	October–December
China	Guo, Linchao	BSc	Hebei North University, China	June–September
China	Guo, Zheng-Jun	MSc	Northwest Agriculture and Forestry University, China	March–May
China	Sun, Jinhui	BSc	Jining Normal University, China	September–December
China	Yang, Ying	BSc	Hebei North University, China	February–August
Hungary	Silva, Elsa Maria Arriarán	BSc	University of Szeged, Hungary, and National Agrarian University (UNALM), Peru	July–October
Hungary	Vinh Ha, Linh	BSc	University of Szeged, Hungary	June–September
Switzerland	Birkmire, Sarah	MSc	University of Florida, USA	April–July
Switzerland	D'Haese, Roel	MSc	University of Antwerp, Belgium	May–September
Switzerland	Deiss, Fanny	MSc	University of Neuchatel, Switzerland	April–September
Switzerland	Fenijn, Fleur	BSc	University of Victoria, Canada	May–August
Switzerland	Heuver, Nathan	BSc	University of Victoria, Canada	May–August
Switzerland	Mack, Anne	BSc	University of Kiel, Germany	May–June
Switzerland	Petig, Christine	MSc	Leibniz University Hannover, Germany	April–September
Switzerland	Younie, Sandra	BSc	University of Manitoba, Canada	May–August
UK (Egham)	Berman, Chris	MSc	Imperial College London, UK	June–December
UK (Egham)	Bonsuuri, Mabel	MSc	University of Reading, UK	September–December



# contact CABI

## AFRICA

### Ghana

CABI, CSIR Campus  
No. 6 Agostino Neto Road  
Airport Residential Area  
P. O. Box CT 8630, Cantonments  
Accra, Ghana  
**T:** +233 (0)302 797 202  
**E:** [westafrica@cabi.org](mailto:westafrica@cabi.org)

### Kenya

CABI, Canary Bird  
673 Limuru Road, Muthaiga  
PO Box 633-00621  
Nairobi, Kenya  
**T:** +254 (0)20 2271000/ 20  
**E:** [africa@cabi.org](mailto:africa@cabi.org)

### Zambia

CABI, Southern Africa Centre  
5834 Mwange Close  
Kalundu  
P.O. Box 37589  
Lusaka, Zambia  
**T:** +260 967 619 665  
**E:** [southernfrica@cabi.org](mailto:southernfrica@cabi.org)

## AMERICAS

### Brazil

CABI, UNESP-Fazenda  
Experimental Lageado, FEPAF  
(Escritorio da CABI)  
Rua Dr. Jose Barbosa de Barros  
1780 Fazenda Experimental Lageado  
CEP:18.610-307  
Botucatu, São Paulo, Brazil  
**T:** +55 (14) 3880 7670  
**E:** [y.colmenarez@cabi.org](mailto:y.colmenarez@cabi.org)

### Trinidad & Tobago

CABI, 59 Gordon Street  
Curepe, St. Augustine  
Tunapuna 331323  
Trinidad and Tobago  
**T:** +1 868 6457628  
**E:** [caribbeanLA@cabi.org](mailto:caribbeanLA@cabi.org)

### USA

CABI, 6 Liberty Square #2775  
Boston, MA 02109, USA  
**T:** +1 (617) 682-9015  
**E:** [h.jansen@cabi.org](mailto:h.jansen@cabi.org)

## ASIA

### China

CABI, Beijing Representative Office  
Internal Post Box 85  
Chinese Academy of Agricultural Sciences  
12 Zhongguancun Nandajie  
Beijing 100081, China  
**T:** +86 (0)10 82105692  
**E:** [china@cabi.org](mailto:china@cabi.org)

### India

CABI, 2nd Floor, CG Block  
NASC Complex, DP Shastri Marg  
Opp. Todapur Village, PUSA  
New Delhi – 110012, India  
**T:** +91 (0)11 25841906  
**E:** [india@cabi.org](mailto:india@cabi.org)

### Malaysia

CABI, PO Box 210  
43400 UPM Serdang  
Selangor, Malaysia  
**T:** +60 (0)3 89432921  
**E:** [cabisea@cabi.org](mailto:cabisea@cabi.org)

### Pakistan

CABI, Opposite 1-A  
Data Gunj Baksh Road  
Satellite Town, PO Box 8  
Rawalpindi, Pakistan  
**T:** +92 51 9292062  
**T:** +92 51 8434979  
**E:** [cabi.cwa@cabi.org](mailto:cabi.cwa@cabi.org)

## EUROPE

### Netherlands

CABI, Landgoed Leusderend  
32 3832 RC Leusden  
The Netherlands  
**T:** +31 (0)33 4321031  
**E:** [netherlands@cabi.org](mailto:netherlands@cabi.org)

### Switzerland

CABI, Rue des Grillons 1  
CH-2800 Delémont Switzerland  
**T:** +41 (0)32 4214870  
**E:** [europe-CH@cabi.org](mailto:europe-CH@cabi.org)

### UK

CABI, Nosworthy Way  
Wallingford, Oxfordshire  
OX10 8DE, UK  
**T:** +44 (0)1491 832111  
**E:** [corporate@cabi.org](mailto:corporate@cabi.org)

CABI, Bakeham Lane  
Egham, Surrey  
TW20 9TY, UK

**T:** +44 (0)1491 829080  
**E:** [cabieuropew-uk@cabi.org](mailto:cabieuropew-uk@cabi.org)  
**E:** [microbialservices@cabi.org](mailto:microbialservices@cabi.org)