Pest & Disease Management: BXW 2010-2015

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 Uganda.

Develop and harness formal and informal networks

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

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%).

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.

Stable reduction of disease incidence

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

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)

Contextualization

East Africa Community of Practice

- Multi-dimensional outcomes
- Incentivize, support & reinforce farmer participation to ensure responsiveness to farmers’ needs, knowledge, problems, concerns & constraints.

Project Partners

- REFSO
- KARI
- NARO
- Bioversity International
- Non-Governmental Organization
- International Ag Research Center
- National Ag Research Center

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