

A photograph of four students in a field. From left to right: a man in a red plaid shirt and brown leather jacket; a woman in a dark blue denim jacket; a woman in a blue jacket looking down at a notebook; and a man in a red and white checkered shirt holding a notebook and pen. They appear to be engaged in a study or fieldwork session.

Masters of Advanced Studies in Integrated Crop Management

Annual Review – 2015



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The course has broadened my knowledge and introduced me to new skills and technologies. I look forward to bringing this new knowledge back home to help improve and sustain agriculture in my country - especially knowledge relating to my area of pests and pesticide management.

Raymonda Johnson

Why is a course on Integrated Crop Management (ICM) so important?

Food security, food safety and environmental sustainability are critical challenges for the world's growing population.

One answer available today is Integrated Crop Management (ICM), a holistic approach to sustainable agriculture increasingly required as a standard for agricultural production around the world.

The Masters of Advanced Studies (MAS) in ICM, jointly coordinated by **CABI** and the **University of Neuchâtel**, aims to help address today's critical agricultural and environmental challenges by offering a unique higher education programme.

The course gives students the opportunity to learn about sound crop management principles and to explore solutions that can be incorporated into practice and policy back home. It therefore has a role to play in contributing to the Sustainable Development Goals.

The first intake of 11 students started the programme in Delémont, Switzerland, where the course is based, in March 2015.

The study programme is supported by:



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC



Meet the students

Click on each student for their full biography.



Raymonda Johnson
Sierra Leone



Alexandre Rutikanga
Rwanda



José Gómez Vargas
Costa Rica



Martin Busobozi
Rwanda



Musa Paul Chidinda
Tanzania



Maureen Mwangangi
Kenya



Frehiwot Sileshi Woldetsadik
Ethiopia



Muhammad Rizwan Khan
Pakistan



Isaiah Nthenga
Zambia



Fred Kofi Asante
Ghana



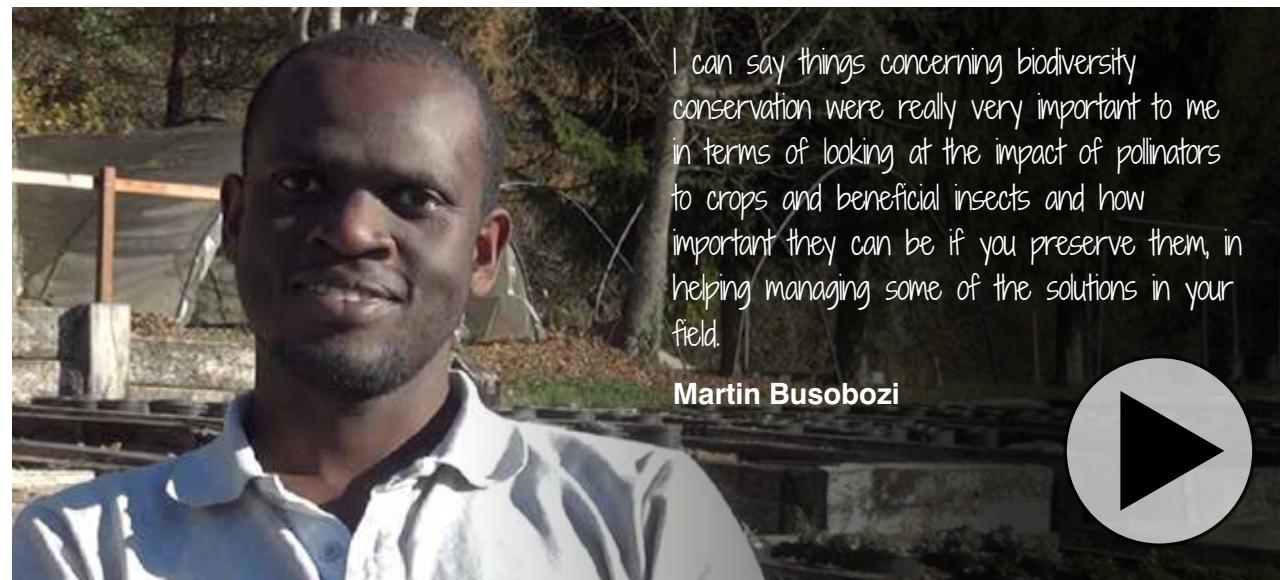
Vakeesan Arulanandam
Sri Lanka

What did the course cover?

The course is an interdisciplinary study programme providing knowledge on ICM. ICM involves managing crops to optimize yields and profitability while minimising negative impacts on the environment. It considers the local soil and climate conditions and safeguards the farm's natural assets.

The MAS in ICM study programme also addresses the wider implications of ICM, particularly the socio-economic and ecological aspects, which form the backdrop of this approach to sustainable agriculture.

General topics covered include: soil management, seed selection, crop nutrition, cropping strategies, pest and landscape management, water management, statistics, national and regional agricultural policies, and rural economics.



I can say things concerning biodiversity conservation were really very important to me in terms of looking at the impact of pollinators to crops and beneficial insects and how important they can be if you preserve them, in helping managing some of the solutions in your field.

Martin Busobozi



Taught in English, the duration of the study programme was two semesters consisting of 13 thematic modules, a workshop on the future of agriculture and a final case study session on building an ICM strategy.

Modules included research demonstrations, field visits and study tours to partner organisations. Participants on the MAS in ICM course were also required to write a thesis during the last 12 weeks of the programme. Subjects addressed by the students covered Integrated Production guidelines, pesticide policy analysis and gender analysis.

The programme was led by ICM experts from CABI and the University of Neuchâtel, and featured interdisciplinary guest lecturers from around the world.



The modules of pest management and crop rotation were very interesting for me. Moreover I was also lacking a bit in statistics and the statistics module also provided me with very good knowledge. In addition to new knowledge I also got a chance to improve my existing knowledge in the areas of cross fertilization and soil management.

Muhammad Rizwan Khan



We had both the theory and the practical aspects, experience from farmers, from experts and even from our colleagues.

Raymonda Johnson

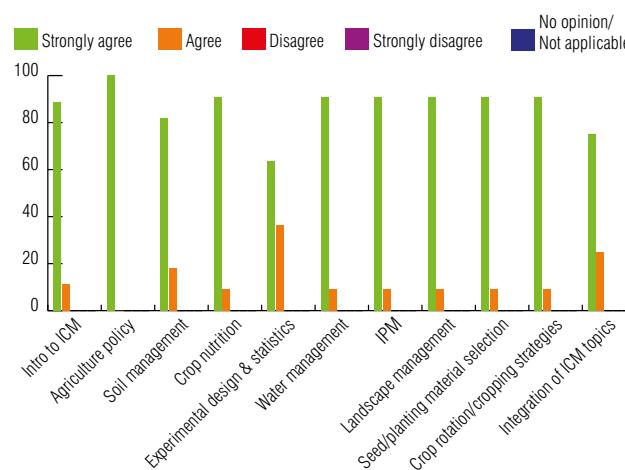
What did students think of the course?

As part of an evaluation on the course, students were asked for their feedback on the modules. An average of 84% of the students responded that they “strongly agree” that the modules were interesting and of good quality, with 16% saying they “agree”.

Students were also asked if the modules provided new information or knowledge. An average of 87% of the students “strongly agreed” and 13% “agreed” that the modules provided new information or knowledge. The agriculture policy module rated the highest, with 100% of the students “strongly agreeing” that the module delivered information or knowledge that was new for them (Figure 1).

In both the pre and post-course evaluation results, all of the students thought that the programme will be beneficial to their career.

Figure 1





All MAS ICM subjects are very interesting and very useful. **Musa Paul Chidinda**

It was really a very good learning environment that included face to face teaching with experts and lecturers that really had prepared their subjects.

Alexandre Rutikanga

All the subjects in the course were amazing. **Fred Kofi Asante**

Course attracts media coverage

The MAS in ICM course attracted a lot of media interest and coverage over the year.

For example on Swiss French national TV:

<http://avenue.argus.ch/avenue20151/Q1/1082024/57373052.mp4>

and on the Swiss regional TV channel:

<http://www.canalalpha.ch/emissions/minimag/minimag-le-jura-terre-dun-nouveau-master-en-agriculture-durable/>



I would like to remark that one thing that enriched this MAS programme the most, was the day-to-day interaction with my fellow colleagues. I was able to share and learn, not only about their cultures but of the difficulties they have faced throughout their career in agriculture. Last but not least, it is good to recognize that this programme is strengthened by lecture dynamics, field trips and instructors' own expertise. **José Gómez Vargas**

Graduation day

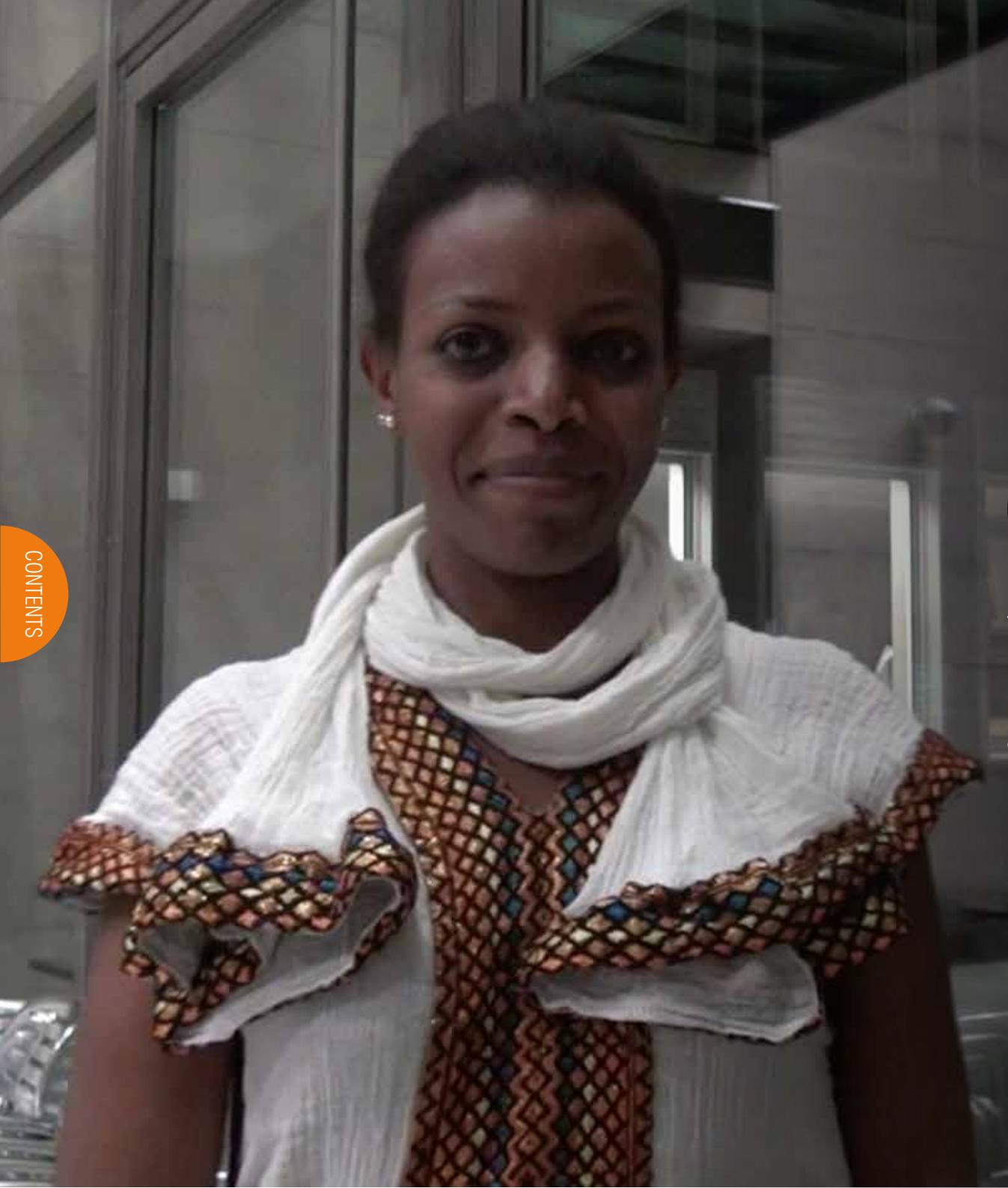
After nine months of hard work, students graduated from the programme with a Masters of Advanced Studies in Integrated Crop Management.

The graduation ceremony took place at the University of Neuchâtel in November 2015 and featured speeches by the University's Professor Ted Turlings and CABI's Regional Director for Europe and the Americas, Dr Ulrich Kuhlmann.

"We congratulate the students on their graduation. They have all worked extremely hard and deserve their success. We're very proud to have supported our first set of students to graduate and we look forward to working with more in the years to come. We thank and acknowledge the support of our partners as the expertise and support of our fellow institutions in Switzerland helped to make this possible."

Dr Ulrich Kuhlmann





Today is a special day, I am really excited. The past months have been a bit intensive. Now today is the graduation day we're all happy because we were successful. I am very happy.

Frehiwot Sileshi Woldetsadik

Feedback from students after the course

After the graduation ceremony, the students returned to jobs addressing sustainable agriculture within a range of organisations including governments, advisory services and universities.

Although the students only completed the course around three months ago, we have received some encouraging reports that the course is already helping them to address the agricultural issues in their countries.

Feedback received also indicates that taking the course has helped a number of students with their careers.



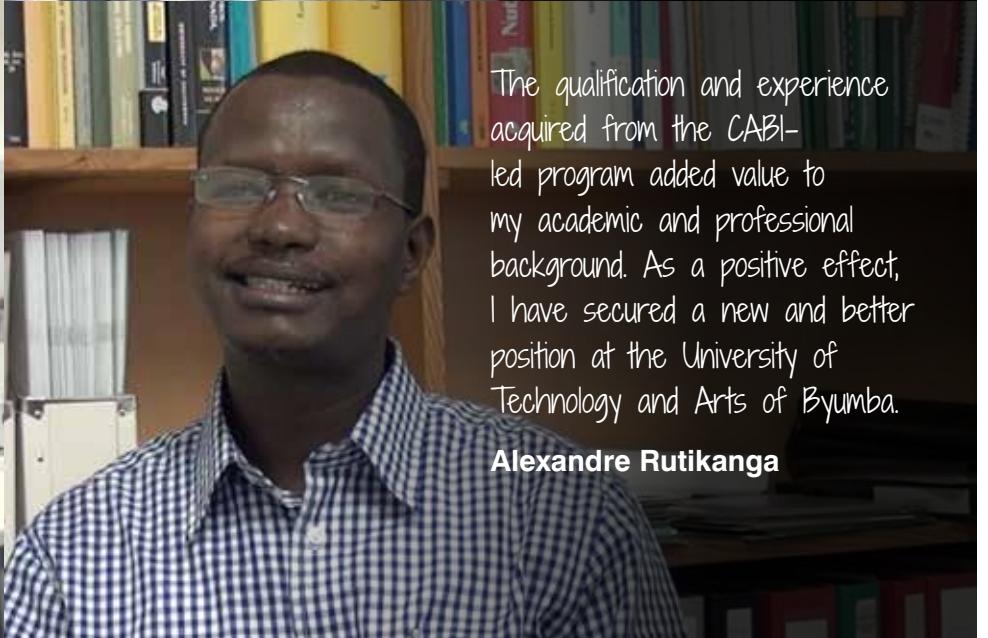
I have submitted a copy of my thesis to the Chief Agricultural Officer. I am working with the director of the seed agency on harmonizing our activities and incorporating crop protection according to ECOWAS policy. I also have plans to discuss my Integrated Production guideline with other NGOs, research bodies and extension agencies.

Raymonda Johnson



I prepared a workshop to present my passion fruit Integrated Production guideline and it attracted participants from government, the private sector and NGOs working in the sector. It was very successful and much appreciated with recommendations to upscale to other crops.

Martin Busobozi



The qualification and experience acquired from the CABI-led program added value to my academic and professional background. As a positive effect, I have secured a new and better position at the University of Technology and Arts of Byumba.

Alexandre Rutikanga



Working with us on the course

Our thanks to the following institutions and experts who worked with us on the course modules.

Peter Althaus, IP-Suisse, Switzerland

Leana Duss, Helvetas, Switzerland

Dario Fossati, Agroscope, Switzerland

Martin Keller, Inforama, Switzerland

Alexandra-Maria Klein, University of Freiburg, Germany

Hema Menon, International Trade Centre (ITC), Switzerland

Meine van Noordwijk, World Agroforestry Centre (ICRAF), Indonesia

Guy Poppy, University of Southampton, UK

Manuele Tamo, International Institute of Tropical Agriculture (IITA), Benin

From the School of Agricultural, Forest and Food Sciences (HAFL), Switzerland:

Claudia Degen

Fritz Häni

Andreas Keiser

Hans Meier

Hans Ramseier

Urs Scheidegger

Matthias Stettler

Bernhard Streit

Christoph Studer

From the Fondation Rurale Interjurassienne (FRI), Switzerland:

Bernard Beuret

Olivier Girardin

Beat Knobel

Bertrand Wütrich

From the Research Institute of Organic Agriculture (FiBL), Switzerland:

Dominique Barjolle

Hélène Bougouin

Urs Niggli

From the Federal Office for Agriculture (FOAG), Switzerland:

Dominique L. Kohli

Mathias Kuhn

Matthias Ofner

From Agroscope Reckenholz-Tänikon (ART), Switzerland:

Franz Bigler

Siegfried Keller

From the Swiss Federal Institute of Technology, Switzerland:

Jan Seibert

Johan Six

From Andermatt Biocontrol, Switzerland:

Gisela Brand

Alex Meier

Thank you to our partners

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The natural beauty of Switzerland and the stay at Delémont was really a very good experience for me. I will not forget throughout my life because the 9 months which I have spent here I had a very good time with my neighbours and my colleagues and all the people at CABI so it was really an interesting experience for me living at CABI in Delémont.

Muhammad Rizwan Khan

Yes, of course, I will encourage them to apply in numbers actually for this programme because it covers all aspects of the agricultural system which is a very good thing. The way the course is designed is just marvellous.

Isaiah Nthenga

This course is really amazing. It is really packed, it has a lot of social events to make your stay here amazing and also looking at the lecture hall and also our apartment is really intriguing.

Fred Kofi Asante



What I will say to any student who is considering this is that they should just rush or next time I will just come and replace them. It's amazing.

Fred Kofi Asante



Raymonda Johnson, Sierra Leone

I work at the Ministry of Agriculture Forestry and Food Security, Sierra Leone, based in Freetown. Presently, I am Acting Assistant Director and Head of Crop Protection Service. I oversee many daily activities for the Ministry to supervise pest and pesticide management. I lead training and best practice for phytosanitary control at the national borders. I act as a technical adviser to the government on pest resurgence and outbreaks and how to respond, including best practice for procurement of agro-chemicals and protective equipment. Day-to-day I prepare work plans and budgets for our unit and keep it running smoothly. As part of my role at the Ministry, I oversee operations of plant clinics – training plant doctors, supporting plant clinic data management creating new resources like factsheets and Green and Yellow Lists, and implementing a monitoring and evaluation strategy. In Sierra Leone and around the region I collaborate with a wide network of researchers, academics, agro-dealers and other stakeholders. During the MAS in ICM, I am interested in improving my skills and gaining more knowledge on ICM. I plan to bring this new knowledge back home and improve our agricultural sector – especially in my area of pests and pesticide management. I am also deputy national coordinator and master trainer for Plantwise.



Alexandre Rutikanga, Rwanda

I am currently a lecturer at the University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (UR-CAVM). I hold an MSc in Crop Science, Major Crop Protection (Agricultural Entomology) from Makerere University, Uganda. My teaching and research focus on Agricultural Entomology and Nematology, including Integrated Pest Management (IPM). Before joining UR-CAVM, I was a scientist working for CGIAR at Bioversity International Sub-Saharan Africa, based in Kigali. So far I have published over 10 scientific publications, including book chapters, and I have also written factsheets to guide identification and management of crop pests in Rwanda. Through my work at the University of Rwanda, I have supported implementation of Farmer Field Schools on potato and successfully developed grant projects funded by the University and the Swedish International Development Agency (Sida). I represent the UR-CAVM in the National Implementation Team for the Africa Human Capital in Science, Technology and Agripreneurship for Food Security Framework (AHC-STAFF). For Plantwise, I am also a member of the steering committee representing universities, a focal point at the University of Rwanda and I supervise students at plant clinics.



José Gómez Vargas, Costa Rica

I am originally from Costa Rica, but I consider myself a “traveling agronomist” since I have studied and worked in Guatemala, Honduras and the United States, all countries where agriculture is one of the most important sectors. I received my undergraduate degree from Zamorano University, Honduras, in Agricultural Engineering. After graduation, I worked for a tomato production farm as the greenhouse production manager. The next step in my studies took me to Iowa State University where I earned an MSc in Crop Production and Physiology, and worked as a research assistant in the Agronomy Department. I have worked as a research assistant and as a teaching assistant in the Botany and Plant Pathology Department at Purdue University in the United States. The research that I have been involved in includes, but has not been limited to, chemical weed management, biological and physiological traits that allow weeds to adapt to glyphosate resistant crops, weed management in organic agriculture, cover crops, and weed-crop competition studies. Even though my training has been devoted to crop management, I am motivated by a strong personal commitment to food security and international agricultural development.

**Martin Busobozzi, Rwanda**

I am an agronomist (BSc degree from Makerere University, Uganda) in the field of innovative horticulture production and plant protection. In this field I have attended training in Rwanda, Kenya, Japan and China. Since 2009, I have been working for the Rwanda Agriculture Board (RAB) as a research assistant and plant protection officer. I did pioneer work in planting watermelons and mangos in Rwanda on a large scale. In the past years, these crops were all being imported. Today, however, thanks to that effort one can buy locally produced watermelons and mangos on the Rwandan markets. Due to my experiences in this field I am a published expert on watermelon. I am also a trained plant doctor for the CABI-led Plantwise programme. I coordinate plant protection activities in the Eastern Province of Rwanda. I am passionate about applying international best practices in Rwanda's horticulture. I am also a plant clinic province coordinator and a plant doctor for Plantwise.

**Musa Paul Chidinda, Tanzania**

I am currently working at the Ministry of Agriculture Food Security and Cooperatives, Tanzania, based in Dar es Salaam. I am holding the role of an agricultural officer. I made my Bachelor degree in Agriculture General. In my day-to-day work I participate in control and management of migratory pest throughout Tanzania and I am engaged in phytosanitary measure activities. In Plantwise I have several responsibilities such as: overseeing the data collection and management system; coordinating data harmonisation, validation, and analysis; liaising with the knowledge bank team for assuring regular submission of plant clinic data; sharing key issues to national stakeholders arising from data analysis. I am also a national data manager for Plantwise.

**Maureen Mwangangi, Kenya**

At the moment I work as a plant health inspector at the Kenyan Health Inspectorate Service (KEPHIS). KEPHIS is the National Plant Protection Organisation in Kenya whose responsibility is to assure the quality of agricultural inputs and produce in order to prevent negative impacts on human health, the environment and the economy. I hold a BSc and MSc degree in biotechnology. My day-to-day work involves inspection of plants and plant produce which are imported and exported from Kenya. I oversee national phytosanitary standards to work towards keeping our crops free of pests and diseases. I also make inspections of quarantine and bio-containment facilities and participate in introducing new biological control agents to Kenya. For this I need to evaluate dossiers and undertake pest diagnosis in the molecular and virology laboratories. I also manage the tissue culture laboratory by preparing and executing schedules while participating in cleaning, multiplication and exchange of germplasm.

**Frehiwot Sileshi Woldetsadik, Ethiopia**

In 2008, I graduated with a Bachelor's degree in Plant Sciences from Hawassa University, Ethiopia, following which I completed my MSc degree in Weed Science at Haramaya University. Since July 2011, I am working at Ambo University, in Central Ethiopia, in the Department of Plant Science as a lecturer. I teach different courses such as weed management as well as plant ecology. I also supervise graduate students, conduct research in the field of weed management and participate in community service activities. In 2014, I have attended a fellowship on Integrated Pest Management (IPM) and Food Safety at Wageningen University in the Netherlands. I am highly motivated to upgrade my research as well as educational level in the field of crop production because it is essential for sustainable agricultural development. During the MAS in ICM, I am interested in improving my skills, knowledge and research experience in the field of IPM as this will help me to contribute to farming livelihood improvement and economic growth of my agricultural based country, Ethiopia.

**Muhammad Rizwan Khan, Pakistan**

I hold a Bachelor and Master degree in Agriculture (Soil Science) from University of Agriculture Faisalabad, Pakistan. During my studies I did research in the field of heavy metal contaminated soils and its effects on plant growth. Since 2010, I am working as an Agriculture Extension Officer in the Pakistan Agriculture Department. My working experience in the field of agriculture has given me a lot of confidence and insights in understanding aspects of Integrated Crop Management. Through Plantwise, I trained with CABI in different techniques and technologies used in solving the problems of farming communities. As my studies mainly concentrated in soil science I am looking forward to deepen my knowledge regarding the identification and management of pest and disease problems. I am sure that a MAS degree from Switzerland will definitely widen the horizons of my knowledge and help me attain a milestone in my career, since it would not only give me a detailed insight to the subjects of my interest but also improve my chances of future technical growth. I am also plant clinic district coordinator, data validator and a plant doctor for Plantwise.

**Isaiah Nthenga, Zambia**

I work for the Ministry of Agriculture under the Zambia Agricultural Research Institute as a Research Officer. For the Plant Protection and Quarantine Division I work as a Nematologist and Entomologist and I am based at Mount Makulu Central Research Station in Chilanga, Lusaka. I hold a BSc in biological sciences from the University of Zambia and an MSc in nematology from the University of Ghent, Belgium. My duties include but are not limited to insect and nematode identification and control, planning and implementing on farm trials, developing appropriate agricultural technologies, developing and preparing research protocols, presentations, manuscripts and surveys, carrying out any other related activities to ensure specialist services are provided to stakeholders. Currently I am also involved in Plantwise programme as a master trainer and data validator. I also contribute to the development of extension materials (e.g. Factsheet for Farmers, Pest Management Decision Guides) through a Plantwise process.



Fred Kofi Asante, Ghana

I hold a BSc in Agriculture from the University of Cape Coast, Ghana. The past five years I was working as an Assistant Regional Officer for the Plant Protection and Regulatory Services of the Ministry of Food and Agriculture in Ghana. As part of my role at the Ministry, I currently monitor pest management activities and ensure the enforcement of regulations on the importation, distribution and final use of pesticides and fertilizers in Ghana. During the MAS in ICM, I am interested in improving my skills and gaining more knowledge on pest and diseases management practices with a minimum usage of pesticides. At the end of the MSc programme I hope to be better equipped to help farmers in Ghana reducing crop losses to pests and diseases. I am also a plant clinic province coordinator, province data manager and data validator for Plantwise.



Vakeesan Arulanandam, Sri Lanka

I have over seven years of work experience in both non-profit and academic agricultural development. After earning a bachelors' degree in agriculture from University of Jaffna, Sri Lanka, I started my career with several projects mostly related to the transfer of technical knowledge to the grassroots farming population via agricultural extension system in Northern Province of Sri Lanka. I have worked with Japan International Cooperation Agency, with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and with World Vision International promoting implementation of integrated farming approach, especially those aimed at improving food security in the tsunami war affected regions. I also served as an Assistant Lecturer at Department of Agricultural Biology, University of Jaffna. With CABI, my work has become more unique and prominent – both as a Farmer Field School (FFS) expert and Field Technician in the Going Green project.



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