



“Study tour for small holder farmers to learn about Banana Bunchy Top Virus disease to strengthen their preparedness to prevent introduction and spread of the disease into new areas in Uganda”:

Field Report: 3rd – 4th October 2024 in Kasese district

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Acronyms and Abbreviations

ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BBTD	Banana Bunchy Top Disease
BBTV	Banana Bunchy Top Virus
CAO	Chief Administrative Officer
DRC	Democratic Republic of Congo
DAO	District Agricultural Officer
DLG	District Local Government
ESA	Eastern and Southern African
IITA	International Institute of Tropical Agriculture
LA	Learning Alliance
LC	Local Council
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
NARS	National Agricultural Research Systems
NaCORI	National Crop Resources Research Institute
UU	Ukama Ustawi

Executive Summary

Banana Bunchy Top Disease (BBTD) poses a significant threat to banana production and food security in Uganda, particularly in the Kasese district. The disease, caused by the Banana Bunchy Top Virus (BBTV), has already affected over 90% of banana plantations in Bukonzo County West, resulting in devastating yield losses and economic hardship. To combat BBTD, the International Institute of Tropical Agriculture (IITA), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), and the Plant Health Initiative collaborated through the Ukama Ustawi Learning Alliance Framework.

A stakeholder learning visit was organized to facilitate knowledge sharing between farmers from BBTD-affected and unaffected districts. The event brought together 63 stakeholders, including farmers, extension agents, policymakers, and media personalities. Participants gained practical insights into BBTD's destructive impact, learned symptom identification, disease management strategies, virus transmission modes, and prevention measures.

Key outcomes of the learning visit included increased knowledge and awareness of BBTD, strengthened networking and collaboration among stakeholders, and enhanced preparedness to tackle the disease. Farmers pledged to be vigilant, prioritize disease management and control, and educate fellow farmers about BBTD.

The report highlights key next steps, including enhanced vigilance, awareness and education, disease management, by-law enforcement, capacity building, regional coordination, and knowledge sharing. Partners, including IITA, MAAIF, ASARECA, and NARO, committed to supporting smallholder farmers and ensuring food security through sustainable agricultural practices.

The learning visit demonstrates the power of partnerships and the Ukama Ustawi initiative in empowering farmers to combat BBTD and sustain banana production. Future initiatives should build upon these gains to mitigate the disease's impacts on banana production and livelihoods.

1 Background

Bananas (and plantain) are staple foods and income source for millions of households in Uganda with over 70% produced and consumed either cooked or as dessert. For Kasese district, banana production is a lifeline for many smallholder farmers. However, Banana Bunchy Top Disease (BBTD) poses a significant threat to their livelihoods, causing devastating yield losses, economic hardship and endangering the diversity of the varieties they grow which could eventually result in food insecurity.

In Uganda, BBTV is present in districts in the West Nile region and Kasese district, in Western Uganda, which share borders with the Democratic Republic of Congo (DRC), where the virus has existed for over 60 years. The BBTV incursion into Uganda appears to have spread through the inadvertent introduction of contaminated planting material through cross-border trade and exchanges. The high banana-producing districts in Uganda, such as Mbale, Fort Portal, and Mbarara, that are adjacent to the Kasese and West Nile also face a high risk of virus incursion. If BBTV were to spread to the major banana-producing regions in the country, it could destroy banana-dependent livelihoods and seriously impact food security.

According to Dr. Julius Rukara, the District Agricultural Officer (DAO) of Kasese, about 90% of the banana plantations in the eight sub-counties of Bukonzo County West, in Kasese district are affected by BBTV.

The disease causes virus-infected plants to become dwarfed and have a bunched appearance. Plants infected at early stages do not produce fruit, resulting in a total yield loss. Plants infected at later stages may produce deformed fruits, but shoots that emerge subsequently do not produce fruit, leading to a 100% production loss. Banana Bunchy Top Virus can result in annual production losses worth US\$200 to 600 million in Africa and is classified as an A1 quarantine pathogen and one of the top 100 worst invasive alien species.

To combat Banana Bunchy Top Disease (BBTD), IITA, MAAIF, ASARECA, and Plant Health Initiative collaborated through Ukama Ustawi's Learning Alliance Framework. A stakeholder learning visit aimed at facilitating knowledge sharing between farmers from BBTD-affected Kasese district and unaffected districts (Bushenyi, Rubirizi, Bunyangabu). Participants were expected to gain practical insights into BBTD's destructive impact, learn symptom identification, disease management strategies, virus transmission modes, and prevention measures. This exchange also aimed to enhance preparedness, mitigate risks, and safeguard banana-dependent livelihoods.

Ukama Ustawi (UU) is a CGIAR-led initiative (IWMI, IITA, ILRI) aimed at supporting climate-resilient agriculture and livelihoods in 12 Eastern and Southern African (ESA) countries: Eswatini, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. The Learning Alliance (LA) is a vital component of the UU initiative, as it supports learning about diversified farming systems and innovation. It is a demand-led, collaborative knowledge-sharing network established in ESA between CGIAR, CCARDESA, and ASARECA.

This learning event will contribute to CAADP-XP4 partner's priority on systematic knowledge-sharing and learning across the continent. This activity is implemented by the CGIAR Regional Integrated Initiative, Ukama Ustawi (UU), and the CGIAR Plant Health Initiative in collaboration with ASARECA, CCARDESA, FARA, and AKADEMIYA2063 under a Learning Alliance framework to foster the exchange of information and experiences, enabling farmers to learn from other farmers as a way of scaling up the most impactful practices.

1.1 Overall Objective

The overall objective was to organize and conduct a study tour (within the framework of the Ukama Ustawi Learning Alliance) to foster farmer-to-farmer knowledge sharing about BBTV, enhance preparedness of farmers in disease-free districts that are at high risk of disease introduction to enhance their preparedness to prevent the introduction and spread of the disease into new areas in Uganda.

1.1.1 Specific objectives

- Sensitize stakeholders about the devastating effects of BBTV disease on banana yields, food security, and livelihoods.
- Provide a platform for stakeholders (farmers, NARES, policymakers, etc.) to share knowledge and experiences and foster cross-learning to enhance awareness, knowledge, and preparedness to tackle the invasive BBTV.
- Showcase best practices, innovations, and success stories of BBTV management by farmers.
- Identify best practices and lessons learned and ways to make the learning alliance more impactful.
- Enhance collaboration and coordination among researchers, AEAS workers, policymakers, and farmers.

1.2 Expected Outcomes

1. Increased knowledge, awareness, and actions needed to prevent the introduction and spread of BBTV.
2. Strengthened networking, collaboration, learning, and coordination among banana stakeholders in Uganda.
3. Increased preparedness to tackle BBTV in Uganda's major banana-producing regions.
4. Increased visibility and recognition of the impact of the emerging BBTV for the selected champions and their organizations.
5. Increased exposure to farmer-friendly strategies for eradicating virus-infected plants.
6. Increased knowledge and adoption of control measures and best practices.
7. Strengthened capacities of farmers, extension officers, and local government authorities in identifying BBTV disease symptoms directly from the field.
8. Enhanced skills of stakeholders in recognizing infected plants and effective disease management practices through peer-to-peer learning.
9. Increased understanding of the mechanisms of disease spread and knowledge on preventive measures to minimize the risk of introduction and spread of the disease.

1.3 Methodology

The event employed a multifaceted approach, incorporating plenary presentations, farmer testimonials, field visits, hands-on training, group discussions and Q&A sessions.

1.4 Participants

The learning visit proved to be a valuable platform, bringing together a diverse group of 63 stakeholders, comprising 15 females and 48 males. Participants included smallholder farmers from Kasese, Bushenyi, Rubirizi, and Bunyangabu districts, as well as extension agents, Agricultural Officers and District Production Officers. Local policymakers, including the Chief Administrative Officer and Local Council V representatives, also attended. Media personalities from prominent Kasese-based organizations like TV West, Guide Radio FM, Messiah Radio FM, Light Radio FM, New Vision Newspapers, and NTV/Daily Monitor Television were present. Additionally, representatives from IITA, ASARECA, MAAIF, and NARO participated. Agricultural officers facilitated the field visits, supported by technical experts from IITA, NARO, and MAAIF.

For a comprehensive overview of attendees, please refer to [Annex 1: Participants List](#).



Picture 1. Group Photo at the Kasese–DRC Border. In the background is the Democratic Republic of Congo (DRC) where BBTV has been present since the 1960s. The river is what separates DRC from Uganda. People have families on either side of the border and cross uncontrolled.

2 The Learning Visit

From 3rd to 4th October 2024, the stakeholders, including 41 smallholder farmers from the districts of Bushenyi, Rubirizi, Bunyangabu and Kasese districts, gathered in Kasese district for a comprehensive 2-day learning experience about the emerging BBTVD caused by the invasive Banana Bunchy Top Virus (BBTV). Field demonstrations on disease identification, sanitation, and control measures, farmer-to-farmer sharing of experiences and successes, expert presentations on BBTVD biology, symptoms, and management, and interactive sessions on integrated pest management (IPM) strategies, equipped farmers with knowledge on BBTVD symptoms and transmission, how to recognise infected plants, the importance of early detection and removal of infected plants, disease prevention and management strategies and knowledge on clean planting materials. Farmers from Bushenyi, Rubirizi, Bunyangabu were also able to witness and appreciate the impact of BBTVD through experience from farmers in Kasese.

2.1 Field Visit

On Thursday 3rd October 2024, the team visited five farmers from Kasese district to gain insight into their experience dealing with BBTVD, through observing disease symptoms, demonstration of management practices, and listening to farmer testimonies. One of the farmers visited; Mr. Bwambale Anatosi, from Karambi Sub County was the first to discover BBTVD on his 8-acre banana plantation in 2021. He reported to researchers from MAAIF who took samples and confirmed the presence of BBTVD on his farm. Prior to infection, Mr. Anatosi supplied bananas to three schools, generating UGX 1 million weekly. Despite implementing management practices, production plummeted, forcing him to abandon banana farming for cocoa.



Picture 2. Experience Sharing: Mr. Anatasi Bwabale, a Local Farmer, Offers Valuable Insights

“I tried everything, clearing infected plants, replanting with new suckers, sanitizing farm equipment, and following management practices. Yet, the plants remained stunted,” he said, recounting the challenges of managing the disease before abandoning banana production and switching to cocoa farming. “Cocoa is only a cash crop but with bananas, I used to get both money and food”, added Mr. Anatasi with a lot of frustration.

management practices to control Banana Bunchy Top Virus (BBTV) in the church farm. Despite utilizing clean planting materials from reputable sources and tissue culture labs, and uprooting infected plants, the disease persists. Demonstrating BBTV-infected plant removal, Mr. Mughendabeyi emphasized adhering to specific guidelines: wearing protective clothing, disinfecting tools with bleach/70% ethanol, cutting infected plants at soil level, minimizing sap spillage careful uprooting, chopping and treating infected plants with detergent, decontaminating tools and soil, replacing with disease-free materials, monitoring adjacent plants, implementing integrated pest management and reporting outbreaks to local authorities.

The team also visited three farmers from Mpondwe Lhuriha town council who shared frustration over futile control efforts, abandoning some plantations. Despite verge of despair, they prioritize rehabilitation for food and income. Key concerns include accessing affordable clean planting materials and technical support for disease management, demonstrating willingness to eradicate infected plants for new, disease-free ones.



Picture 3. Mr. Mughendabeyi, a farmer demonstrating how to uproot infected plants and chop them into small pieces

Mr. Bosco Mughendabeyi, farm manager of St. Joseph Roman Catholic Church in Kisolholho village, Karambi Sub County, showcased

During the visit, media engagement facilitated knowledge dissemination through interviews and video shoots. Media personalities queried stakeholders, including host farmers and local officials, focusing on BBTV's socio-economic impact, disease management practices and lessons learned. Farmers shared experiences, yield losses and adaptation strategies, while the District Agriculture Officer discussed project impacts, future planning and research initiatives. The technical team highlighted collaborative efforts between IITA, MAAIF and ASARECA, promoting good practices among smallholder farmers.

2.1.1 Expert insight

Dr. George Mahuku, IITA Plant Pathologist, emphasized the crucial need for regional collaboration to combat Banana Bunchy Top Virus (BBTV), noting, "BBTV does not respect borders, and the major way for virus spread is through movement of infected planting materials". "Cross-border cooperation, particularly with Democratic Republic of Congo, where BBTV has persisted since 1960, is vital to mitigate risks and control outbreaks". Ms. Blaise Amony, ASARECA's Program Officer for Partnerships and Capacity Development, reinforced the regional approach to combating Banana Bunchy Top Virus (BBTV), highlighting ASARECA's collaborative efforts with National Agricultural Research Systems (NARS) and international partners.



Picture 4. Dr. George Mahuku showing farmers the disease-causing aphid

Dr. Alex Barakye, NARO's Banana Research Program Head, stressed that effective management practices are crucial to controlling Banana Bunchy Top Virus (BBTV). Essential strategies encompass regular monitoring, early detection, proper disposal of infected materials and controlling banana aphids.



Picture 5. Dr. Julius Rukara sensitising farmers about BBTD symptoms while in the field

Extension officers in Kasese have been instrumental in educating farmers on the importance of early detection and good BBTV management practices. Dr. Julius Rukara, the District Agricultural Officer of Kasese said, "the project has greatly helped in tracking the disease and raising awareness across the district. We have used a variety of methods, including local radios and rallies to inform farmers in affected areas".

2.2 Conference Hall Session

On Friday, October 4, 2024, the farmer learning visit on Banana Bunchy Top Disease shifted to a conference setting, featuring expert presentations, speeches by local policymakers, including the Chief Administrative Officer and Local Council IV, and sharing learnings by farmers from Bushenyi, Rubirizi, and Bunyangabu districts. Additionally, communication and training materials were distributed to District Agricultural Officers for future use.

2.2.1 Remarks from Dr. Paul Mwabu, Commissioner MAAIF

Dr. Paul Mwambu, Commissioner of MAAIF, delivered encouraging remarks at the farmer learning visit event. Dr. Mwambu emphasized the significance of bananas in Uganda, representing livelihoods, culture, and economic stability, and expressed concern over the impact of Banana Bunchy Top Virus (BBTV) to banana production.

Key Takeaways from Dr. Mwambu's Remarks:

- **BBTV Threat:** The disease threatens banana production, affecting livelihoods, culture, and household income.
- **Prevention is Key:** BBTV is an incurable viral disease, making preventive measures crucial.
- **Collaborative Efforts:** Government, through MAAIF, IITA, NARO, and other partners, has taken measures to control BBTV spread.
- **Farmer Empowerment:** The farmer learning visit aimed to equip farmers with knowledge to prevent the disease.
- **Call to Action:** Dr. Mwambu urged participants, especially farmers, to remain vigilant in early detection and reporting.

Measures taken by government to Control BBTV Spread:

- **Technical Working Group:** Constituted to develop management strategies.
- **Quarantine:** Established for banana planting materials from the DRC.
- **Training:** Agricultural extension workers and district agricultural officers trained on BBTV management.
- **Surveillance:** Ongoing team surveillance in collaboration with Plant Village.

Dr. Mwambu concluded by thanking partners for their financial and technical support, emphasizing the importance of collective efforts in combating BBTV.

2.2.2 Remarks from Dr. Julius Rukara, District Agricultural Officer, Kasese

Dr. Julius Rukara, District Agricultural Officer of Kasese, welcomed participants from various capacities, highlighting Kasese's significance as one of Uganda's largest districts with 44 Lower Local Governments. He noted the challenges posed by the district's border with DRC. BBTV was first detected in May 2021 in Karambi sub-county, and thanks to the prompt reporting by business farmer, Mr. Anatosi.

Dr. Rukara emphasized the district's efforts to contain the disease, including sensitizing farmers to avoid using planting materials from affected sub-counties, and collaborating with MAAIF to develop bylaws for each sub-county. Three highly affected sub-counties - Karambi, Bwera, and Marondera Town Council - have already customized these bylaws, which await passage. Once implemented, task forces will be established at village, parish, and sub-county levels to survey and uproot infected plants, with disciplinary action taken against non-compliant farmers.

The severity of BBTV's impact on farmers was underscored by Dr. Rukara, citing instances of farmers abandoning their enterprises entirely or facing significant losses, necessitating immediate action.

2.2.3 Remarks from Ms. Kabughho Sharon, representative of the CAO, Kasese

Ms. Kabughho Sharon, representing the Chief Administrative Officer (CAO) of Kasese district, warmly welcomed participants to the event, acknowledging the significance of hosting the project in Kasese. With 98% of the population relying on agriculture, Sharon emphasized the devastating impact of Banana Bunchy Top Virus (BBTV) on livelihoods. She highlighted the vulnerability of sub-counties bordering the Democratic Republic of Congo (DRC), where porous borders facilitate the easy transfer of infected planting materials. This, coupled with familial ties across the border, poses significant challenges to food security and income generation.

Sharon expressed gratitude to IITA and MAAIF for their support and urged for intensified efforts to combat BBTV. To enhance control over planting materials, she requested the establishment of a clean planting material multiplication center in the district. Furthermore, she appealed to extension officers to broaden their sensitization efforts, targeting not only affected sub-counties but also non-affected areas. This comprehensive approach would help prevent the spread of BBTV and ensure the long-term sustainability of banana production in Kasese district.

Key Concerns and Recommendations:

- **Porosity of borders:** Easy transfer of infected planting materials from DRC

- Familial ties across borders: Challenges to food security and income generation
- Establishment of clean planting material multiplication center: To control planting materials
- Broadened sensitization efforts: Targeting affected and non-affected sub-counties
- Intensified efforts to combat BBTv: Collaboration between IITA, MAAIF, and local authorities

2.2.4 Remarks from Mr. Karim Kisémbó, representing the LC V Chairperson, Kasese district
 Karim Kisémbó warmly welcomed participants to Kasese district, highlighting its natural beauty, tourism potential, and unique administrative structure with 44 Lower Local Governments. Representing the LC V chairperson, Mr. Elphazi Buhindi, Karim acknowledged the challenge posed by the porous border with DRC. Despite this vulnerability, Kasese's strong leadership enables effective problem-solving. He expressed gratitude to development partners for selecting Kasese for intervention, facilitating farmer knowledge-sharing and solution-seeking. Karim praised the bottom-up approach, starting with field experiences to enhance food security and livelihoods in Uganda, crucial for addressing leadership challenges. He assured farmers that their questions would be addressed and emphasized the district's commitment to collaborating with partners to combat the disease, confident that together, they can achieve significant progress.

2.2.5 BBTv Epidemiology and Control

By Dr. George Mahuku – ([Link to the presentation](#))



Picture 6. Dr. George Mahuku presenting the BBTv Epidemiology and Control

BBTD Cause: Banana Bunchy Top Virus (BBTV) causes Banana Bunchy Top disease, primarily affecting members of Musaceae (bananas and wild relatives), Ensete, and select Zingiberales. Notably, most Musa varieties, excluding a few diploid exceptions, exhibit susceptibility to BBTV infection.

BBTV Status in Africa: Two events of BBTV introduction into Africa. The first in the 1920s was in Egypt and the second in the 1960s was in Kisangani, Democratic Republic of Congo (DRC). The spread observed in sub-

Saharan Africa is from the introduction in DRC, that has now spread to 17 African nations: Burundi, Cameroon, Central African Republic, Congo Republic, DRC, Gabon, Rwanda, Angola, Malawi, Mozambique, South Africa, Zambia, Benin, Nigeria, Togo, Uganda and Tanzania. Since 2010, seven countries - Benin, Nigeria, Mozambique, South Africa, Tanzania, Togo and Uganda - have reported outbreaks.

BBTV spread: The Banana Bunchy Top Virus (BBTV) spreads primarily through infected planting material. Once introduced into an area, secondary spread is through the banana aphid vectors, *Pentalonia nigronervosa* and *P. caladii*, that are ubiquitous where banana is cultivated.

BBTD Symptoms: BBTD symptoms vary depending on the banana variety and time of infection. Characteristic symptoms include dark green streaks on petioles and midribs, chlorotic leaf margins, severe stunting and narrowed leaves. Infected plants often appear bunchy, choked and stunted, producing no fruit. Disease symptoms are more pronounced on new leaves that emerge after infection.

What happens after virus infection? Following Banana Bunchy Top Virus (BBTV) infection, the virus systemically spreads throughout the plant. Newly emerged shoots exhibit stunted and bunchy growth, yielding zero fruit production. Older shoots, having emerged pre-infection, might produce fruit, depending on when infection occurred.

Bunchy top situation in sub-Saharan Africa: Sub-Saharan Africa faces devastating Banana Bunchy Top Disease (BBTD) consequences, with production plummeting drastically, from truckloads to mere bicycle loads. Estimated annual economic losses range from \$200 million to \$600 million

Bunchy top management options: Managing Banana Bunchy Top Disease requires integrated strategies. Curative measures include eliminating inoculum sources, eradicating infected mats, vector control and using virus-free materials. Preventive approaches encompass risk assessment, capacity building, controlled material movement, awareness campaigns, vigilance and routine surveillance.

Farmer practices influence BBTD epidemiology and spread: Farmer practices significantly impact Banana Bunchy Top Disease (BBTD) epidemiology and transmission. Approximately 95% of planting materials originate from local communities, facilitating virus spread through shared materials. Long-distance movement of infected materials, primarily by men, exacerbates introduction and dissemination within communities. Raising awareness about optimal seed sourcing and BBTV management is crucial.

Factors driving BBTV spread in Africa: The spread of Banana Bunchy Top Virus (BBTV) in Africa is fuelled by several factors, including inadequate awareness of early symptoms, high inoculum pressure in affected areas, reluctance toward total eradication, and limited access to clean planting materials. Ensuring availability of clean materials will most likely encourage farmers to participate in eradication of infected banana plants.

Control of BBTV: Effective control of Banana Bunchy Top Virus (BBTV) relies on integrated strategies, including mobile surveillance apps, rapid diagnostics (LAMP, RPA), eradication tools, targeted chemical controls (pesticides and herbicides) and provision of clean planting materials.

Bunchy top management options: Effective management of Banana Bunchy Top Disease necessitates sustained efforts. Strategies include eradicating infected mats within communities, replacing them with clean planting materials, and implementing rigorous monitoring and early removal of infected mats.

2.2.6 Use of clean planting materials

An exhibition by Nahia Kamutiima – Royal Plants and Nurseries



Picture 7. Ms. Nahia Kamutiima taking farmers through the tissue culture process and the importance of using clean planting materials.

In a hands-on exhibition, Nahia Kamutiima from Royal Plants and Nurseries emphasized the critical role of clean planting materials in preventing the spread of Banana Bunchy Top Disease. She introduced tissue culture technology, a method of cultivating plant cells, tissues, or organs in specially formulated nutrients, allowing for mass production of disease-free seedlings from a single plant. Nahia guided farmers through the tissue culture process, from initiation to planting, highlighting the importance of a well-indexed mother garden. Collaborating with government organizations like MAAIF, NARO, and NaCORI, Royal Plants and Nurseries develops high-quality, virus-free, bacteria-free, and disease-free seedlings. Nahia stressed the need to avoid infected seedlings, as viruses easily multiply, and underscored the specialized requirements for tissue culture, including laboratory equipment and technical expertise. She also discussed best practices for planting and maintaining banana plantations, emphasizing the importance of sourcing clean materials from reputable suppliers. By adopting tissue culture technology, banana growers can significantly reduce the risk of disease transmission, ensuring healthy and productive plantations.

2.2.7 Key Takeaways and Farmer Reflections

The farmer learning visit on Banana Bunchy Top Disease (BBTD) yielded valuable insights for participating farmers. Namara Catherine a farmer from Bunyangabu highlighted the importance of proper crop management to avoid misidentifying diseased crops. Ahimbisibwe Innocent, a farmer from Bushenyi emphasized reporting outbreaks promptly and following expert guidelines for uprooting and disposing of infected plants, as well as sourcing planting materials from disease-free areas.

Farmers pledged to sensitize their communities about BBTV. Kamundu Jockim from Kasese appealed to extension workers to continue awareness efforts, while Nuwamanya Anna K from Bushenyi, a leader in the

secretariate of Bushenyi production, committed to spreading awareness to prevent the disease's spread. Sabiiti David from Bunyangabo appreciated learning to identify symptoms, enabling him to report cases.

Participants thanked organizers and expressed gratitude for new knowledge. Baguma James Wilson from Bushenyi appreciated the government's concern and noted that BBTV's impact would be more significant in Bushenyi, where matooke is a staple food crop. He urged District Agricultural Officers to alert lower government levels to prevent the disease from spreading and emphasized the importance of bananas for food security and income. While Byaruhanga Abilo from Bunyangabo thanked NARO for promising banana planting materials. Farmers recognized the economic and food security importance of bananas and vowed to combat BBTV.

Agricultural officers reflected on their experiences. Kasingye Mubaraka from Rubirizi requested capacity building for extension workers and engagement with Local Council (LC) chairpersons, while Moses Murungi from Bunyangabu sought training and awareness-raising initiatives, including radio airtime. Among the other hand appreciated Dr. Mahuku George from IITA for pioneering BBTV awareness.

A keen observation was made regarding the aphid's behavior. A participating farmer noted that the aphid's existence is heavily influenced by environmental conditions, thriving in areas with similar characteristics. This insight led him to hypothesize that the aphid may struggle to survive in districts with distinct environmental conditions, such as Nsingiro, differing significantly from Kasese.

Euphrance Tumuboine, Assistant Commissioner at MAAIF, emphasized the need for easy and gender-sensitive solutions, noting challenges faced by female-headed households in uprooting infected plants.

Key takeaways included:

- Proper crop management and reporting outbreaks promptly
- Following expert guidelines for uprooting and disposing of infected plants
- Sensitizing communities about BBTV
- Recognizing symptoms and reporting cases
- Collaborating to combat the disease
- Need for gender-sensitive solutions

These reflections and learnings demonstrate the visit's impact on farmers' understanding and commitment to managing Banana Bunchy Top Disease.

2.3 The radio talk show

Link to the Radio Talk Show - <https://www.youtube.com/watch?v=Su7uEvmJD2Y>

On October 4, 2024, (6:00 – 7:00pm) the International Institute of Tropical Agriculture (IITA)-led team, comprising Dr. George Mahuku, Dr. Kutunga David, Dr. Julius Rukara, Ms. Blaise Amony, Ms. Euphrance Tumuboine, and Mr. Bosco Mughendabeyi (farmer), and communication experts Moureen Awori and Genevieve Apio convened for the live one-hour radio talk show 'Healthy Banana Harvest' on Kasese Guide Radio (KGR), aiming to educate smallholder farmers on effective Banana Bunchy Top Disease management and control strategies.

Kasese Guide Radio-Omusondolya (KGR), a Catholic Church initiative, is a Uganda Communications Commission (UCC) and Broadcasting Council-licensed broadcaster transmitting from Bunyaruguru's Kigabiro hills. With a diverse audience of over 5,000 listeners, KGR's signal spans 15 Western Ugandan districts, including Kabarole, Bunyangabu, Kamwenge, Kyenjonjo, Mubende, Kyegegwa, Ntoroko, Bundibungyo, Rubirizi, Shema, Mitoma, Kanungu, Rukungiri, Bushenyi, Kasese, and extends into Eastern Democratic Republic of Congo (DRC). Its global footprint expands through online streaming at www.kaseseguidradio.com and availability on the Afro Mobile App, ensuring unparalleled accessibility worldwide.



Picture 8. Expert Insights: Panelists Discuss Banana Bunchy Top Disease on Kasese Guide Radio-Omusondolya (KGR)

The introductory segment of the radio talk show on Banana Bunchy Top Disease featured David (MAAIF), Julius (Kasese DLG), and Blaise (ASARECA) discussing the problem statement, regional perspectives, and partnership engagements. Segment 2 shed light on the farmer's perspective, as farmer Mr. Bosco Mughendabeyi shared his personal experience with Banana Bunchy Top Disease management, recounting his initial encounter, the impact on his crop, and his replanting strategies, while also candidly discussing the challenges he overcame, offering invaluable insights and encouragement to listeners. During the Expert Insights segment Dr. George Mahuku together with experts; Dr. Julius Rukara and Ms Euhrance Tumuboine delivered a comprehensive overview of Banana Bunchy Top Disease, elucidating its causes, symptoms, modes of transmission, and devastating impact, while also sharing evidence-based management strategies. The 'Healthy Banana Harvest' radio talk show concluded with an interactive discussion segment, where the expert panel addressed listener questions, alleviated concerns, and provided conclusive guidance on Banana Bunchy Top Disease management, equipping smallholder farmers with practical solutions and actionable knowledge to safeguard their banana crops.

3 Impact and Next steps

The learning visit's impact is already being felt, with visiting farmers reporting improved knowledge and confidence in managing BBTD.

Following the farmer learning visit on Banana Bunchy Top Disease (BBTD) in Kasese, farmers pledged to be vigilant, particularly those from outside Kasese district, and take necessary action if symptoms are detected. They also committed to educating fellow farmers about BBTD and creating platforms to raise awareness about the disease's spread and control strategies. To combat the disease, farmers in Kasese vowed to prioritize disease management and control, including uprooting infected plants and exercising caution when handling planting materials.

3.1 Key Next Steps:

- **Enhanced Vigilance:** Farmers will monitor for BBTD symptoms, especially in unaffected districts.
- **Awareness and Education:** Farmers will sensitize others about BBTD and its control strategies.
- **Disease Management:** Farmers in Kasese will focus on managing and controlling the disease through uprooting infected plants and cautious handling of planting materials.
- **By law Enforcement:** Political leaders will work with law enforcement to enact and enforce by laws for preventing the movement of infected planting materials.
- **Capacity Building:** Partners (IITA, ASARECA, MAAIF) will train extension workers on BBTD, with a focus on district-level capacity building.
- **Regional Coordination:** IITA and ASARECA will coordinate regional efforts to manage and control BBTD in neighbouring countries.
- **Knowledge Sharing:** MAAIF will review IITA's information to update training materials for extension workers

On another hand, Dr. Alex Barekye, Head of the Banana Research Program at NARO, pledged to provide clean banana planting materials for the establishment of a demonstration garden at St. Joseph Kisolholho Roman Catholic Church farm, in Kasese with the aim to combat Banana Bunchy Top Disease (BBTD) in Kasese District. This initiative seeks to promote disease-free banana production and showcase best practices in BBTD management. The demonstration garden will serve as a model for local farmers, enabling them to adopt effective prevention and management strategies. Dr. Barekye emphasized NARO's commitment to supporting smallholder farmers and ensuring food security through sustainable agricultural practices.

4 Closing remarks

By Mr. Karim Kisémbó, the LC V chairperson, Kasese district

Mr. Karim Kisémbó, the LC V chairperson of Kasese district, wrapped up the workshop on Banana Bunchy Top Disease (BBTD) with heartfelt appreciation for all participants. He acknowledged that everyone now possesses valuable knowledge about BBTD and encouraged them to share it with others, essentially becoming ambassadors for the cause. Mr Kisémbó expressed gratitude to the presenters, emphasizing the crucial role they played in educating the participants. He then reaffirmed the district's unwavering commitment to combating BBTD, particularly in Bukonjo West Constituency, where the disease is currently concentrated. Mr Kisémbó stressed that innovative strategies are necessary to achieve their goals, signalling a proactive approach to tackling the disease.

By Ms. Euphrance Tumuboine, Assistant Commissioner MAAIF

Ms. Euphrance Tumuboine, graciously acknowledged participants from various capacities, expressing her honour to participate. She hoped farmers gained valuable insights, emphasizing the emotional impact of diseased plants on extension workers and farmers. Euphrance thanked donors through IITA, researchers, extension workers, and political leaders for their roles. Noting the distinction between farmers, gardeners, and growers, she encouraged information sharing. Updates on quarantine efforts included drafting circulars and bylaws. She appreciated regional research bodies and African Union's resource mobilization. Concluding, Euphrance urged NARO and MAAIF to review, update, and disseminate BBTV training materials, fostering a collaborative effort.

5 Conclusion

The farmer learning visit on Banana Bunchy Top Disease is a testament to the power of partnerships and the Ukama Ustawi (UU) CGIAR-led initiatives. It empowered farmers with vital knowledge and skills to combat this devastating disease to sustain banana production and improve livelihoods for farmers. The visit successfully achieved its objectives, fostering knowledge sharing, collaboration, and capacity building. Future initiatives should build upon these gains to mitigate Banana Bunchy Top Disease impacts on banana production and livelihoods.

6 Partnership and Support

The visit was supported in part by Ukama Ustawi (UU), Plant Health Initiative and the USDA-USAID combating BBTv in the East Africa region.

Partners: IITA (Lead), MAAIF, ASARECA, NARO and local government.



Picture 9. Farmers learn how to detect diseased plants

7 Annexes

7.1 Annex 1: Participants List

BBTV Farmer Learning Visit in Kasese Participants				
NO	Name	Organization	Title	Sex
1	Muhindo Moris	Kasese	Agric Officer/Karambi	M
2	Barigye Didas	Rubirizi	DAO	M
3	Baguma J Wilson	Bushenyi	Farmer	M
4	Tumuhimbise Allen	Bushenyi	Farmer	M
5	Nuwamanya Anna K	Bushenyi	Farmer	F
6	Byaruhanga Abilo	Bunyangabu	Farmer	M
7	Asiimwe Yusta	Bunyangabu	DPO	M
8	Kaberinde Jovia	Rubirizi	Farmer	F
9	Tusingwire Innocent	Rubirizi	Farmer	M
10	Nyangoma Moreen	Rubirizi	Farmer	F
11	Nicholus Kagurusya	Bushenyi	DAO	M
12	Lillian Agaba	Bushenyi	Farmer	F
13	Tumuhairwe Gift	Bushenyi	Farmer	F
14	Muganzi David	Bushenyi	Farmer	M
15	Muhindo Stephen	Kasese	Agric Officer/Mpondwe	M
16	Mwanguhya Tom	Bunyangabu	Farmer	M
17	Bagonza Christopher	Bunyangabu	Farmer	M
18	Murungi Moses	Bunyangabu	DAO	M
19	Julius Rukara	Kasese	DAO	M
20	Kapalaga Habib S	Rubirizi	Farmer	M
21	Katushabe Jane	Rubirizi	Farmer	F
22	Tumushabe Munaba	Rubirizi	Farmer	M
23	Kasingye Mubaraka	Rubirizi	Agric Officer	M
24	Joseph Kisawuzi	Plant Village	Field Officer	M
25	Namara Wilfred	Bushenyi	SAO	M
26	Ahimbisibwe Innocent	Bushenyi	Farmer	M
27	Mureezi G. Nareeba	Bushenyi	Farmer	M
28	Namara Catherine	Bunyangabu	Farmer	F
29	Murungi Vincent	Bunyangabu	Farmer	M
30	Sabiiti David	Bunyangabu	Farmer	M
31	Katushabe Syllivia	Rubirizi	Agric Officer	M
32	Bwambale Anatosi	Kasese	Farmer	M
33	Mughendabeyi Bosco	Kasese	Farmer	M
34	Wehamiah Thembo	Kasese		M
35	Kamundu Jockim	Kasese	Farmer	M
36	Kabugho Jane	Kasese	Farmer	F
37	Kahindo Deniz	Kasese	Farmer	M
38	Kabugho Sharon	Kasese	For CAO	F
39	Karim Ksembo	Kasese	For LC IV	M

BBTV Farmer Learning Visit in Kasese Participants				
NO	Name	Organization	Title	Sex
40	Muhanguzi Gilbert	TV West	Media Reporter	M
41	Mumbere Augustine	Guide FM	Media Reporter	M
42	Basighalla Goodluck	Messiah FM	Media Reporter	M
43	Kabugho Evelyn	Light FM	Media Reporter	F
44	Samuel Amanyire	New Vision	Media Reporter	M
45	Kaguta Joel	NTV/Daily Monitor	Media Reporter	M
46	Barekye Alex	NARO	Program lead	M
47	Kawuma Reagan	MAAIF	Communication	M
48	Blaise Amony	ASARECA	Program Officer	F
49	Rubango Godfrey	NARO	Driver	M
50	Genevieve Apio	ASARECA	Communication	F
51	Samuel Ochom	ASARECA	Driver - ASARECA	M
52	Egonu Emmanuel	ASARECA/Supplier	Videographer	M
53	Bashir M. Ahmed	ASARECA	Program Officer	M
54	David Kutunga	MAAIF	PAI	M
55	Ephrance Tumubeine	MAAIF	AC/P4Q	F
56	Okoth David	MAAIF	Driver	M
57	Paul Mwabu	MAAIF	Commissioner	M
58	Wandera Walter	MAAIF	Driver - Commissioner	M
59	Nahia Kamutiima K	Royal Plants and Nurseries	Agronomist	F
60	Joseph Kisawuzi	Plant Village	Field Officer	M
61	Moureen Awori	IITA	Communication	F
62	George Mahuku	IITA	Country Representative	M
63	Muzafaru Ssekamate	IITA	Driver	M
				15F 48M

7.2 Annex 2: Agenda

Day 1: Arrival: Wednesday 2 October 2024

Arrival by Kampala participants (ASARECA, IITA, MAAIF, NARO) as well as district stakeholders from Bushenyi, Rubirizi, Bunyangabu and Kasese)

Day 2: Thursday 3 October 2024

8:00-9:00 AM- Arrival and Registration

9:00-9:30 AM- Introductions and Welcome Remarks (ASARECA, IITA, MAAIF),

9:30-10:00 AM- Welcome Remarks and Official Opening of the Event (Kasese District Agricultural Officer)

10:30-11:00 AM- Group Photo + Break Tea

11: 00-11: 30 AM: Participants receive packed Lunch Snack

11:30-12:30 PM- Travel to the first banana field (s)

12:30-14:00 PM- Field visit 1: Study tour of the Farmers' fields affected by BBTD/BXW

- Statement on BBTD symptoms, effects and management
- Observing disease symptoms and management practices, Media interviews + Video shoots
- Farmer Testimonies (Talk by a Farmer affected by BBTD) + Q&A, Discussions
- Sensitization about BBTD's spread and impact on production, food security and livelihoods (IITA/MAAIF)

14:00-14:30PM- Field visit 2: Travel to the Farmers' fields using best management practices to control BBTD

14:30-16:00- Field visit 2: Study tour of the Farmers' fields using best practices and innovations to control BBTD

- Observing best practices and innovations in BBTV Management, Media interviews and video shoots

14:30-17:00- Travel back to Kasese Town (Hotel)

Day 2: Friday 4 October 2024

9: 00-11 AM: Sharing experiences and knowledge: Farmers, extension agents and researchers

- Group discussions: Farmers Lessons learned and ways to enhance the learning alliance

11:00-11:30 AM: Tea Break

11:30-1:00 PM: Presentation on BBTV prevention and control measures (IITA, MAAIF, Kasese District LG), Discussions, Q&A

1:00-2: 00 PM: Lunch break

2:00-3:00 PM: Presentation on Banana Bacterial wilt prevention and control measures (IITA, MAAIF, Kasese District LG), Discussions, Q&A

3:00-4:00 PM: Next Steps: Farmers, extension, DLG and Maaif

7: 00-8:30 PM Radio Talk show (MAAIF, IITA, DLG and PlantVillage and ASERECA)

Day 4: Saturday 5 October 2024: Departure of District participants

7.3 Annex 3: Event Highlights: Photo Collection

<https://www.flickr.com/photos/iita-media-library/albums/72177720321921310>

<https://www.flickr.com/photos/iita-media-library/albums/72177720321921310/page2>