



Green pepper to the rescue of African bananas



Tripathi points to a diseased banana leaf

In a major breakthrough, crop scientists have successfully transferred genes from green pepper to banana that enable the crop to resist the Banana Xanthomonas Wilt (BXW), one of the most devastating diseases of banana in the Great Lakes region of Africa that causes about half a billion dollars worth of damage yearly. The researchers

are poised to begin confined field trials in Uganda soon.

The transformed bananas, infused with plant ferredoxin-like amphipathic protein (Pflp) or hypersensitive response-assisting protein (Hrap) from green pepper, have shown a strong resistance to BXW in the laboratory and screenhouses. Some of the

findings of the research have been published in the *Molecular Plant Pathology Journal*.

Scientists from IITA and the National Agricultural Research Organization (NARO) of Uganda, in partnership with the African Agricultural Technology Foundation (AATF), would soon be evaluating these promising resistant lines under confined field trials after the Ugandan National Biosafety Committee recently approved the conduct of the tests.

Leena Tripathi, IITA biotechnologist and the lead author of the paper, says that although there is still a long way to go before the transgenic banana find their way onto farmers' fields, this breakthrough is a significant step in the fight against the deadly banana disease.

"The Hrap and Pflp genes work by rapidly killing the cells that come into contact with the disease-spreading bacteria, essentially blocking it from spreading any further. Hopefully, this will boost the arsenal

available to fight BXW and help save the livelihoods of millions of farmers in the Great Lakes region," she said.

"Furthermore, the mechanism—known as hypersensitivity response—also activates the defense of surrounding and even distant uninfected banana plants leading to a systemic acquired resistance," she adds.

Regional bloc gives thumbs up to IITA-CFC

Country coordinators working under the Cassava Value Chain Development in Nigeria, Sierra Leone, and the Republic of Benin have commended the Netherlands-based Common Fund for Commodities for initiating and funding the activities of the project.

They also praised IITA for successfully implementing the project, which is turning around the fortunes of cassava farmers in the region.

The coordinators expressed their views in separate interviews during a country exchange meeting in the Republic of Benin last week.

The meeting offered participants the opportunity to take stock and share experiences.

Sahr Fomba, the Country Coordinator for Sierra Leone, says the project's attention to small- and medium-scale farmers is having a positive impact on cassava in general in Sierra Leone.

"Already the model of setting up the processing centers has become a reference point and other partners want to adopt the

same approach," he added.

Consumed by more than 600 million people in the developing countries, cassava became prominent in Sierra Leone during the civil war that displaced thousands.

Fomba said farmers now have more hygienic cassava products such as *gari* and cassava bread that are widely consumed in Sierra Leone.

Mrs. Omololu Ope-Ewe, the Country Coordinator for Nigeria, said the project was adding value to cassava and opening new markets for cassava products.

"One of the centers is now processing odorless *fufu* from cassava—a product that is in high demand," she said.

"To us in Nigeria, the project is timely and



Women enjoy the benefit of better frying of gari, thanks to CFC

we are glad CFC invested in Nigeria," she added.

For Davo Agbewonu, Country Coordinator for the Republic of Benin, the project serves a "reference point for other donors in the country." "This is because of the positive impact it is already having on the communities," he said.

Japan calls for more attention to research in root and tuber crops

The Japanese government has called for more action from partners to support yam research.

The Japanese Ambassador to Nigeria, Toshitsugu Uesawa, who was represented by Shigeru Hamano at the commissioning of Japan-assisted projects in IITA-Abuja said, that the attention was necessary to prevent the threats of food crises in Africa.

According to him, "root and tuber crops provide a veritable cushion in times of food crises in Africa and tapping the potential of these crops will result in high payoffs in the region."

He also lauded IITA for its cutting-edge research on root and tuber crops, which has produced several innovative outputs such as the propagation of yam through vine cuttings.

Uesawa said, "IITA's efforts have contributed towards sustainable development of agriculture in the developing countries."

He emphasized that the institute's research efforts were consequently contributing to reducing poverty, increasing food production, and also improving livelihoods in rural communities.

Part of the facilities commissioned by the Japanese envoy included a root and tuber processing center with processing machines, soil preparation shade, and a screen house.

The projects were financed at a cost of over US\$82,000 from the Japanese Grass Roots Project, which aims to improve the livelihoods of rural people.

Hidehiko Kikuno, IITA Yam Physiologist, called on farmers to tap the available agricultural innovations from IITA and



Left: Hamano, representing the Japanese Ambassador to Nigeria, inaugurates a root and tuber processing center and other projects in the IITA station in Abuja

also to maximize the use of the facilities.

Representatives of farmers' groups and policy makers lauded the Japanese government for the support.

Beatrice Aighewi of the Department of Crop Science, University of Abuja, said IITA Abuja was strategic especially

for capacity building of students in universities around the north central zone and farmers.

She said the facility would be used for teaching and research, adding that "it would in the long run improve the fortunes of Nigeria's agriculture."

...supports cowpea research in Burkina Faso



Ishikawa

The Ministry of Agriculture, Forestry and Fishery (MAFF) of Japan has provided funding support to an IITA-led project to boost cowpea research in Burkina Faso.

Specifically, the support aims to enhance the dissemination of Appropriate Variety of Early-maturing Cowpea for Burkina Faso (AVEC-BF).

The project also supports IITA cowpea breeding activities to develop new appropriate lines for various African countries.

In 2009, farmers in Burkina Faso, Niger, Chad, and Mali experienced short rainy season and crop failure, leading to a steep decline in agricultural production.

The situation appears to be repeating itself as scientists observed a cautious planting by farmers this year due to unstable rainfall patterns.

Satoru Muranaka, IITA Scientist, says the early maturing cowpea lines developed by IITA matures within 60-70 days and avoids serious drought stress during the late-growing season.

"We believe that the introduction of appropriate early maturing varieties will provide farmers with a new avenue to tackle this constraint and stabilize cowpea production in the region," he adds.

The project welcomes Haruki Ishikawa, a Postdoctoral Scientist and Cowpea Agronomist, on board.

Ishikawa had earlier worked at Ishinomaki Senshu University, and the Photodynamics Research Center of the Institute of Physical and Chemical Research (RIKEN) in Japan.

He will work in Burkina Faso for the AVEC-BF project collaborating with INERA scientists.