

Spraying locusts is ineffective—IITA entomologist

As Ethiopia, Kenya, and Somalia battle huge swarms of desert locusts, great efforts are underway to control these destructive insects. These locusts, according to the [Food and Agriculture Organization](#) (FAO), are twice as big in body-size and destruction-potential than other species in the genus *Schistocerca*. We talked to one of our entomologists, Peter Neuenschwander about solutions that can bring this menace to an end and save farming communities the pain of crop and income loss.

Neuenschwander has over 30 years' experience as an entomologist. In the 1990s, as Director of IITA's Plant Health Management Division, he oversaw a program, LUBILOSA, which was entirely devoted to developing alternatives to the chemical control of locusts and grasshoppers. Below are excerpts.

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The locusts devouring crops.

Rwanda launches soil information service program to provide soil composition and fertility recommendations

The Rwandan Ministry of Agriculture and Animal Resources through the [Rwanda Agriculture and Animal Resource Development Board](#) (RAB), in collaboration with the [IITA](#) in Rwanda, launched the Rwanda Soil Information Service (RwaSIS) program. The launch event took place in the Rwandan capital, Kigali, from 13 to 14 February.

The program, which has a duration of two and half years, aims to develop fertilizer and lime recommendations for

Rwandan crops, provide information on different types and occurrence of erosion, and design a functional and interactive

National Soil Information Service to monitor changes in soil properties.

“Mainly, as a Government of Rwanda, through the RwaSIS project, we aim to manage fertilizer and lime use on our different soils. Research has demonstrated that the fertilizer and lime that we distribute currently to farmers around the country, do not give yields at desired levels, and yield gaps are still huge. In brief, the RwaSIS

program will study what is lacking in our soil to give the desired harvest,” said RAB Deputy Director-General, Dr Charles Murekezi.

Funded by the [Bill & Melinda Gates Foundation](#), RwaSIS will support the Government of Rwanda in making evidence-based decisions, where investments in soils can have the highest returns.

RwaSIS will help to lay foundations for a modern soil information service that will rationalize the costs of obtaining high-quality soil data while building accessible geospatial data systems based on FAIR (Findable, Accessible, Interpretable, Reusable) principles

that will leverage legacy and new investments in soil analytics. Also, it will provide timely information on soil fertility, acidity, and erosion.

The information generated by the project will assist key stakeholders, including ministries, fertilizer companies, and the private sector in Rwanda, in providing evidence to support their decision-making processes.

In his remarks, officially launching the RwaSIS program, Jean Claude Musabyimana, Permanent Secretary of Ministry of Agriculture and Animal Resources, said that RwaSIS will assist in maximizing productivity in

agriculture, and foster investments in local fertilizer manufacturing.

“This project perfectly aligns with National Strategy for Transformation, which aims to maintain the agriculture sector at a stable average growth rate of at least 5.7% per year from 2017 to 2024, requiring considerable gains in land and agricultural efficiency,” Musabyimana said.

As one of the key partners in this program, IITA will be coordinating the external partnerships of the RwaSIS program to identify and continuously follow up on their roles during the implementation of the project.



Participants at the launch event in Kigali.

Got a story to share?

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Q: As Kenya, Ethiopia, and Somalia battle the worst desert locust outbreak in recent years, what is your advice to these nations, i.e., what should they do in the short and long term?

A: According to news reports, these three countries face devastating locust swarms. In my opinion, at this time there is very little that can be done to help the affected farmers. But in the long term, concerned personnel should carefully monitor hopper bands on the ground in areas where locusts are known to lay their eggs. As soon as conditions for their development are conducive, biopesticides such as Green Muscle should be applied. This will prevent the eggs from maturing into locusts.

Q: What should the neighboring countries of Uganda and Tanzania do to stop the locusts from reaching their countries? Should they even be worried?

A: The neighboring countries should also focus on long-term measures as suggested above. Locust swarms are highly fidgety and the direction they move is hard to foresee. The last big outbreak in northern Africa ended only when the swarms were blown off into the Atlantic, sometimes as far as Brazil.

Q: Is consumption, both by humans and animals, an option for locust control?

A: Yes, locusts are a first-quality source of proteins for both people and animals. They are followed by birds and mammals. As long as they have not been sprayed with insecticides (which at this stage are almost ineffective) they can be consumed. Greater efforts at collecting them for food might be envisaged.

Q: How is this related to climate change, if at all?

A: Locust swarms are so infrequent that it is probably very difficult to link them with climate change. However, the increased effects of local El-Niño might influence their ecology.

Q: In hindsight, what could have been done to avert this invasion?

A: In hindsight, we always have 20/20 vision. Eastern and Southern Africa harbor excellent organizations dedicated to the forecasting of locust outbreaks. If such organizations are only used once in a human's lifetime, they tend to become rusty or partially dismantled. Revitalizing these organizations should now be a priority.

Q: What biocontrol solutions, both long and short term, are available to these countries?

A: Green Muscle is the best biocontrol pesticide that can be used. A biocontrol pesticide is one that only kills the target insect without affecting non-target insects, the environment, and human health.

After the last big outbreak in 1989, the donor community insisted on avoiding the usual insecticide spray campaigns and asked the Centre for Agriculture and Biosciences International (CABI) and IITA, in collaboration with the affected countries, particularly Niger, to develop a biopesticide.

An Africa-wide search for strains of what was later to become *Metarhizium anisopliae* was undertaken and an effective strain from Niger was selected and the biocontrol pesticide, Green Muscle, was developed. The patent was housed with CABI, with IITA and Niger as minor contributors.

Since locust swarms are known to be infrequent, care was taken from the beginning to make sure the product also found a perennial niche, namely against the yearly outbreaks of grasshoppers in the Sahel zone. Production, started at IITA, was then picked up by a South African company. Even though FAO officially recommends Green Muscle for control of locust hopper bands, production mostly ceased. It picked up again, when an NGO run by the wife of the President of Senegal, started to produce Green Muscle.

Already before, the Australians picked up the technology for use against their locusts and commercialized a product they called GreenShield. Green Muscle was also used in Central Asia; but whether it is still available, I do not know. However, a new biocide NOVACRID was later developed and registered in Central Asia. It is being tested in Somalia and Saudi Arabia, talks are also ongoing with Ethiopia and Sudan.

Q: Any other advice?

A: A recent article in *American Entomologist* by Allant T. Showler summarizes the findings concerning locust control. His most important message is that preventive control is mostly ineffective, so is spraying locust swarms. The key to success is the detection of moving hopper bands and their treatment. NOVACRID is now available; it would be the perfect solution.

This story first appeared in *Daily Nation*: <https://www.nation.co.ke/news/Top-expert-provides-insight-on-containing-locusts-/1056-5439766-ns5q2hz/index.html>

Forward movement for STEP as teams exceed early milestone target

On 13 February, the [International Development Research Centre](#) (IDRC) held a six-month review meeting with the Start Them Early Program (STEP) team in Kenya. IDRC Senior Program Specialist, Jemimah Njuki and [IITA](#) Director-General, [Dr Nteranya Sanginga](#) presided over the meeting, which was attended by the STEP-Kenya team and staff of IDRC Kenya who are interested in the youth-led project. The STEP-Kenya team also represented the interests of the project teams in the Democratic Republic of Congo and Nigeria.



The STEP-Kenya team included [Paul Woomer](#), Welissa Mulei, Maryfaith Simiyu, and Lorraine Mutinda. They presented a progress report of the project and the achievements realized in the first six months of operation in the three host countries: DR Congo, Kenya, and Nigeria. Project activities commenced after the STEP teams designed an Implementation Plan (IP) that guides all the project activities, using a youth-led model, with a strong focus on research. The research component of the project is based on findings to key developmental questions and the establishment of an iterative, problem-solving mechanism that responds to unfolding project opportunities.

During the first phase, the project aimed to reach 1152 students in the three countries. This target was exceeded, with a total of 1197 students trained in interactive agribusiness coursework, pilot enterprises, and extracurricular activities.

In addition, the three teams were able to conduct a baseline study to understand the attitudes of secondary school students towards agriculture as a career choice. The study revealed some important similarities and differences among students studying agriculture and their plans for agriculture.



The project utilized various innovations to promote smart and efficient agriculture among the youth and the STEP trainers to reduce the drudgery associated with agriculture. The project has employed small-scale mechanization tools and digital platforms to create higher value across different value chains. In addition, ICT as a tool for agribusiness has generated more opportunities for the youth. Students are able to take advantage of social media platforms to market their products and link with suppliers in a cost-efficient and more interactive way.



Top: DG Sanginga (second right) speaking with members of the STEP team and IDRC staff.
Bottom: Some of STEP's early innovations with student trainees.

STEP has also received recognition from national stakeholders such as state governments in Nigeria, Commissioners for Education, the President of DR Congo, and the Sub-County Education office in Makueni County, Kenya. This opens more strategic opportunities for the STEP model in all three countries. It is expected that there would be more beneficiaries and a higher impact in the next six months.

At the end of the meeting, Njuki commended the STEP teams and expressed satisfaction with the milestones they had achieved.

Study group from The Gambia visits ENABLE Youth Cameroon

From 2 to 6 December 2019, [IITA](#) Cameroon hosted a delegation from The Gambia on a study trip to ENABLE Youth Cameroon to learn from its experience in youth in agribusiness. The visit also served as an opportunity to lay the foundation for beneficial cooperation between IITA and the Government of The Gambia in view of the creation of a program similar to the ENABLE Youth in The Gambia.

The Gambian delegation comprised 11 persons under the leadership of Mr Momodou S.W. Sowe. The study trip began with the presentation of the ENABLE Youth model, the vision, and the implementation strategy of the program. The challenges faced by the program were also highlighted, as well as the proposed solutions and the level of achievement of the activities. After a tour of IITA Cameroon station, the Coordination Unit of ENABLE Youth Cameroon then took them on a 4-day guided tour of five Youth Agribusiness Incubation Centers (YABICs)—Bonaberi, Dibombari, Ndoungue, Nkongsamba, and Obala.

Before the field visit, the delegation attended a reception at the Agricultural Value Chain Development Project (AVC-DP). The exchanges with the AVC-DP focused on the Gambian government's efforts to engage youth in agribusiness to fight unemployment and to replicate the ENABLE Youth model in their country.

During the mission, the aspiring Agripreneurs, who made presentations of the Business Plan of their pilot project, also took the opportunity to interview the Gambians. The visitors

were impressed by the quality of the work done. The aspiring Agripreneurs received a lot of encouragement from the visitors for their seriousness and resilience.

The study tour ended with a firm resolve from the Gambian delegation to continue to work with ENABLE Youth Cameroon and IITA in finalizing a program that will engage Gambian youth in agribusiness.



Top: Delegates from The Gambia during the guided tour.

Bottom: ENABLE Youth Cameroon team and aspiring Agripreneurs with delegates from The Gambia.