

# Emergence and Spread of Banana *Xanthomonas Wilt in* East D.R. Congo and Strategies to Halt its Spread Towards Central and West Africa

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# BXW symptoms



Infected male bud



Wilting plants infected through soil or contaminated tools

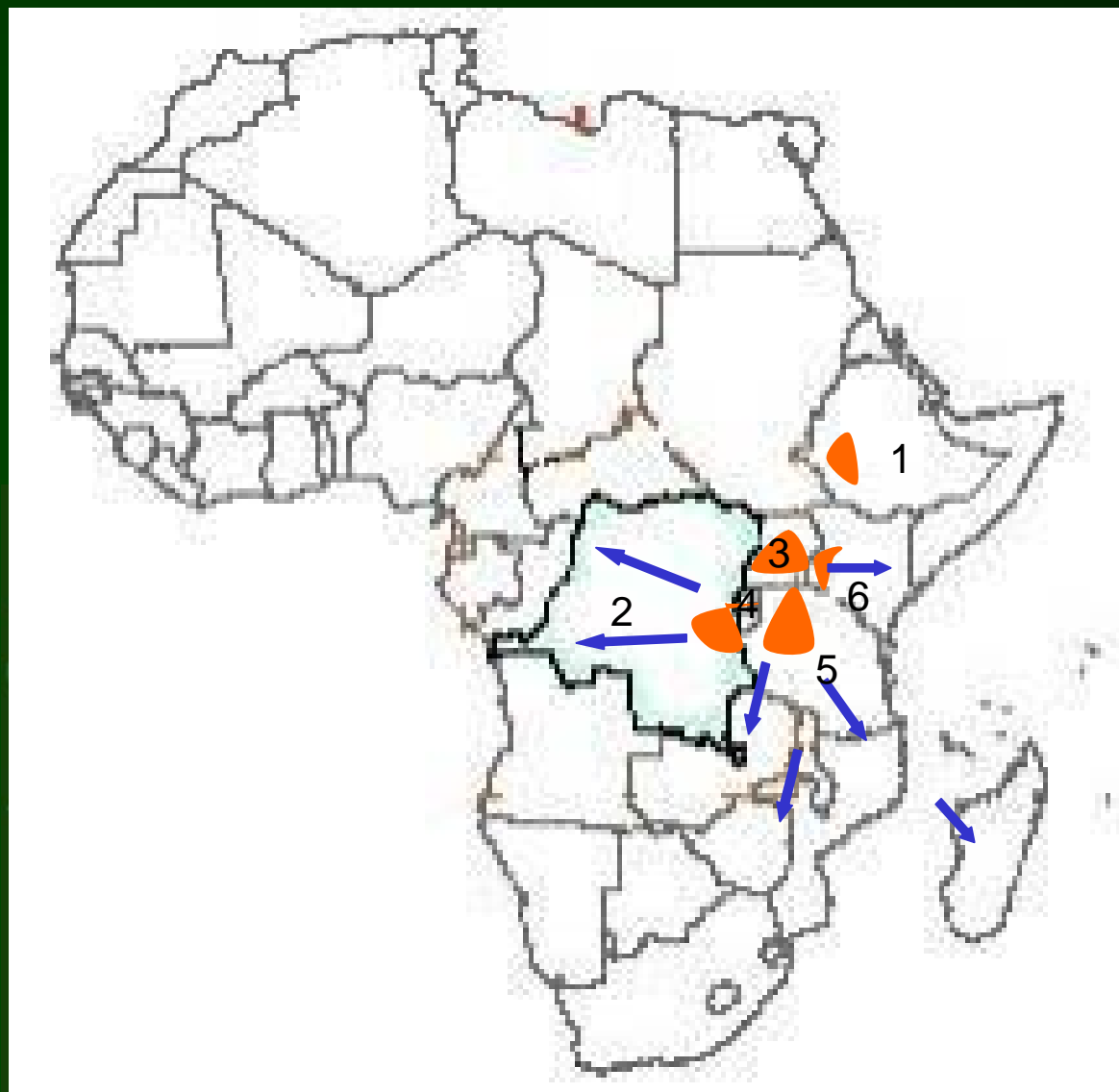


Internal fruit rot



Bunch rotted

## Areas affected by BXW and potential spread route



◀ = Affected areas

➡ = potential spread  
direction

### Affected countries

1. Ethiopia (since 1960s)
2. DR Congo (2001)
3. Uganda (2001)
4. Rwanda (2005)
5. Tanzania (2006)
6. Kenya (2006)



# Factors increasing BXW spread in East DRC (1)



- } Wide distribution of most susceptible cultivar Pisang Awak
- } High density of stems per stool
  - spread from mother to suckers
  - spread through water splash above ground
  - Root to root spread below ground.
- } Delayed removal of infected plants (inoculum sources)

## Factors increasing BXW spread in East DRC (2)



Inappropriate disposal of infected plants residues



Presence of cultivated and wild infected alternate host *Ensete* sp.



## Factors increasing BXW spread in East DRC (3)

- } Insect transmission in lower altitudes and contaminated tools.
- } Possible spread downhill in runoff water/erosion
- } Insecurity not favourable for intervention
- } Spread through traded banana products
- } Tending intercrops can increase spread through banana root injuries



Tool



Bean intercrop

# Economic impact of BXW in DRC

- } BXW covers an area over 50 km<sup>2</sup> in Masisi territory
- } Yield loss 100%
- } Household income from banana dropped from \$1500 to zero
- } Farmers compelled to grow less profitable crops
- } Increased shortage of banana planting material

## Common substitution crops

cassava	14% (farmers)
beans	14%
maize	13%
sorghum	11%
groundnut	9%
soja	8%
Irish potato	8%
cabbage	7%

Source: USAID fast track survey Feb 2006



# Ecological impact of BXW



100% banana destruction,  
soil exposed to  
erosion

Substitution of banana with  
annual crop  
(sorghum), not  
suitable for preventing  
erosion

Taro which needs banana  
shade for good  
growth is left  
exposed.



# Farmers face new challenges



Increased erosion risk



Food safety:  
cassava  
mycotoxins



Increased Taro rot due to  
ecological changes



Processing and marketing  
of alternative commodities  
e.g. sorghum

## Factors that could slow BXW spread to west



- } Forest barrier between East and West DRC could slow spread.
- } More plantains grown in forests than banana (9:1), with persistent flowers and bracts hence less vulnerable.
- } Low banana trade between east and West.
- } Transport mostly by plane hence easier to regulate movement of banana.
- } Less intensive management of plantain systems can slow westward spread.



## Factors that could increase BXW spread west

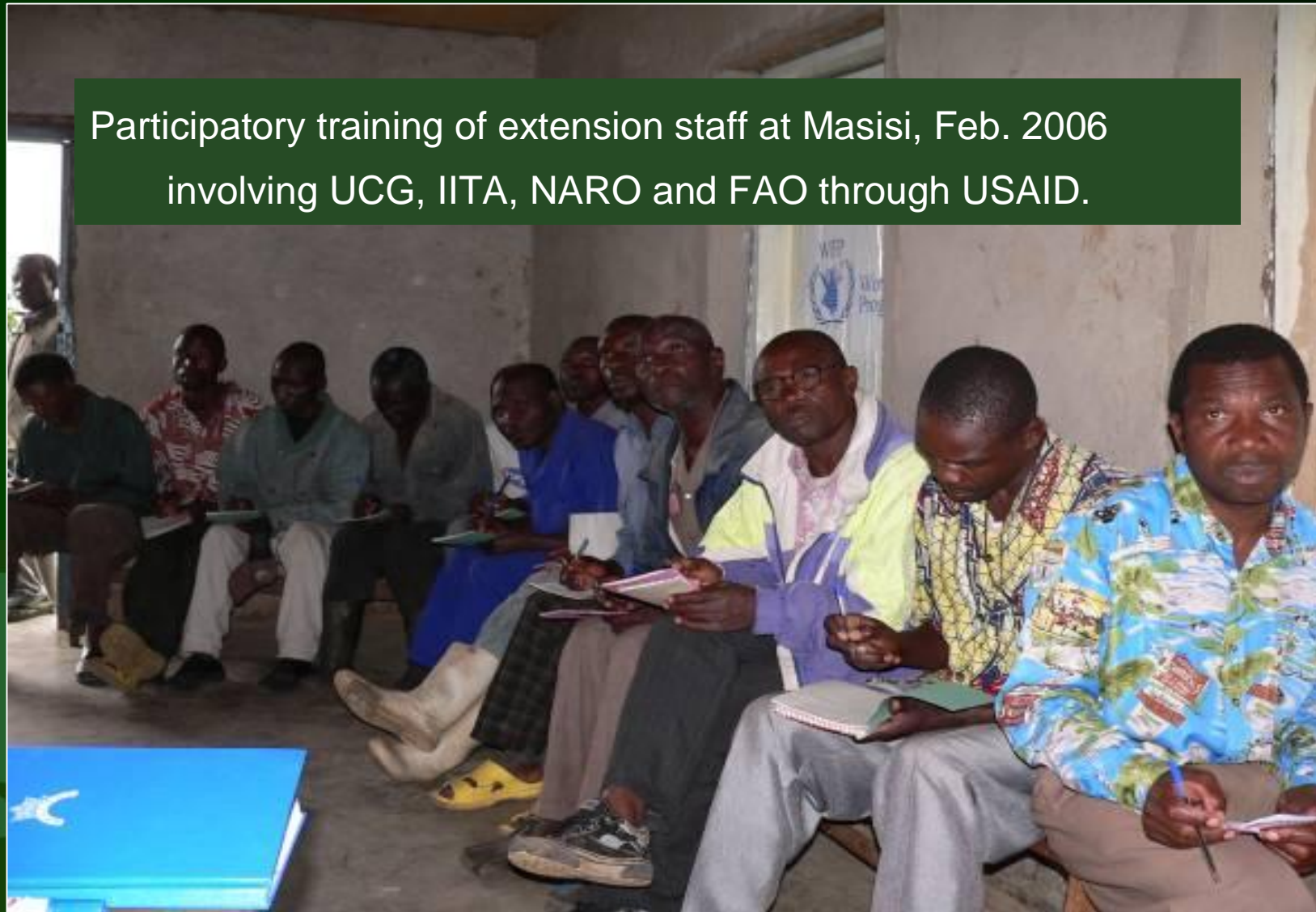
- } Insect vector distribution and activities possibly higher in the humid forest ecologies.
- } More intense intercropping of plantains/ banana with other crops increase risk of spread.
- } Transport on waterway less regulated.
- } Low awareness and prevention initiatives in the West
- } Continued civil instability prevent intervention.

## Opportunities for preventing BXW spread

- } Lessons have been learnt and preventive/ management technologies are available from other affected countries.
- } Strengthened institutional networks and collaboration available
  - NARS/IARCs (IITA, INIBAP)/NGOs/FAO
  - Regional projects (C3P, CIALCA, USAID Fast track)
- } Reduced civil instability and increased government capacity to intervene.



Participatory training of extension staff at Masisi, Feb. 2006  
involving UCG, IITA, NARO and FAO through USAID.



Thank you!