

C3P

Crop Crisis Control Project

FIGHTING BANANA XANTHOMONAS WILT DISEASE IN RWANDA:

A Combination of FFW, Seed Fairs, Eradication, Training & Education

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Brief 8



Background

Banana is among the most important staple crops in Rwanda, a chronically food insecure country. Bananas occupy approximately 22% of cultivated land, second only to roots and tubers (25%). Ninety percent of bananas are consumed locally, and as incomes rise among rural households, banana consumption increases vis-à-vis alternative staples (sweet potato, potato, arrow root, cassava). The most infected banana mats are those that are used to produce banana beer, a predominantly woman led activity that provides substantial income to poor households.

In October 2005, Banana Xanthomonas Wilt (BXW) was found in two infected sites in Cyanzarwe sector, in Gisenyi Province - now Rubavu District; and in 2006 banana production actually decreased. Since then the disease has quickly propagated to all six Rubavu sectors. In 2005, the district began to address BXW through Umuganda, a national once-monthly community works effort, to uproot and bury infected trees. However, this proved ineffective, given the breadth of the disease and overwhelming reluctance by farmers to uproot their infected bananas.

Because of the importance of banana to food security in Rwanda and the menace BXW poses to the entire country and region, CRS in partnership with IITA was awarded USAID funding in 2006 for its Crop Crisis Control Project (C3P) to help address the increasing prevalence of the disease in Rwanda.

Like banana farmers in the other five countries in the C3P region (Burundi, DRC, Kenya, Tanzania and Uganda), Rwanda farmers were targeted to

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Banana are important as both cash and food crop for Rwandans. Ninety percent of the production is consumed locally. As incomes rise, banana consumption increases.

receive training in BXW management techniques. Given the concentration of BXW in primarily the Gisenyi area of northwest Rwanda (Rubavu District), in September 2006 a meeting was held between CRS, the Ministry of Agriculture, Rubavu district authorities and sector agronomists to define BXW activities and the role of Rubavu District within a BXW work plan. This meeting allowed various actors to better understand the disease and share detailed information on BXW expansion in Rubavu District. The CRS/Rwanda approach was to make sure that Rubavu District took the leadership for coordinating the eradication effort.

Through a competitive bidding process, Bureau d'Appui Aux Initiatives Rurales (BAIR), signed a contract with CRS in October 2006, to provide on-site BXW awareness raising and technical support to banana farmers for the various BXW eradication and management activities in Rubavu District.

Farmers showed reluctance to cut BXW infected banana plants. Previous attempts by the Government of Rwanda to undertake eradication efforts through Umuganda, the once monthly community works day, proved insufficient to limit the spread of the disease. Banana plants can be older than 20 years and farmers are reluctant to remove a sick plant.

CRS agreed to support eradication to diminish the prevalence of the disease in Rubavu District. Eradication in this district meant the systematic uprooting and burial of infected banana trees over approximately 400 hectares of land. This required intensive awareness raising and remedial measures to encourage farmers to uproot the mats on a large scale. Compensatory food security measures, the use of Food for Work (FFW), using rations from the World Food Program, created incentives for uprooting infected mats and helped alleviate short-term food insecurity of households and communities affected by BXW.

Toward a long-term solution

Seed Fairs

Fields of infected bananas cannot be replanted with clean banana material for at least six months after removal. After the district identified the most affected banana farmers, CRS and partners targeted these households to receive substitute planting material.

Between 11-18 September 2006, CRS/Rwanda, through technical assistance from CRS/Burundi, trained BAIR and district agronomists in conducting seed fairs using the CRS model. The seed fair objective was to increase access to substitute crops, especially maize and beans.

Four seed fairs were conducted. In Rubavu District, on 21-22 September 2006 and 6 -7 October 2006, over 11,917 kg of bean seed, 556.5 kg of maize seed, and 225 kg of pea seed were accessed by 1223 families who lost their banana plants due to BXW.

BXW Eradication

The complete uprooting of infected banana mats creates food insecurity among the poorest households, as they wait for the first harvest of their substitute crops. This problem in particular, combined with the overall reluctance of farmers to cut infected mats, justified the use of temporary FFW which had a double advantage of reducing short-term food insecurity within BXW affected households and the acceleration of the BXW eradication process.

CRS developed a proposal for the World Food Program to provide FFW rations and purchase tools, including shovels, picks and crowbars, for distribution to 1291 workers with infected banana plantations.

In October 2006, the population of Nyundo sector participated in the official launching of the WFP FFW eradication effort. To give weight to the importance of this effort, the Secretary General of the Ministry of Agriculture in Rwanda (MINAGRI), staff from USAID, WFP, CRS, Caritas, the Mayor of Rubavu District and other district authorities, attended the launch.



A C3P extension agent demonstrates the use of a fork to remove the male bud, the removal of which reduces the potential for BXW via insect transmission.

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Community members exchange views during a BXW sensitization meeting.



Children admire BXW sensitization posters during a mobile BXW campaign in Rubavu District.

CRS provided technical assistance to BAIR and sector agronomists to help organize FFW activities around 43 “team captains” to cover activities in six targeted sectors. In addition, six sector agronomists received training to ensure that team captains correctly registered participants, tracked work schedules and calculated food for work rations, as well as provided follow-up support on behalf of CRS.

By June 2007, around 1800 people from affected households were employed in FFW eradication efforts. Around 380.5 ha of the targeted 396 ha envisaged (90.9%) were uprooted. In addition, a total of 10.6 km² of hillsides was protected against erosion by planting soil-fixing grasses. Mrs. Venantia Uwizeyimana, a member of one of the work teams, lost bananas in 3/4 of her field due to BXW. She stated that she was

convinced of the importance of fighting and managing BXW. She later substituted her uprooted plot with sweet potatoes, and improved the food security of her household due to the FFW rations. Mrs. Uwizeyimana is representative of many other farmers affected by the disease who were able to purchase other substitute crops through savings wrought by FFW rations. The total kilos of FFW distributed among 1291 workers from October 2006 to June 2007 amounted to 193,650 kg of cereals, 96,850 kg of legumes and 13,335.2 kg of vegetable oil.

Information/Education/Communication

Collaborative training and education efforts to support correct BXW control methods among banana farmers included the use of media, workshops, and on-site technical assistance by Rubavu agronomists. National coordination of education and awareness raising efforts included the ongoing involvement of MINAGRI, Institut des Sciences Agronomique du Ruanda (ISAR) and CRS. MINAGRI and CRS collaborated in the broadcasting of national and local BXW radio spots. At the local level, raising awareness among the population to fight BXW became one of the priorities of Rubavu district.

BAIR, on its own accord, published several articles in local farmer newspapers and nation-wide dailies on eradication efforts in Rubavu. It also produced a 30-minute radio spot.

In June 2007, CRS, MINAGRI and ISAR organized a national trainers of trainers (TOT) course for 60 BXW extensionists from 12 Rwandan districts, including Rubavu, where banana cultivation is highest.

In collaboration with IITA and ISAR, CRS distributed 2500 posters, 800 calendars and 9000 pamphlets on BXW to the targeted districts. BAIR also participated in BXW trainings and exchange visits to Uganda, which helped to reinforce the farmers' knowledge of BXW, including how to identify its symptoms, vectors, effects on banana mats, and how to apply good practices aimed at diminishing the incidence of the pandemic. In particular, BAIR helped to assist farmers on how to disinfect tools and uproot and dispose infected mats.

Many Rubavu farmers are practising preventive farming techniques to fight BXW, such as the amputation of the male bud and the sterilization of tools.



Extension agents demonstrate the growth of BXW through the meristem of a banana plant.

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Community based BXW sensitization.

With multiple information streams to increase awareness of BXW and control methods, supported by Food For Work, and with increased access to substitute crops, many banana producers overcame their reluctance to participate in the eradication efforts, and encouraged others to do the same.

Lessons learned

Government Engagement is Critical to Success:

The BXW campaign in Rwanda was carried out with the assistance of many stakeholders, but local and

national government involvement is the most essential. At the national level, MINAGRI's involvement and participation in the national training is essential to ensure agronomist participation at the local level. Local government involvement, by the coordination and the participation of sector agronomists, helps to increase farmer participation.

Links to Research Institutes Provide Important Knowledge for Stakeholders:

Technical input and backstopping from IITA, BioVersity and ISAR was a successful determinant in the development of appropriate training curriculums, posters and brochures. Follow on research, and

continued technical backstopping is needed to assess the effectiveness of the information - education - communication activities and of eradication efforts in diminishing the spread of the disease.

Farmer Involvement Key To Sustainability:

Farmer involvement and adoption of BXW eradication efforts and control methods is essential. Efforts are needed to use farmer-to-farmer approaches to encourage more widespread BXW management, especially in the banana-growing districts that are not as affected as Rubavu, and to appreciate that there is a time lag between knowledge and behavior change. In this respect, more attention to understanding farmer constraints in dealing with BXW is necessary.

Local Partner with Local Knowledge, a Catalyst for Change:

Local partners are the catalyst to link together various stakeholders to serve farming communities.

Conclusions:

Systematic uprooting is one method for diminishing BXW prevalence, especially in large areas with a concentration of infected banana mats. Labor-intensive eradication and farmer reluctance to dig up their infected plants was mitigated by using seed fairs to provide substitute crops and Food For Work rations to alleviate short-term food insecurity and provide an incentive for participation.

While the overall impact of BXW was diminished through the information, education and eradication efforts in the targeted sectors, the disease has propagated in new sectors, especially Kanama, Gisenyi and Busasamana sectors of Rubavu and in the Kigeyo, Kivumu and Nyabirasi sectors of Rustiro districts. This brief provides an overview of C3P activities to address BXW and draws some lessons for practitioners.



Training group inspecting uprooted BXW infected banana plants.



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BXW transmission is highly correlated with commercial trade in bananas. Machetes used in harvesting banana bunches are the prime cause of BXW spread.