



Banana plants showing typical symptoms of BBTB in a farmer's field during a surveillance and eradication workshop. Photo: IITA/George Mahuku

Banana bunchy top virus wreaks havoc in Tanzania

By Zuwena Shame

MATHAYO, a 65-year-old banana farmer in Tanzania's Buhigwe District relies on banana farming for income to cater to his family's daily needs.

He is a father of 10 children and grandfather of 11, some of whom he managed to take them to school through banana farming.

Last year was a bad one for him after his crop was destroyed by the banana bunchy top virus (BBTV), which significantly impacted his finances.

Mathayo is one of thousands of victims of BBTV, which causes banana bunchy top disease (BBTD), which has recently become a threat to many farmers who grow banana as a cash crop in Tanzania.

In Africa, BBTV was first reported in Democratic Republic of Congo in the 1960s and the disease has since spread across continent wherever banana is grown. BBTV was reported for the first time in Tanzania and Uganda in 2020 and 2021 respectively. This threaten global banana production as Africa contributes approximately 22 percent of global bananas production, with the majority being consumed locally. Africa is also a key location for secondary genetic diversity of East African Highland bananas and plantains.

Despite being a model farmer in his district due to his success in banana farming, Mathayo found it difficult controlling BBTV.

When the virus first attacked, he didn't know what it was at all. He began noticing his banana plants wilting, one

by one, so he decided to uproot and burn the affected plants.

"The immediate action I took was to remove those plants and burn them. I didn't know what the problem was. Unfortunately, this didn't help because the disease pathogens were still present in the field, and more banana plants became infected," Mathayo said, adding that he couldn't keep track of how many of his 180 banana plants were affected by BBTV on his one-and-a-half-acre farm.

Although he is still facing the BBTV challenge, Mathayo has been actively encouraging his fellow farmers who are experiencing similar issues to seek help from agricultural researchers to find out if there is a cure.



Trainees in a group work during a previous training that aimed to combat banana bunchy top disease (BBTD) that has emerged as a significant threat to banana crops in East Africa. Photo Credit: IITA

Siza Mashilungu, 60, is yet another victim of BBTv for more than a year now. Mashilungu said that since the virus attacked his farm in Mwanza, one of the regions most affected by BBTv, things have never been the same again economically.

"At first, I thought it might be the soil, so I added more soil and fertiliser. But I later realised it was something else when I saw the plants continuing to wilt, eventually producing very small bananas, and some of them died," said Mashilungu.

He said that after noticing his banana plants deteriorating, he began uprooting and discarding them until researchers came to investigate and provided education about BBTv in the village.

"Initially, the district extension officers would come and look, but they didn't know what the problem was. Eventually, researchers came and informed us that there was a disease attacking banana plants and other crops, and they took samples for further investigation. When results came back, it was confirmed to be BBTv," Mashilungu, who has started sustaining growing alternative crops like maize, cotton, and sunflower.

Mpoki Shimwela, the Centre Manager-Makuru and National Coordinator Banana Research at Tanzania Agriculture Research Institute (TARI), said that BBTv, caused by BBTv, is the most economically important viral disease.

The disease causes severe stunting and yield losses of 90-100 percent in banana crop.

Shimwela said that in Tanzania, the BBTv was first reported in 2020 in Kigoma region and is being caused by BBTv of genus Babuviridae.

It is characterised by dwarfed leaves, chlorosis of leaf margins, narrow upright leaves and bunched.

Infected plants produce no fruits or a few twisted, deformed fingers and the plant may eventually die and it's primarily disseminated through vegetative propagules, including the suckers, corms, and tissue-cultured plants (if no virus indexing performed).

"The virus is vectored by a banana aphid in which it is persistent and transmitted in a circulative manner. With these modes of transmission, the disease is spreading at an alarming rate to other places in Tanzania causing up to 100 percent losses," said Shimwela.

Tanzania Plant Health and Pesticides Authority (TPHPA) Chief Agriculture Officer and Researcher Hamad Lyimo said that BBTv has now been identified in all seven major banana growing regions of Tanzania in just 18 months after it was first reported.

The regions include Kilimanjaro, Mbeya, Morogoro, Mwanza, Dar es Salaam, Kigoma, Dodoma, Rukwa and Katavi.

"The disease is widespread. Yield losses of up to 100 percent have been reported in Kigoma region. This highly impacts farmer's food security and livelihood. To date there is no resistant banana cultivars have been identified, therefore cultural practices are the only way to control the disease spread," said Lyimo.

The Tanzanian government, through TPHPA, has already conducted a nationwide survey to identify areas affected by the disease, and the next step is to find ways to effectively control it by providing education through documentaries in various parts of the Tanzania.

Lyimo attributes the spread to the habit of Tanzanians sharing seeds from one region to another.

"We have started with public awareness as a way to eradicate this disease in the most affected regions. By the end of this year, we expect to distribute innovative seeds to farmers, these seeds are derived from tissue culture and have been certified as disease-resistant, including BBTv," he added.