MAJOR PESTS AND DISEASES
SITUATIONS AND DAMAGE ASSESSMENT PROTOCOLS IN CÔTE D’IVOIRE

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OUTLINE OF THE PRESENTATION

I. Introduction

II. Situation of pests and diseases in Côte d’Ivoire

III. Damage protocols assessment for major pests and diseases

IV. Conclusion
I. INTRODUCTION
ECONOMIC IMPORTANCE OF COCOA IN CÔTE D’IVOIRE

- On average 1.4 millions of tones cocoa per year;
- Leading producer in the world (40% of the market);
- Major income source for more than 15% rural population;
- 15% of Gross domestic product (GDP);
- 35% of export earnings;
- Source of employment for 20% of pop.

Cocoa = National pride
CURRENT PRODUCTION CONSTRAINTS

- Aging of the cocoa farms;
- Decline of soil fertility in cocoa orchards;
- High pests and diseases pressure;
- Influence of climate change;
- Low level of adoption of research recommendations regarding the use of improved planting material and the application of appropriate cultural practices.
II. SITUATION OF PESTS AND DISEASES
MAJOR PESTS AND DISEASES IN CÔTE D’IVOIRE

- Mirids
- Cocoa Stem borer
- Parasitic plants
- Black pod disease
- CSSVD
Number one cocoa pest in Côte d'Ivoire;

4 species in Côte d'Ivoire: *Salhbergella singularis*, *Distantiella theobromae*, *Bryocoropsis laticollis*, *Helopeltis* spp.;

*Salhbergella singularis* is the most important in the orchard.

Yield loss: 30 to 40%
MIRID DAMAGES ON PODS, CHUPONS AND TRUNC

Feeding lesions on pods
Feeding lesions on chupons
Cankers on trunk caused by feeding lesions
MIRID DAMAGES ON SHOOTS

Degradation of cocoa farms
COCOA STEM BORER

- Serious pest of cocoa in Côte d’Ivoire since the 90s;
- *Eulophonothus myrmeleon* the most important
- Damage on the young and the old trees;
- Dieback of the young trees.

Adult of *Eulophonothus myrmeleon*
COCOA STEM BORER DAMAGE

Reddish excrements

Tunel bored in a woody stem
BLACK POD DISEASE

- The oldest and most widespread disease of cocoa;

- *Phytophthora palmivora*, the most common;

- *Phytophthora megakarya*, the most aggressive is found in some producing region (Soubre and Abengourou);

- **Yield losses: 25 to 60%**
BLACK POD DAMAGE ON PODS AND BEANS
Known in Côte d’Ivoire since the 1940s;

Caused by a Badnavirus, ds DNA (7-7.3kpb);

New outbreaks discovered in Côte d’Ivoire since 2003 (Department of Bouaflé and Sinfra);

Survey ongoing to identify outbreaks in the other cocoa producing regions.
Shoot and root swelling  Veine clearing and Mosaic on aged leaves
Cacao Swollen Shoot Virus Disease Damage

Cocoa farm destroyed by CSSVD

Rounded pods
PARASITIC PLANTS

- Often neglected disease;
- However more concern;
- 2 species de Loranthaceae common in Côte d’Ivoire
- Cause serious damage to cocoa trees;
- Sometime death of trees;
- Difficult to manage.

Tapinanthus bangwensis

Phragmanthera capitata
PARASITIC PLANTS DAMAGE

infested tree

infested branch hypertrophy
III-
DAMAGE ASSESSMENT PROTOCOLS
Cocoa plots are selected in different region and regularly visited

Assessment on chupons :
Scoring of damage by using a 5-point scale from 0 to 4 according to the importance of the damage;

Damage on pods :
Scoring also by using a 5-point scale from 0 to 4.

Yield loss :
by comparing treated and untreated plots.
COCOA STEM BORER

- Cocoa plots are selected in different region and regularly visited

- Damage on trees:
  Counting holes bored on trunk and main branches
BLACK POD DISEASE

- Cocoa plots are selected in different region and regularly visited

- Assessment of yield loss:
  counting healthy pods, pod rot, wilted pod…
COCOA SWOLLEN SHOOT VIRUS DISEASE

- Cocoa infected plots are selected in the infected region and regularly visited

- **Disease description:**
  Main symptoms on leaves, shoot, pods and roots;

- **Yield loss:**
  by counting the pods and beans
PARASITIC PLANTS

- Cocoa plots were selected in different region and regularly visited

- Damage on tree:
  - by assessing the dieback of trees;

- Yield loss:
  - by comparing the production of infected and non infected trees;
IV-

CONCLUSION
CONCLUSION

- Pests and diseases are major constraints for cocoa production in Côte d’Ivoire and yield losses are important;

- Many efforts are made by the research and others cocoa stakeholders to manage these constraints;

- Integrated management of these constraints is necessary to insure the sustainability of cocoa production in Côte d’Ivoire.
THANK YOU FOR YOUR ATTENTION