

**MORE ABOUT FOOD SYSTEM TRANSFORMATION PATHWAY - PARALLEL SESSION:  
TRANSFORMATIVE PATHWAYS TO UPSCALING BANANA XANTHOMONAS WILT DISEASE  
MANAGEMENT IN CENTRAL AFRICA**

### Organization

The case will be introduced by Mr Boudy van Schagen (Bioversity International, CGIAR), followed by three pitches to illustrate diverse dimensions:

- Evidence based decision-making/ data-driven (Mr Murat Sartas – IITA/WUR)
- Trade-offs and synergies (Dr Godfrey Taulya - IITA)
- Governance of scaling processes (partnership) (Dr Marc Schut – IITA/WUR)

General facilitation: Prof Cees Leeuwis (WUR)

### Description of the case

Banana *Xanthomonas* Wilt (BXW) disease, caused by bacterium *Xanthomonas campestris* pv. *Musacearum* is affecting banana and plantain production in all major banana regions in East and Central Africa (Tripathi et al., 2009). Disease transmission occurs via airborne (insect) vectors, browsing animals, contaminated farm tools, and infected planting material (Tripathi & Tripathi, 2009). All banana varieties are susceptible to BXW.

Banana-based farming systems are the main source of livelihood for a significant proportion of farmers in Central Africa (Nkuba et al. 2015) and production losses affect not only income security, but also household food and nutrition security. A novel control option is Single Diseased Stem Removal (SDSR) which does not require farmers to uproot their complete banana mat. Research shows that SDSR can bring down plant disease incidence from 80% to 2% in less than 3 months (Blomme et al., 2017). The technique is low-cost, simple and easily applicable, providing incentives for uptake.

Scaling SDSR is one of the main foci of CGIAR investments in Central Africa, and the case is used as a cross cutting example in the CGIAR Research Program for Roots Tubers and Banana (RTB) to better understand:

- The importance of evidence-based decision-making/ data-driven scaling strategies (Mr Murat Sartas – WUR/ IITA CGIAR);
- The trade-offs and synergies across different livelihoods dimension, spatial and temporal levels that take place when scaling innovations (Dr Godfrey Taulya – IITA/CGIAR);
- Governance of scaling processes and partnerships that are needed to implement scaling strategies (Dr Marc Schut – WUR/ IITA CGIAR).

### Identified key bottle-neck(s)/ challenges

- *Social challenges.* One-size-fits-all approaches do not sufficiently respect the needs and interests of farmers of different socio-economic, gender and age groups. Banana-based farming systems are highly diverse (Giller et al. 2011). Service provision needs to target the specific challenges of individual smallholders (Blomme et al. (2017).
- *Cultural challenges.* Many farmers believe that BXW cannot be controlled. There is no culture of disinfecting farm tools, and willingness to uproot entire banana mats when few plants shows disease symptoms is low. Technology uptake affects and is affected by gender relations as monitoring of fields (by men) during growing seasons of annual crops (usually managed by women) causes competition for labor (Blomme et al. 2017).
- *Economic challenges.* BXW causes yield losses of up to 100% (Ndungo et al. 2006). The default control (uprooting complete banana mats) is time and labor intensive. A recommended fallow-period plus new crop cycle causes an untenable 21-month disruption in household food, income and nutrition security. Government extension is incapable to support farmers due to (a) a high farmer/extensionist ratio, and (b) a lack of access to up-to-date, science-based knowledge. No predictive early-warning system exists to inform governments where to focus their BXW prevention efforts.
- *Political challenges.* There is a lack of collaboration between key stakeholders across different levels. Research is often conducted without the active involvement of extension providers, farmers and scaling partners. The lack of participatory and demand-driven approaches result

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in low adoption of technologies by farmers (Douthwaite, Keatinge & Park, 2001; Glover, Sumberg & Andersson, 2016), and a low buy-in of government in scaling BXW prevention and control measures.

Key question of this session is how to overcome these challenges to the benefit of local producers and consumers of banana.

**Program and format**

- Case Introduction by Mr Boudy van Schagen: 15 mins
- Short pitches to emphasize the different dimensions of the case study (30 mins in total)
  - Evidence based decision-making/ data-driven (Mr Murat Sartas – WUR/ IITA CGIAR)
  - Trade-offs and synergies (Dr Godfrey Taulya – IITA CGIAR)
  - Governance of scaling processes (partnership) (Dr Marc Schut – WUR/ IITA CGIAR)
- Interactive discussion with the audience (40 mins)
- Conclusions and wrap-up (5 mins)

Moderator: Prof Cees Leeuwis (WUR)

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