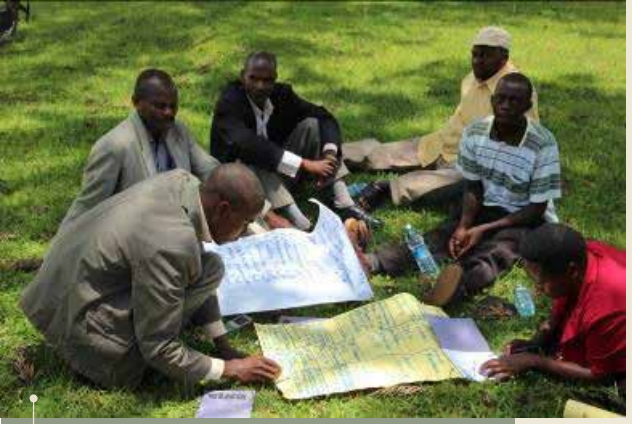
Pest & Disease Management:
BXW 2010-2015



Farmers map research and development activities

East Africa Community of Practice

Project Partners

REFSO

KARI

NARO

Bioversity International

Non-Governmental Organization

National Ag Research Center

International Ag Research Center

START HERE

Diagnosis

2010: A **baseline study** in benchmark sites in Uganda (n=350) and Kenya (n=52) to determine farmer awareness of Banana Xanthomonas Wilt (BXW), a **fungal disease** that attacks 70% of banana production in these areas, and its management revealed that:

- Most farmers (>90%) were **aware** of the disease and its symptoms
- More than 50% were aware of the recommended **control measures**.Subsistence farmers were constrained by lack of knowledge and resources including **labor** to effectively apply AEI practices, particularly households that sell their labour off farm. Semi-commercial farmers were motivated to seek and access knowledge and used their **agricultural incomes** to marshal resources such as labour to apply AEI. **Few farmers use pesticides and mineral fertilizer** due to cost and availability. Use of mulch, manure and fallow is limited due to population pressure.
- Farmers obtain **information from multiple sources** (sometimes with conflicting messages), **farmer-to-farmer** interaction was the main source of information on the disease, suggesting the key role **rural social networks** play in managing the disease.
- **Clean planting material** is one of the least practiced of the recommended cultural control measures as more than 90% of the banana farmers rely on banana suckers from the informal seed system..
- Xanthomonas Wilt has greatly affected the production of **beer-bananas;** with declines of 65% in two of the sites. This is due to some farmers abandoning production and shifting to other enterprises partly due to BXW, and **lack of profitability.**

Contextualization

Capacity strengthening/ extension

Farmers who get **training** on BXW management **adopt** 2 or 3 control methods compared to those who do not get training who adopt no more than one. LEAFF **(locally controlled monitoring network)** farmers were observed to adopt at least two recommended practices (single stem removal and debudding). **Awareness** of the disease and control practices among LEAFF farmers is currently higher (90%) than it was at project start (50-70%)

Incentivize, support & reinforce farmer participation to ensure responsiveness to farmers' needs, knowledge, problems, concerns & constraints.

Develop research technologies

The project imported banana germplasm with **neuter flowers that resist BXW**. The germplasm also has high **Vitamin A** content.

Multi-dimensional outcomes

Test and refine management options with farmers

Many banana farms have established **tissue culture hardening nurseries,** this has improved CPM availability and helped streamline banana **seed systems** in Ugunda.

Develop and harness formal and informal networks

12 **Farmer Field Schools** reached 300-480 farmers **directly** and over 4000 farmers **indirectly.**

Develop research technologies

A **field detection tool** for detection of BXW using a polyclonal antibody raised in rabbits has been developed. Detection has been successfully shown in standard ELISA formats and as a lateral flow device (LFD)

Stable reduction of disease incidence

2014: BXW had done from 70% **incidence** in year 1 to -20-5% by the end of year 2.

LEGEND:

Results

CCRP Principles

COLLABORATIVE CROP RESEARCH PROGRAM

THE McKNIGHT FOUNDATION