



## **C3P BXW Brief:**

### **CRITICAL LESSONS LEARNT FROM BXW IN KAGERA REGION AND TARIME DISTRICT MARA REGION**

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#### **Background**

Over 700,000 farm households throughout Tanzania grow bananas for food and market. In the highlands of Kagera and Kilimanjaro over 70% of rural households grow bananas where banana is synonymous to food. In Kigoma, and Tanga over 35% of households grow bananas and a significant number of households in Mbeya, Arusha, Mara, Morogoro and Mwanza regions also cultivate this crop. Throughout Tanzania, banana producers are resource-poor peasants on relatively small farms. They produce bananas for their daily home consumption, although there is also an increasing trade in bananas for urban markets. Table (a) below shows the list of banana growing regions in Tanzania and table (b) represents SWOT analysis for bananas in Tanzania. Both tables are included in this brief to indicate which regions are threatened by BXW if it is not eradicated.

#### **(a). Description of banana production zones in Tanzania**

<b>Zone</b>	<b>Description</b>	<b>Regions</b>
I	Highland, high rainfall zone around Lake Victoria	Kagera, Mwanza, Mara and Kigoma
II	Highland, medium rainfall zone around mount Meru, Kilimanjaro and Usambara highlands	Arusha, Kilimanjaro and Tanga
III	Hot and humid lowland areas along the Indian ocean	Coast, Dar es Salaam and Morogoro
IV	Dry areas of central Tanzania	Singida, Dodoma, Iringa and Tabora
V	Southern highlands	Mbeya

#### **(b). An overview of threats and opportunities for Musa growing in the regions of Tanzania**

<b>Region</b>	<b>Strength</b>	<b>Weakness</b>	<b>Opportunities</b>	<b>Threat</b>
<b>Kagera</b>	1. Traditionally farmers are banana growers 2. Banana has many functions from food, cash and traditional uses	Few farmers keep livestock that is important for manure	1. Increased Local market demands around Kagera Sugar factory 2. Improved road to Dar es Salaam, Kampala, Kigali and Bujumbura	1. Outbreak of BXW 2. Nutrient leaching due to heavy rains
<b>Kilimanjaro</b>	1. Farmers are willing to expand banana plots 2. Fertile soils	Suitable banana producing areas are limited in the mountain slopes	Market from Kenya and good road to Dar es Salaam and Dodoma	Drought exacerbated by high competing horticultural crops

				for irrigation water
<b>Mbeya</b>	1. Fertile soils 2. Weather suitable for bananas	Little knowledge of banana production techniques	Good road to Dar es Salaam, and to other southern countries	Banana pests
<b>Kigoma</b>	Soils are rich in nutrients	Lack of banana production knowledge	Proximity to Burundi and influx of refugees created good market for bananas	Outbreak of BXW disease reported in some areas of Rwanda and DRC
<b>Arusha</b>	Areas along mountain slopes suitable for bananas with few pest problems	Lack of banana production knowledge	Market from Kenya and good road to Dar es Salaam and Dodoma	Fragmented land due to increased population, prolonged drought
<b>Tanga</b>	Many areas suitable for bananas	Lack of banana production knowledge	Closer and roads good to Dar es Salaam	
<b>Mara (Tarime highlands)</b>	Fertile soils	Lack of banana production knowledge	Closer to Kenya border	Outbreak of BXW
<b>Mwanza</b>	Farmers willing to produce bananas	Suitable areas for banana production is limited to Ukerewe Islands	Mining region with good market for bananas produced on islands with rainfall	Rains not well distributed for bananas
<b>Morogoro</b>	1. Soils are good with reasonable nutrients 2. Open land available for banana production expansion	Farmers have little banana production knowledge	Is central, closer to Dar es Salaam bananas can reach the international airport while fresh for export	Greater potential pest pressures

In Kagera region, bananas are used as food and source of income to about 70% of population. It plays the major role in cultural functions including payment of dowry, ritual gathering and all customary functions. Total area under banana production is 137,700 ha producing 1,150,000 metric tons of bananas annually. Farmers in Kagera make local beer and other banana composite products from bananas.

Bananas in Tarime are used as food for about 10% and source of income to about 85% of population in the banana growing highlands. Contribute to animal feed for 100% of banana growing households. Total area under banana production in Tarime is 1,020 ha producing 1,700 metric tons of bananas annually and farmers only cook and sell bananas, they do not have other post-harvest technologies.

### **BXW outbreak and area affected**

In Kagera region, BXW was confirmed in January 2006 in Muleba district, currently the outbreak is in Bukoba, Biharamulo and Karagwe. About 80,000 banana mats have been uprooted (app. 80 ha of bananas). In Tarime BXW confirmed in February 2007 and 600 mats of bananas have been uprooted. Considering that under normal circumstances each mat produce 2.5 bunches in one year, one bunch is sold on average of TZS 2500/=, affected banana mats in Kagera represents the loss of TZS 500,000,000/= (app. U \$ 396,825) in one year. While in Tarime the loss of TZS 3,750,000/= (app. U\$ 2976) has been realized in just one sub-village. With this big loss, eradication of BXW needs to be effected.

### **Responses**

#### **By district leaders**

All district leaders supported and participated in the campaign to eradicate the disease.

***By division, ward and village leaders***

When confirmed all local levels of leadership responded positively to the disease management recommendations and participated in the sensitization campaign and some attended the eradication activities. In addition, they planned for alternative crops and supplied victim farmers with maize seeds and cassava planting materials

**By farmers**

All farmers considered the disease a big threat to banana production and feel that they need collective efforts to eradicate it. Because of lack of knowledge about the disease associated it with the fusarium wilt that infects sweet banana cultivars it was found to be important to train them so that they can differentiate the two diseases. Farmers in collaboration with their leaders and agricultural experts in their area formed task forces and worked together communally so as all community members in the infected villages participated to uproot infected mats from one farmers plot to another. When it came to uprooting infected banana mats, some farmers were reluctant until when the community leaders in support with the district commissioner used forces like some of the reluctant farmers were held at police posts for 24 hours that is when everybody in the infected areas participated fully. However, this happened before farmers could be sensitized about the disease. Although researchers and extension staff explained in detail the symptoms and effects of the disease, some farmers could still associate BXW with fusarium wilt the disease that started in 1970s and farmers are still harvesting some bananas from unaffected varieties. After noting the damage caused by BXW, all farmers are uprooting infected banana mats before they are advised to uproot them. During BXW training, it was sometimes impossible to see infected mat in some villages.

Although there were free maize seeds and cassava cuttings, some farmers planted tomatoes while others planted sugarcane. Further investigations showed that those who planted sugarcane wanted to plant the crop with minimum labour demand in terms of weeding and other crop management. Sugarcane is a less valued crop, farmers planted them to ensure they have enough time to attend to other valuable crops (bananas and coffee) in their other unaffected plots.

Irrespective of all efforts to sensitize farmers, they still could not respond positively immediately to advises. There is need to further sensitize them to ensure they remove male buds immediately after the formation of last hand. Quarantine was not easy to reinforce especially with banana bunches that are sold outside Kagera region and those sold in the local markets for home use.

**External support**

**By Ministry of Agriculture Food and Cooperatives**

After the outbreak of the disease immediately the Ministry of Agriculture Food Security and Cooperative (MoAFC) supported agriculture extension staffs to participate in the campaign to eradicate the disease. Supported Plant Health Service staff to participate in the eradication campaign and provided some cassava and maize seeds to some households.

**By EG Consulting funded by DFID through CPP**

EG Consulting funded by DFID through CPP funded the first workshop to plan for eradication and/or management of BXW. This enabled the intensive census and scouting in all villages to assess the extent of spread of BXW in Kagera region. Also, this project trained some agricultural extension workers on BXW management and production of some leaflet that were used for sensitization of some farmers in Kagera region. This kind of the training has made some farmers beware of the disease. Because the training

involved the campaign to control the disease, farmers felt that BXW is their problem and if not controlled they are the victims of the situation. As a result they made their task force and supervised uprooting of infected banana mats.

### **By C3P**

C3P have trained five Tanzanians in Uganda on how to eradicate the disease under training of trainers program. The trained staffs were used in training of trainers (ToT) course arranged for division and district leaders for Kagera region. Also, another course for one agricultural extension staff from each divisions and one from district headquarters of Kagera region was selected to attend the course. C3P used Maruku Agricultural Research and Development Institute (MARDI) as a partner to execute BXW activities in collaboration with District Executive Directors of the districts infected with BXW. Since MARDI is well experience in training activities the already conducted trainings were very effective and useful. This approach will be repeated for Kigoma region.

C3P also trained three Tanzanians in Uganda on banana macro-propagation techniques of producing clean planting materials. One macro-propagator was established at MARDI, to serve villages around the station, progressive farmers in Kagera who can buy the produced banana planting materials and the facility will act as a prototype for training purposes. Taking in consideration the importance of bananas into Kagera community, farmers whose banana plots are affected by BXW, need to replant with clean banana materials. However, it is also established that one of the reason banana production is declining is lack of clean plant materials. By using of macro-propagation technique, farmers will be able to get clean plant materials and facilitate the efforts to remove inferior banana varieties. In addition some bananas are highly infected by fusarium wilt and succumb to banana weevil damage. Because farmers are not ready to leave their plots bare (without bananas) have been forced to replant their plots using suckers from their old plantations. This definitely resulted into pest resurgence. It is therefore planned to establish more macro-propagators to other villages and with some NGOs. Already MAYAWA in Bukoba, MALI in Muleba, RUDDO in Biharamulo and CHEMA in Karagwe have shown interest to construct macro-propagators. These will be trained on the management of macro-propagators by MARDI prior to establishing them.

C3P by using MARDI as partner has managed to make some BXW extension materials which will be multiplied for farmers and agricultural extension staff reference materials.

For Tarime district BXW identification and confirmation was possible through C3P. Immediately, C3P carried out sensitization to extension staff and the district leaders. Also, some farmers closer to BXW infected areas and the project is intending to further support BXW eradication activities in Tarime.

### **Challenges**

1. The disease outbreak is not easy to predict as it happened new outbreaks were noted in some villages away from the known diseased village
2. It was noted that the major means of BXW spread was through farm tools. This was associated to poor knowledge farmers had on the disease.
3. Sensitization is still a pre-requisite to control the disease. It is known that the bacterial causing the disease is a short living when out of host therefore easy to manage if recommendations are adhered to.

### **Lessons learnt**

#### **Use of Research Institutions**

1. C3P Tanzania find it is important to use National Agricultural Research Stations as core partners in implementing sensitization and awareness creation as in this institutes C3P can tap the expertise available like training, extension material production and different approaches of planting materials multiplication and dissemination to the beneficiaries. Following the outbreak of BXW in Uganda in

2001, NARO played an important role to announce its outbreak and assisting whoever was interested to know about the disease. In 2004 a team from Tanzania visited BXW affected areas in Uganda and was assisted to understand its effect, the possible control measures and that the disease is affecting all banana varieties. We are still working on experience gained from NARO Uganda.

2. Before the outbreak of BXW in Tanzania, farmers, local leaders and agriculture departments were advised not to take any action unless the disease is confirmed beyond doubt by experts who understand the disease. BXW confirmation was mandated to MARDI. By adhering to this advice, helped not to mistake the problem. Whenever BXW was confirmed, plans to eradicate the disease involved all banana stakeholders, local leaders and agriculture staff. Farmers meetings were convened, during the meeting, farmers made their resolutions on how to approach the disease eradication recommendations and specified on the actions to be taken to those who will fail to participate without concrete reasons. In Kagera region, village leaders in the BXW affected convened the meetings and invited senior policy leaders, researchers and agriculture extension staff to explain the situation. In one of the village 3 persons were held custody for 24 hours and the news went around that if anybody will not respond, the same would happen. Since then, there was no any further reluctance to participate to uprooting BXW affected banana mats.
3. Farmers will respond positively and work if they are convinced that they own the problem. The campaign to advise farmers uproot affected banana plants from their plots, did not involve any kind of remuneration. Farmers worked for free and planned their activities on their own, local leaders, researchers and agriculture extension staffs participated to monitor that farmers are not further spreading the disease to clean plots. Local government provided JIK, a chemical to sterilize farmers' tools after use. Later farmers could use fire to sterilize their tools on their own before going back to their homes. Cleaning of tools still needs further study so that farmers are given recommendations convenient to their situations. While writing this, we are not convinced that the leaning of tools is effectively done.
4. Use of local leaders especially the top political leaders (in this case District Commissioners (DCs), District Executive Directors (DEDs) and other levels of leaders down to sub-village leaders made farmers convinced that they need to eradicate the disease. This is somehow persuasion but if carefully done, it is felt as a normal campaign to eradicate the disease.
5. together with some forces used to persuade stubborn persons to uproot infected banana mats, during the campaigns farmers were told the expected disaster situation if the disease is not eradicated. Since they depend on bananas for their living, they decided to participate fully in the eradication work.
6. Farmers were sometimes given room to decide whether to uproot bananas from entire plot or uproot those already shown the symptoms. Majority decided to uproot those with symptoms but as others continued to show symptoms some decided to remove all bananas. However with keen removal of infected mats, some bananas remained clean and farmers continued harvesting some bunches from them
7. In some places it was noted that farmers feared laws more than BXW disease, this was evident from some farmers who could remove infected banana plots that have remained in their plots if they see any government vehicle passing by. However, extension messages were important that any method used. Farmers need to be convinced before they can act.
8. By using local task forces to follow up the disease, BXW have been eradicated from many banana plots.
9. TO ERADICATE BXW WE NEED TO ALLOW FARMERS OWN THE PROBLEM AND NOT BY MAKING IT A POLICY PROBLEM.

#### **Editorial**

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