

IITA scientists spearhead efforts to save East Africa's potatoes from a new pest threat

Scientists at [IITA-CGIAR](#), working with the [International Centre of Insect Physiology and Ecology \(icipe\)](#) under the joint Nematology Unit, NemAfrica, housed at icipe's campus in Nairobi, and their national and international partners, have been at the forefront of efforts to address a new emerging pest threat to the production of potato in the East Africa region, and in many other countries in the world.

These are the parasitic microscopic worms known as Potato Cyst Nematodes (PCN). These destructive pests attack potato roots and can cause yield losses of up to 80%, and in some instances, even total crop failure. PCN consist mostly of two species, *Globodera rostochiensis* and *Globodera pallida*, both of which have recently been discovered attacking potato in Kenya. *G. rostochiensis*, however, has since been shown to be widespread across Kenya and has additionally been detected further afield in Uganda and Rwanda.

"PCNs are among the most destructive potato pests globally. They are particularly lethal because each female nematode produces hundreds of eggs—between 300 and 500, which

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MSc student, Juliet Ochola, researching "suicide hatching" as an effective way to control nematode, looking at the pest with a microscope in the laboratory.

First Advisory Board of IITA Business Incubation Platform appointed

The [IITA Business Incubation Platform \(BIP\)](#) has announced the appointment of its inaugural Advisory Board, which held its first board meeting last June. CEO of Enviro Gro Farms, Nkiru Opareke, will serve as Chair of the Board, and will provide leadership and overall guidance to increase organizational growth and impact.

The appointed board members are considered exemplary in their individual and combined extensive expertise in

agribusiness, research, commerce, finance, business development, and strategic partnership.

The first board meeting discussed the state of IITA BIP and the next line of action for the commercial and technology delivery arm of [IITA-CGIAR](#).

IITA BIP was set up to develop businesses, build sustainable innovations, and commercialize them to impact more lives in Africa. In April, the IITA BIP Board of

Trustees approved the composition and Terms of Reference for the IITA BIP Ltd board members.

The board comprises IITA representatives, Deputy Director General, Partnerships for Delivery (DDG-P4D), [Kenton Dashiell](#); Deputy Director General Corporate Services, [Hilde Koper-Limbourg](#); and IITA Board of Trustees (BoT) member, [Victoria Salin](#). The board also includes private agribusiness sector specialists, Board Chair Opareke, Yemisi Iranloye,

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Researchers evaluating a potato field for resistance to PCN.

remain protected in a cyst formed by their body after they die. These cysts can remain dormant in the soil for years, awaiting the next potato crop host. Because of the dangers they pose, PCNs have been designated as quarantine pests in many countries, to strictly control their spread," says [Danny Coyne](#), a leading nematologist and Soil Health Scientist at IITA.

Establishing the prevalence of potato nematodes in the region

Following the detection of *G. rostochiensis* in Kenya in 2015, IITA scientists in partnership with their counterparts at icipe and Jomo Kenyatta University of Agriculture and Technology (JKUAT), among others, conducted a country-wide survey which found that *G. rostochiensis* was not only widespread throughout the country, including areas bordering Uganda and Tanzania, but also in very high concentrations. These findings were published in the paper, [Potato Cyst Nematodes: A new threat to potato production in East Africa](#), published in May 2020 in *Frontiers in Plant Science*.

The team also established the presence of the pest in Uganda, and the findings were published as a [First report of potato cyst nematodes Globodera](#)

[rostochiensis](#) ([Wollenweber, 1923](#)), [infecting potato](#) (*Solanum tuberosum* L.) in Uganda in June 2020 in *Plant Disease*. Researchers in Rwanda have also detected these nematodes in the country.

Suicide hatch—an effective PCN management strategy

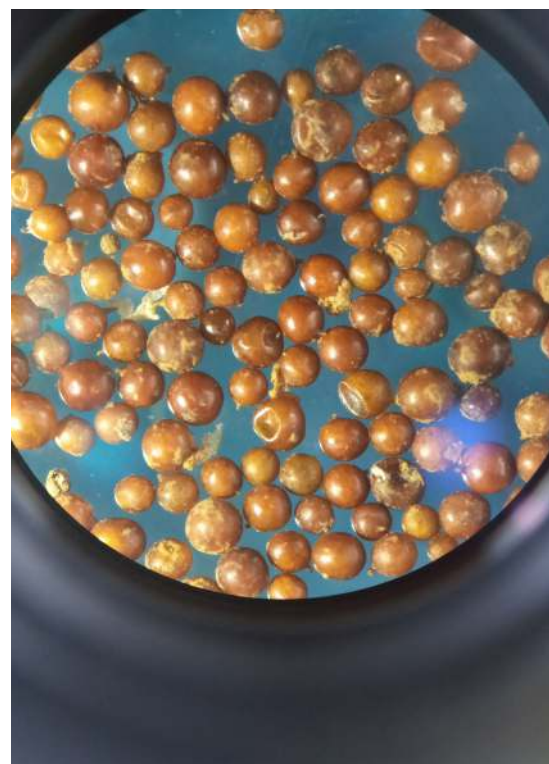
IITA scientists and their partners are also engaged in a study to explore an innovative approach to effectively control these pests using “suicide hatch”. The hatching of nematode eggs from their protective cyst into the soils, where they then find the host plant roots, is triggered by chemicals that are released by the potato roots. The newly hatched juvenile nematodes then use other chemical signals from the roots to locate and infect the potato roots.

Identifying these chemicals and synthetically producing them may offer possibilities for manipulating PCN to hatch in farmers' fields before potatoes are planted, and in the absence of the host to feed on, the nematodes will starve to death—“suicide hatch”.

The study findings were published in the paper, [Mediation of potato–Potato](#)



PCN cysts (white) on roots.



Potato Cyst Nematodes in a petri dish.

[Cyst Nematode, *G. rostochiensis* interaction by specific root exudate compounds](#) in *Frontiers in Plant Science*.

IITA researchers are also working with partners, including the [Kenya Plant Health Inspectorate Service \(KEPHIS\)](#), [James Hutton Institute](#) in UK, and the [International Potato Center \(CIP\)](#), among others, to identify suitable potato cultivars with resistance against the nematodes and similar attributes to farmers' preferred varieties.

The team will increase its efforts to find an effective solution to this menace, which can spell doom for potato and the food and income of millions of people in the region.

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and Akinbayo Atere. IITA BIP CEO, Mr Frederick Schreurs and Board Secretary, Mrs Ayoyinka Olajide-Awosedo round off the list of board members.

Opareke is the Co-Founder and CEO/COO of Enviro Gro Farms—a premier commercial grower and marketer of fine quality vegetables in Nigeria. She served on the board of Igwe Farms in Enugu State and with ExxonMobil, where she was a project and design engineer and project manager for infrastructure projects in Nigeria, the United States, Singapore, and France. She also worked as a human capital development expert and management consultant in Canada and Nigeria.

Iranloye is the MD/CEO of Psaltry International Ltd, where she has worked as an agro processor for more than 18 years with a good knowledge of mechanized cassava farming and processing. She presently manages over 8000 hectares of cassava plantation for her outgrower and company back-up farms. She also is a specialist in organizing farmers into groups of outgrowers.

Atere has over a decade of experience in banking operations—retail, commercial, and corporate banking with Nigeria's oldest bank and one of its biggest. He founded Arterius Capital and Advisory Limited, to offer risk consulting and financial advisory, and other services to small and medium-sized enterprises (SMEs) looking to scale. He is also an investor and founded Cashvance.ng that offers financial inclusion services to SMEs and individuals.

Board Secretary Olajide-Awosedo, is a member of the Chartered Institute of Arbitrators UK and the International Bar



IITA BIP Advisory Board (L-R): (top row) Nkiru M. Opareke, Board Chair, Kenton Dashiell, Victoria Salin; (middle) Hilde Koper-Limbourg, Akinbayo Atere, Yemisi Iranloye; (bottom) Frederick Schreurs, and Board Secretary, Ayoyinka Olajide-Awosedo.

Association. Her main areas of practice are corporate/commercial law and corporate finance. She advises clients, both local and international, regularly on multi-billion naira transactions. She represents Aarndale as Company Secretary and is a legal advisor on the boards of various companies.

The board also has one external Advisor,

Frank Braeken, who has had a long career dedicated to consumer goods, foods, and agriculture. He spent 26 years with Unilever, living and working in nine countries on four continents. He is presently the Executive Chairman at Feronia, Inc. and a non-executive board member of AGRA, Feronia Inc., and Blue Skies Holdings.

ACAI pretests Farmers' Field Guide in Nigeria and Tanzania

The [African Cassava Agronomy Initiative](#) (ACAI) project has placed a high priority on creating materials that will help both partners and end-users to easily understand, use, and apply recommendations from the AKILIMO agronomy advisory tools.

One of the materials developed is the AKILIMO farmer's guide, an image and text illustration outline of the good agronomic practices (GAP) for growing cassava. The practices championed in the farmer's guide are an essential part of realizing the full benefits of the

recommendations from the AKILIMO agronomy advice tools.

Beginning in June, ACAI has been conducting pretests with farmers using the guide in the field in both Nigeria and Tanzania. In the pretest process, the target audience is allowed to interact with the guide and find out how well it works and identify any weaknesses that need modifications.

The project scheduled pretest sessions at 19 different locations, ten across Nigeria and nine in Tanzania.

The project team with partners have already covered five sites in Nigeria and four in Tanzania.

Farmers and extension agents participating in the pretest were selected randomly across cassava growing agroecological zones like Benue, Cross River, Ondo, Osun, and Oyo states in Nigeria and Mkuranga, Kisarawe, Chalinze, and Sengerema districts in Tanzania.

The teams are gathering the views and user experiences of the participating

farmers and extension agents. Particular focus is on effectiveness of the illustrations in the guide and the clarity of the content.

The pretest findings will help ensure that farmers understand the message in the farmer's guide to the extent that they can make better measurements and precise estimates on input requirements and expected outputs (yield, revenue, and profit).

ACAI Scaling and Dissemination Specialist, Thompson Ogunsanmi, leading a farmers' guide pretest session in Nigeria.



Gone too soon: IITA staff obituaries

"It is hard to forget someone who gave us so much to remember." Those words captured the mood at IITA, as staff in different locations mourned the recent demise of several members of the IITA family in June 2020.

On 3 June, former leader of the Moist Savana Program in the Resource and Crop Management Division (RCMD), **I.O. Akobundu**, passed away in Maryland, USA. Akobundu worked as a senior scientist in IITA from 1975 to 1995 and, until his retirement, made a positive impact with his determined and collaborative pursuit of the goals of his office in particular, and IITA in general.



I.O. Akobundu.

"He was a pioneer weed scientist at a time when weed science was in its infancy," said Kwesi Atta-Krah, Director, Advocacy and Country Alignment. He made several technical publications in this field. Through his work, the [Handbook of West African Weeds](#), which has been a principal

reference document for weed scientists in West Africa, was published. A second edition of the book had been released with updated information and colored photos. His colleagues remember him fondly, saying, he understood the meaning of the word "team" and was always more focused on the good of the Institute.

A few days later, on 8 June, **Jean-Marie Sanginga Matabaro**, a

pioneer staff of the IITA-Bukavu Station, also passed on after a brief illness in Uvira, DR Congo. Until his death, he was head of the IITA outreach office in Uvira, which he contributed immensely in

establishing. Popularly known as JM, he joined IITA in 2009 as an Agronomist and Country Coordinator for the N2Africa project in DR Congo. Jean Marie built a reputation in leadership and management, developing strong partnership networks in the country as well as in the East and Central Africa



Jean-Marie Sanginga Matabaro.

region. He was known for his amiable personality and commitment to delivering on all the projects that he coordinated.

IITA-Bukavu also lost another member of the family on 24 June. IITA Cashier, HR and Administrative Assistant in Bukavu, **Viviave Mugisho Neema**, died at the Provincial General Hospital of

references of Bukavu after months of illness. Vivy Dollars, as her friends and colleagues called her, joined IITA as

an intern in 2013. Her associates knew her as diligent and jovial, a mix that endeared her to those who came in contact with her.

Staff of the Institute in multiple locations shared condolence messages with the families of the deceased. All three were also buried in June. They will be missed by the IITA family, their families, friends, and colleagues.



Viviave Mugisho Neema.

Got a story to share?

Please send your story with photos and captions every Tuesday to iita-news@cgiar.org or Katherine Lopez (k.lopez@cgiar.org) and Uzoma Agha (u.gha@cgiar.org) for headquarters and Western Africa, Catherine Njuguna (c.njuguna@cgiar.org) for Eastern and Southern Africa, and David Ngome (d.ngome@cgiar.org) for Central Africa.

