

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

Presentation to the MUSACO
Symposium. 18-22 Sept, 2006.
Limbe, Cameroon.

Maina Mwangi

Ndungo Vigheri

Komi Fiaboe

Ranajit Bandyopadhyay

BXW symptoms



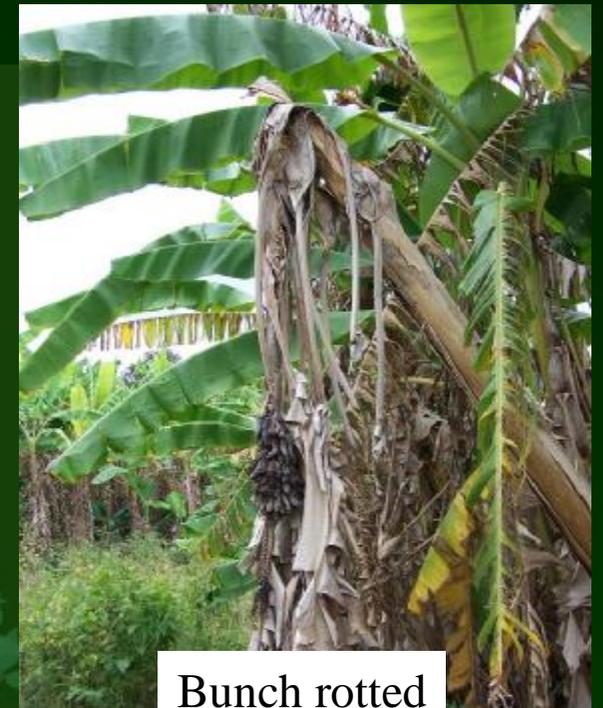
Infected male bud



Wilting plants infected through soil or contaminated tools

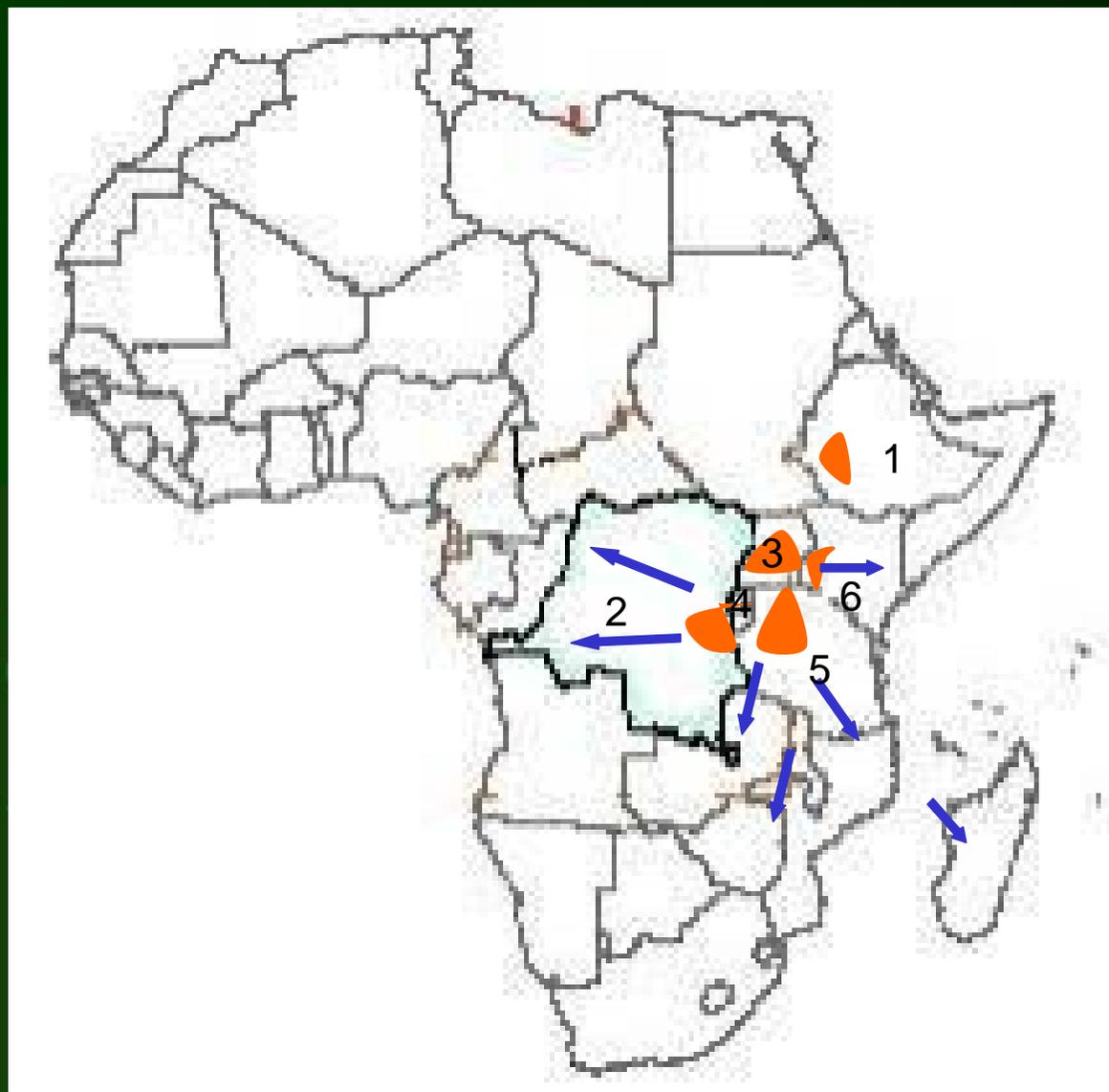


Internal fruit rot



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 km² 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.

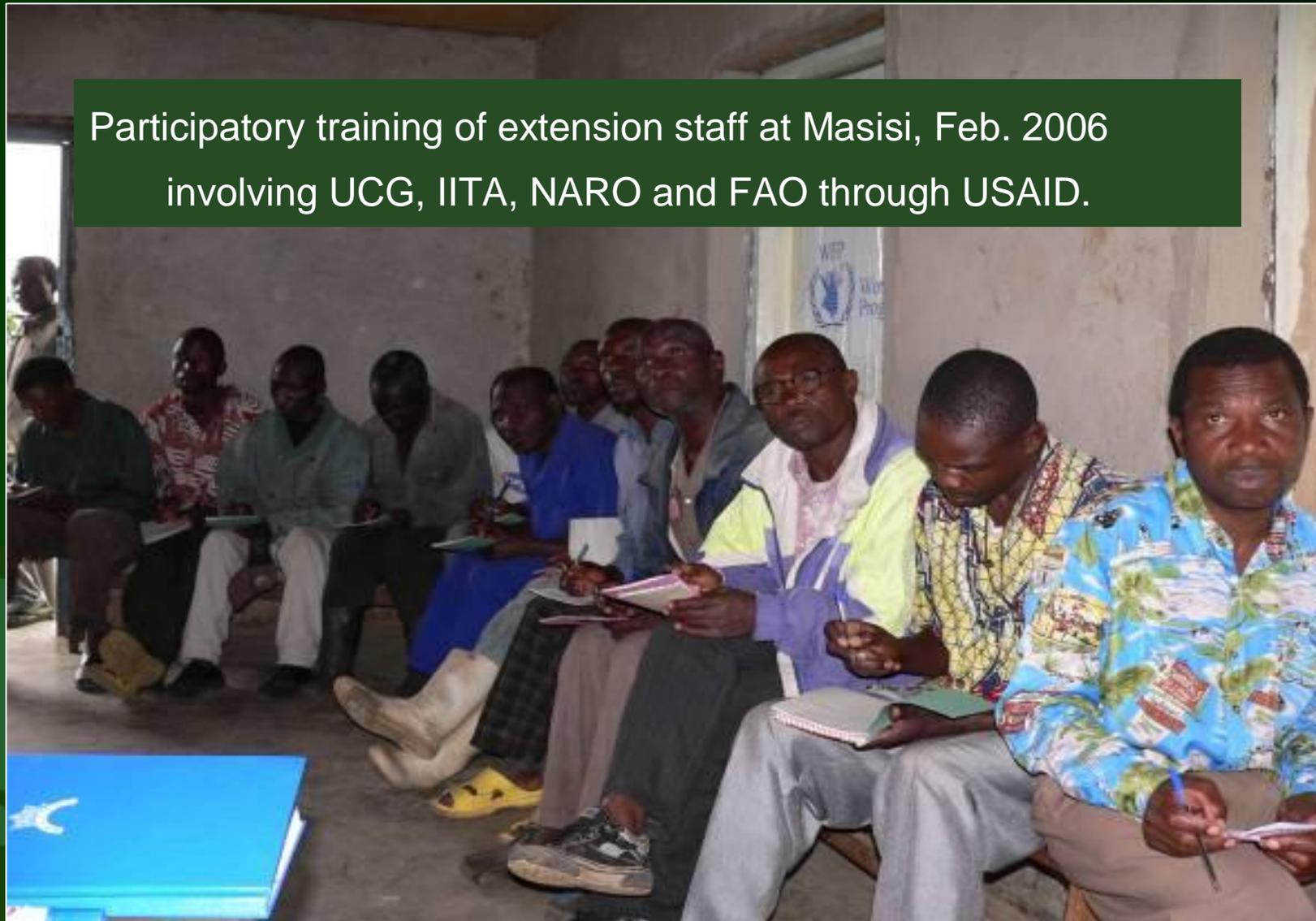
Factors that could increase BXW spread west

- } 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!