Recovering banana production in bunchy top-affected areas in sub- SS Africa:

Ensuring banana bunchy top virus-free planting material for smallholders

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Jord till Bord

Problem

Bunchy top morphology

Dwarf bunch

Degenerate mat

Hypothesis

Using **existing knowledge** and **technologies**, with **diagnostic tools**, preferred banana **diversity**; while **linking formal** and **informal** seed systems, we can achieve **sustainable** banana production in BBTD affected areas.

BBTV and Seed systems

Local/ Imported

1st cycle

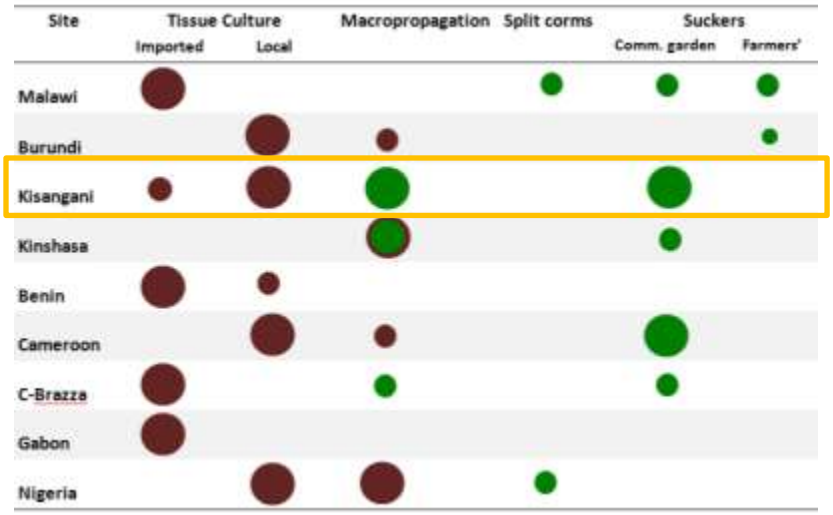
2nd cycle

3rd cycle

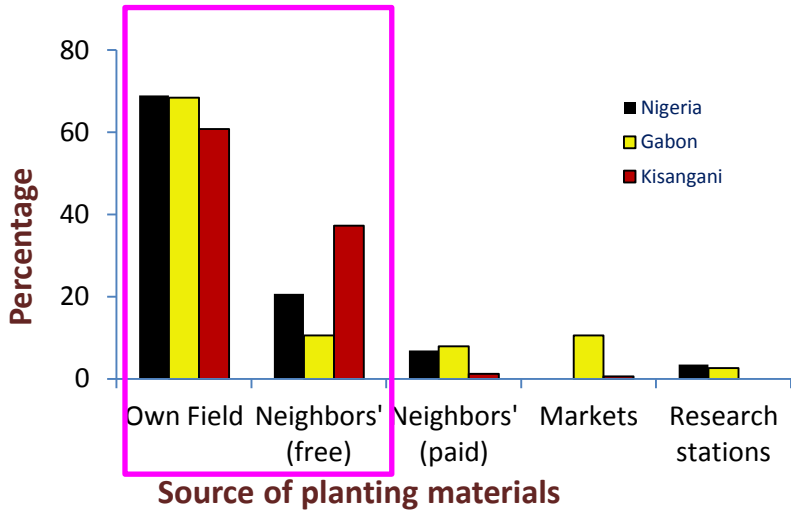
BBTV-free zone

Key ideas

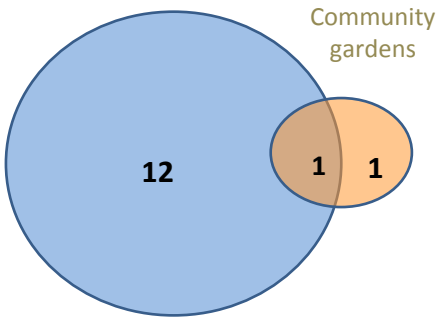
Sources



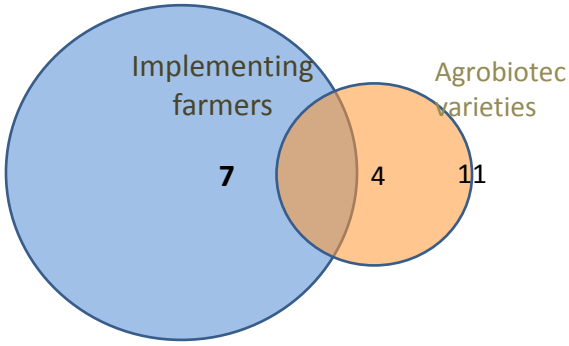
Practice



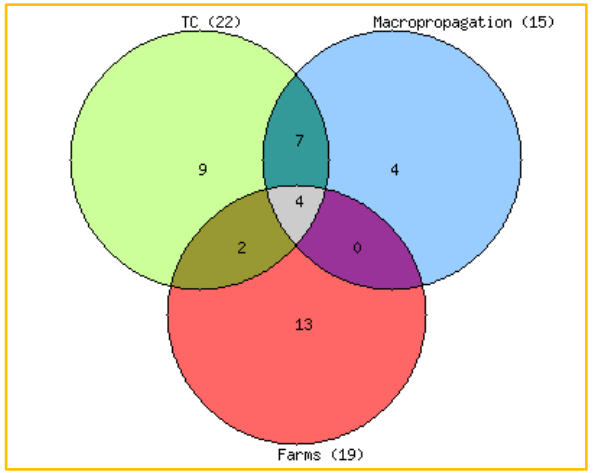
Diversity



Malawi



Burundi



Kisangani

Lessons

- Materials for replanting BBTD infected areas depends on **clean source** material; **diverse** multiplication **approaches**. **Risk analysis** and **virus indexing** are also needed to plan the movement of planting material: **Lab - Nursery - Field.**
- A local seed system renovated for BBTD control should incorporate **local varieties** and preferences and **link** with regional and national germplasm collections to reduce temptation to use untested material.
- **Cost gap** between traded materials and farmer demanded price (≈US$ 1.5) can be bridged with **community seed gardens** and local seed exchanges if virus monitoring **standards** are followed.

Thank you!

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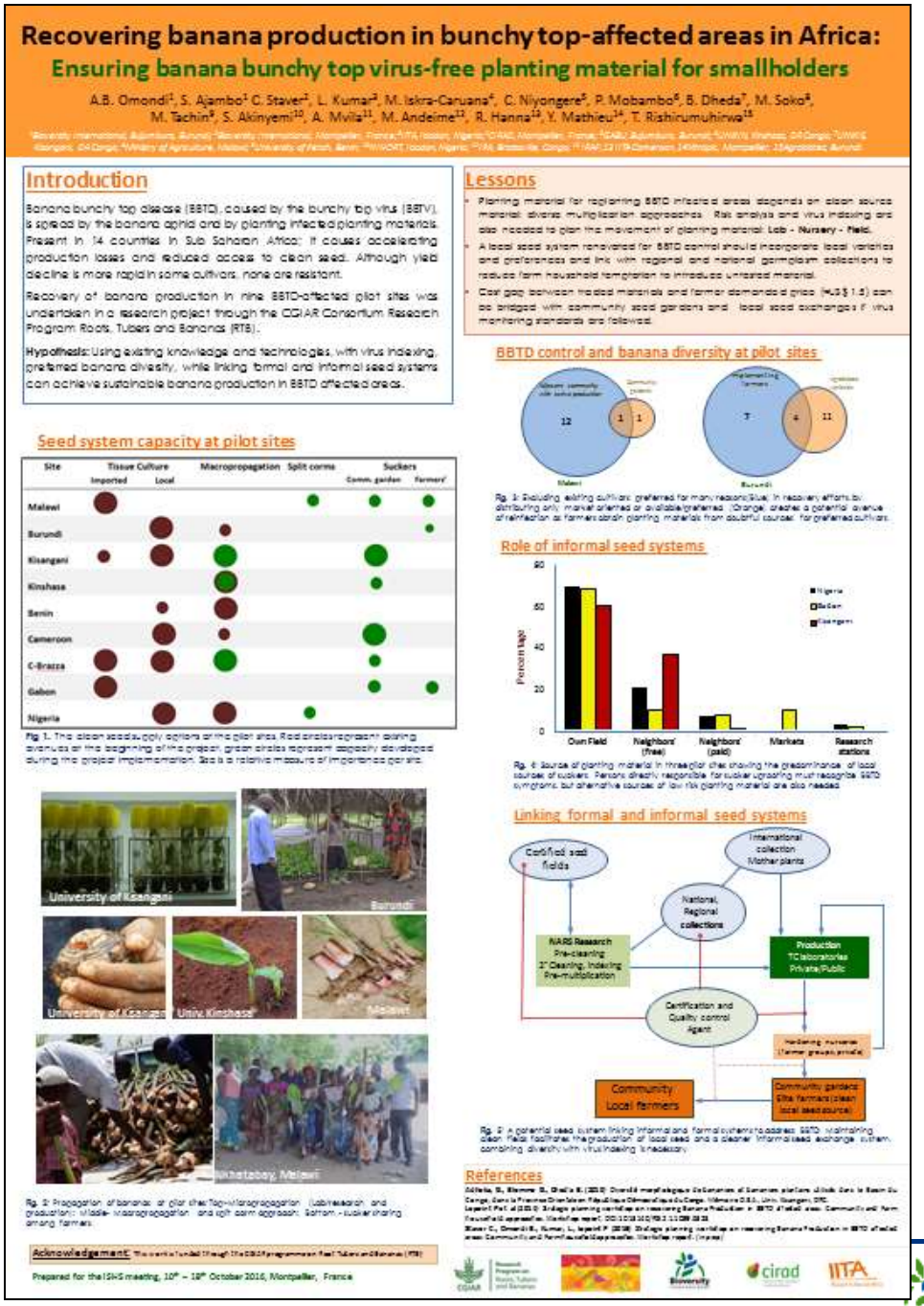

Recovering banana production in bunchy top-affected areas in Africa:
Ensuring banana bunchy top virus-free planting material for smallholders

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Introduction

Banana bunchy top disease (BBTD), caused by the bunchy top virus (BBTV), is spread by the banana aphid and by planting infected planting materials. Present in 14 countries in Sub Saharan Africa; it causes accelerating production losses and reduced access to clean seed. Although yield decline is more rapid in some cultivars, none are resistant.

Recovery of banana production in nine BBTD-affected pilot sites was undertaken in a research project through the CGIAR Consortium Research Program Roots, Tubers and Bananas (RTB).

Hypothesis: Using existing knowledge and technologies, with virus indexing, preferred banana diversity, while linking formal and informal seed systems can achieve sustainable banana production in BBTD affected areas.

Lessons

- Planting material for replanting BBTD infected areas depends on clean source material, diverse multiplication approaches. Risk analysis and virus indexing are also needed to plan the movement of planting material: **Lab - Nursery - Field.**
- A local seed system conceived for BBTD control should incorporate local varieties and preferences and link with regional and national germplasm collections to reduce farm household temptation to introduce untested material.
- Clear gap between tested materials and farmer demanded price (**Ksh $ 1.5**) can be bridged with community seed gardens and local seed exchanges if virus monitoring standards are followed.

Seed system capacity at pilot sites

Fig 1. The clean seed supply options at the pilot sites. Red circles represent existing avenues at the beginning of the project; green circles represent capacity developed during the project implementation. Size is a relative measure of importance per site.

BBTD control and banana diversity at pilot sites

Fig. 3: Excluding existing cultivars preferred for many reasons/use, in recovery efforts by distributing only market oriented or available/preferred (Orange) creates a potential avenue of reinfection as farmers obtain planting materials from doubtful sources for preferred cultivars.

Role of informal seed systems

Fig. 4: Source of planting material in three pilot sites showing the predominance of local sources of suckers. Persons directly responsible for sucker uprooting must recognize BBTD symptoms, but alternative sources of low risk planting material are also needed.

Fig. 2: Propagation of bananas at pilot sites: Top-micropropagation (Lab/research and production); Middle- macropropagation and split corm approach; Bottom - sucker sharing among farmers.

Linking formal and informal seed systems

Fig. 5: A potential seed system linking informal and formal systems to address BBTD, maintaining clean fields, facilitate the production of local seed and a cleaner informal seed exchange system, combining diversity with virus indexing if necessary.

References

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