



**Cocoa Research Institute of Ghana**



# **THE CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF OCHRATOXIN A CONTAMINATION OF COCOA**

**By**

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## DEVELOPMENT OF CODE OF PRACTICE FOR OTA

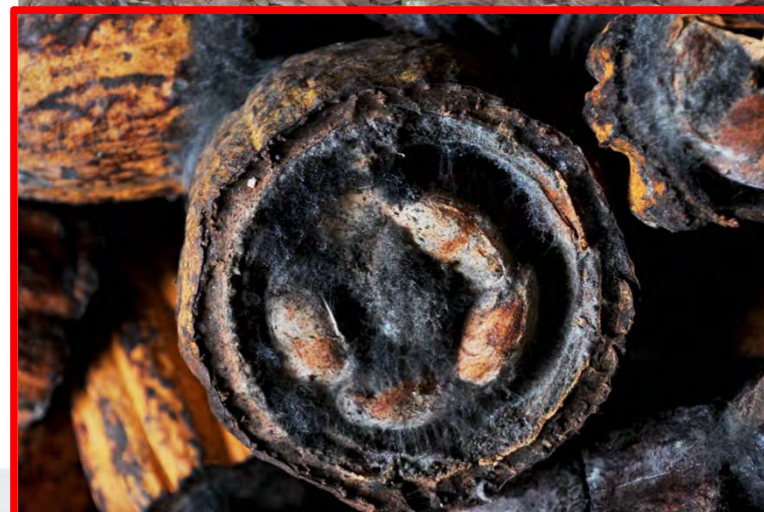
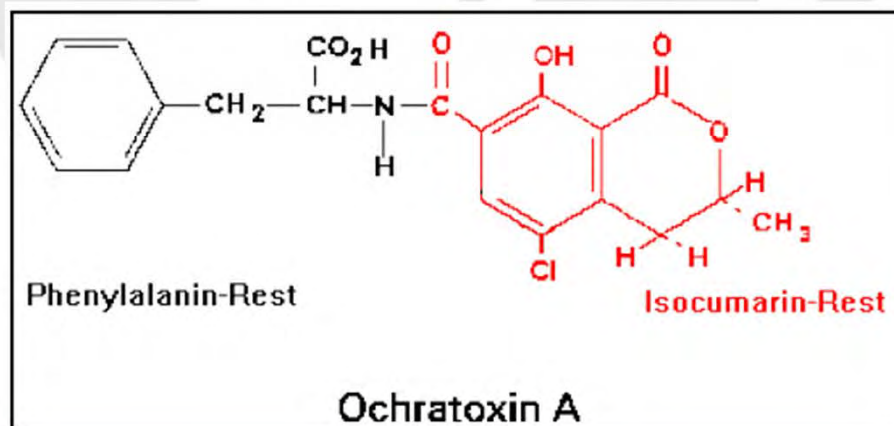
### BACKGROUND

At the 37<sup>th</sup> Session of the Codex Committee on Food Additives & Contaminants (37<sup>th</sup> CCFAC) held in The Hague in April 2005, the European Union proposed the development of a Code of Practice for the Prevention and Reduction of Ochratoxin A (OTA) in Cocoa and Coffee. The delegation from Ghana led by Mr Kwamina Van Ess, assisted by Dr Jemmy Takrama offered to lead a working group made up of Brazil, Cote d'Ivoire, Nigeria, EU, US, Indonesia, Philippines, Malaysia & India to draft the Discussion Paper for Cocoa only. The eWG was co-chaired by Brazil. That work has culminated in this COP for cocoa in 2013.



## WHAT WE SHALL TALK ABOUT

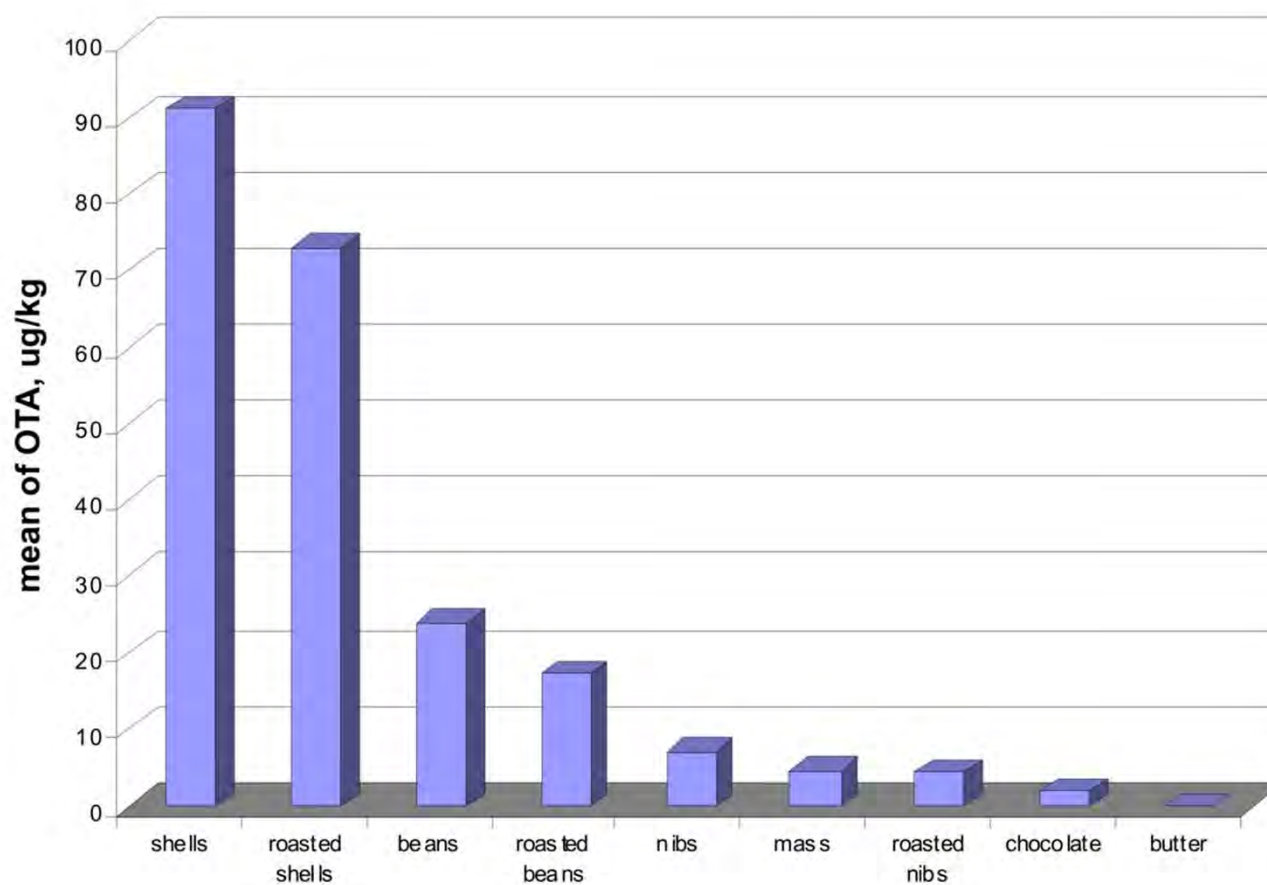
1. Occurrence of OTA in cocoa
  - Current situation
2. The Code of Practice (COP)
3. Roadmap to implementation in Ghana
4. The Way forward for producing Countries





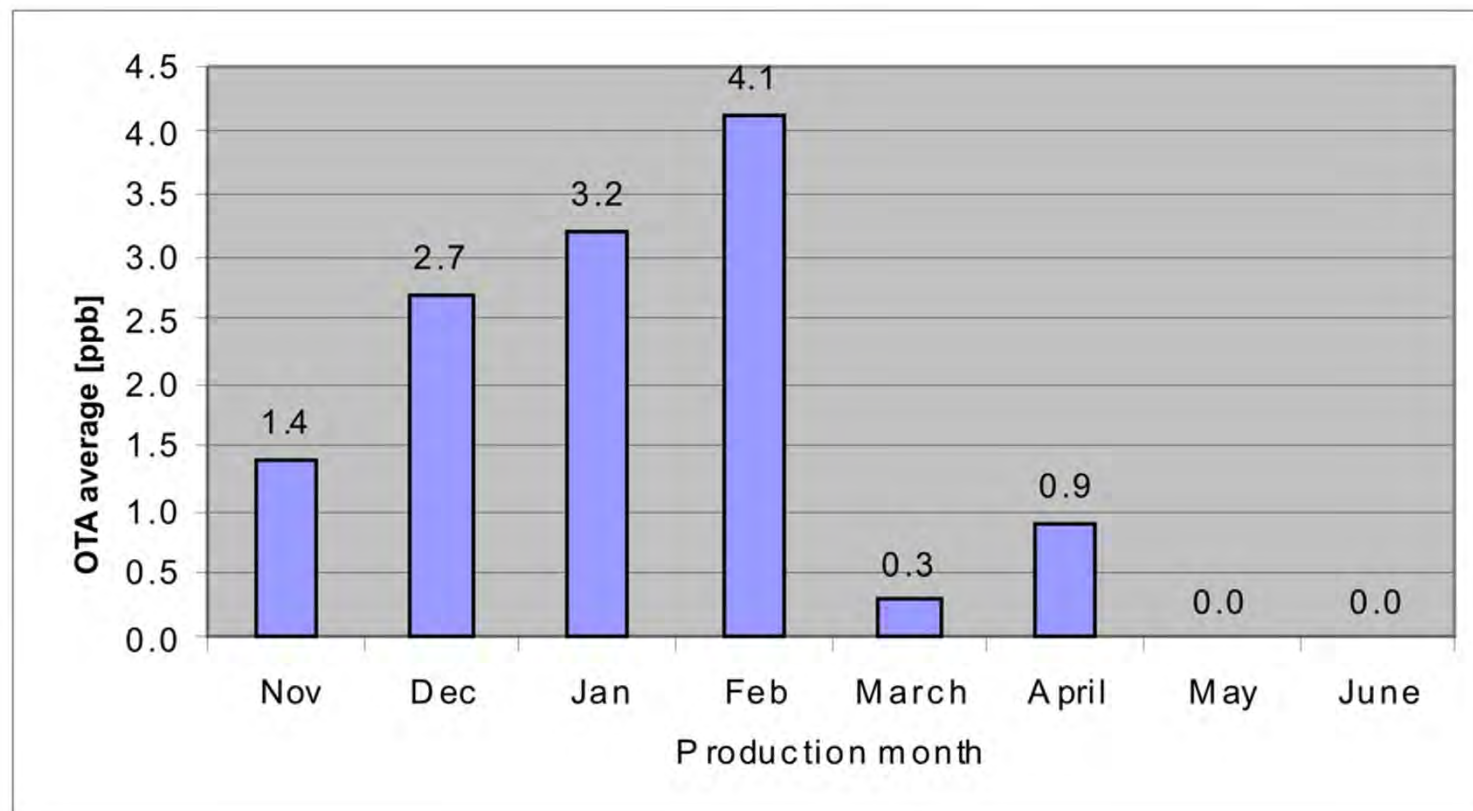


## OCCURRENCE OF OTA IN COCOA PRODUCTS



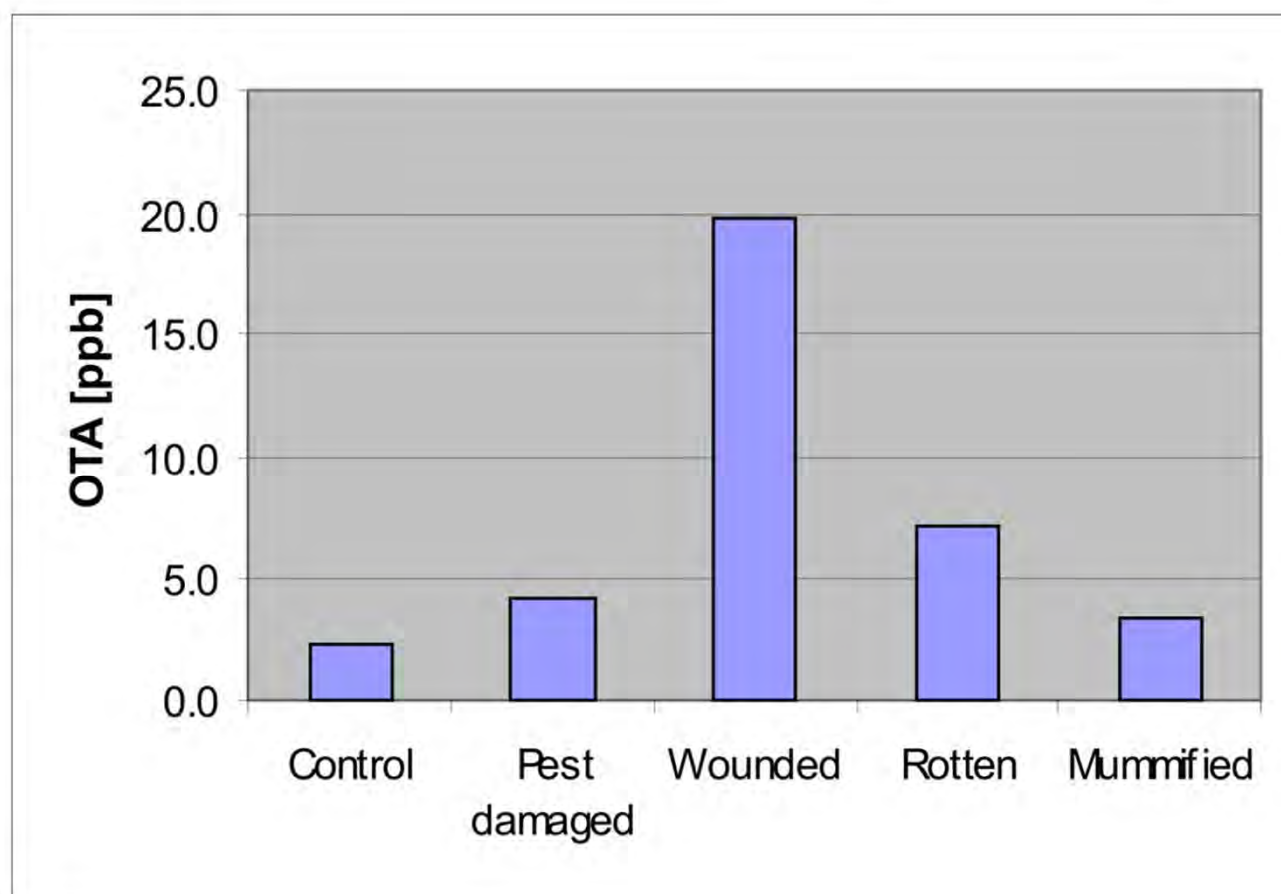


## OTA LEVELS VARY AS A FUNCTION OF PRODUCTION MONTH





## EFFECT OF PHYTOSANITARY CONDITIONS ON OTA LEVELS FOUND IN THE DRIED COCOA BEANS

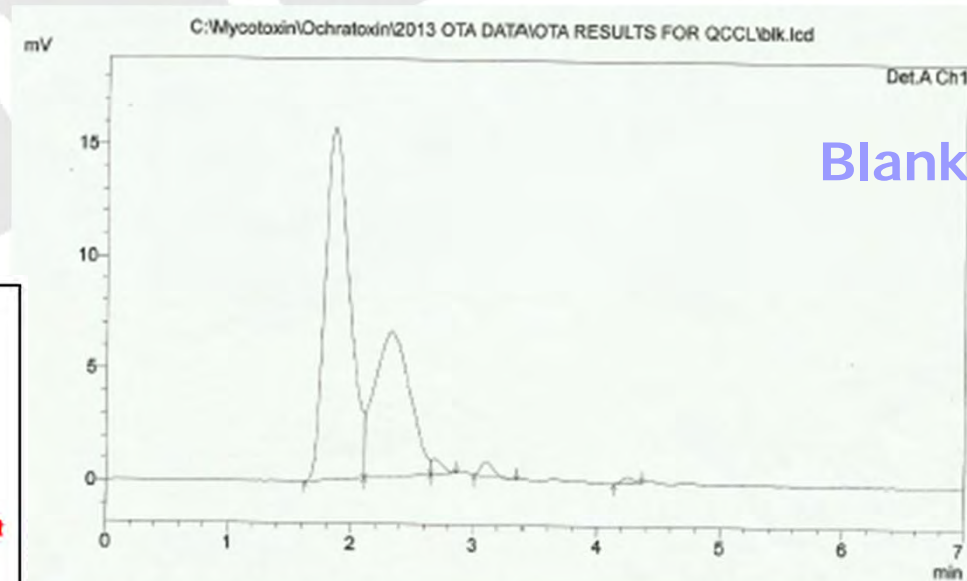
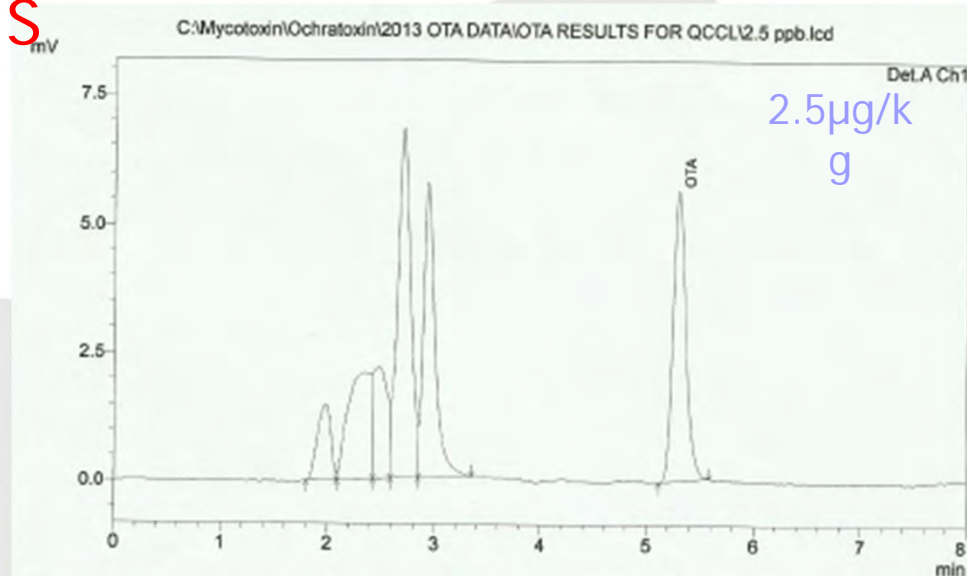
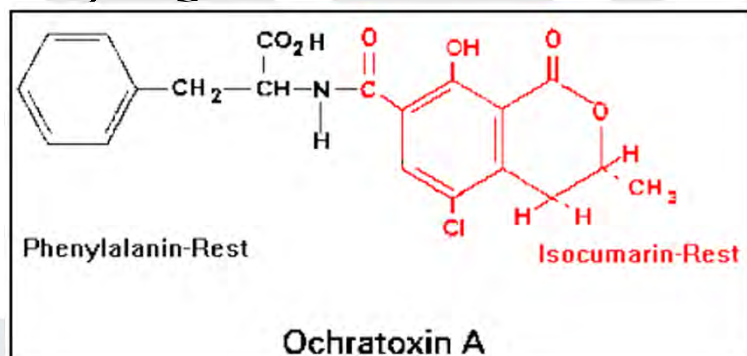




## OTA METHOD OF ANALYSIS

OTA is determined in cocoa powder using immunoaffinity column clean up with HPLC and fluorescence detection

VALIDATION: Use naturally contaminated and spiked samples of cocoa powder at levels from  $0.2\mu\text{g/kg}$  and  $1.5\mu\text{g/kg}$





## THE CODE OF PRACTICE WAS DEVELOPED ALONG THE PRIMARY PROCESSING CHAIN OF COCOA

### ■ PRE- & POST-HARVEST OPERATIONS

- Pre-harvest
- Harvesting of cocoa
- Pod opening/breaking
- Fermentation
- Drying
- Grading
- Storage
- Export









## Pre-harvest



Planting materials



Planting density

## Shade trees



Spacing





## FARM SANITATION



**Germinated**



**Overripe**

**Rodent damage**







Ghana



Diseases cannot be ignored



mistletoe



Mumified  
Blackpods





## Traditional habits



Personal hygiene



Discards

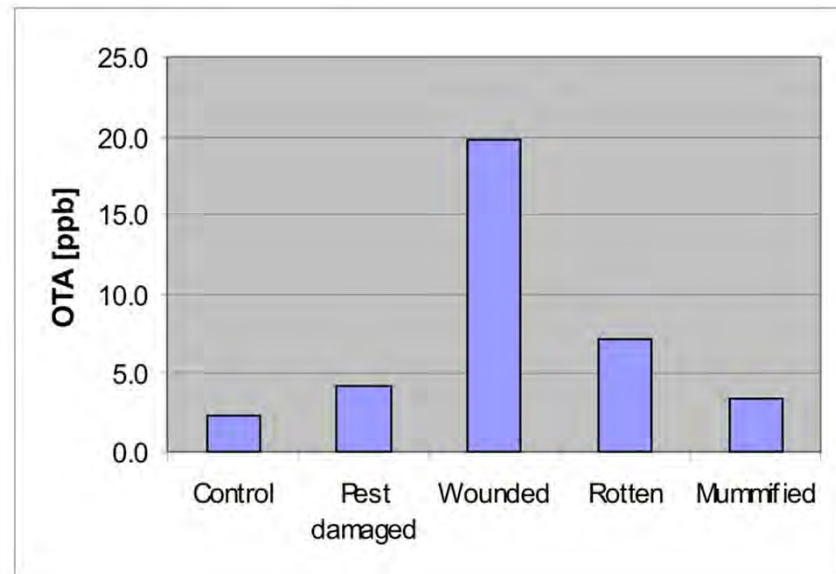


Pod waste disposal





**Picking pods with machetes**  
**Wounding pods**  
**Broken pods**  
**Pod storage**  
**Pod waste disposal**











From here ...



To here



To improve livelihoods





## PORT OPERATIONS



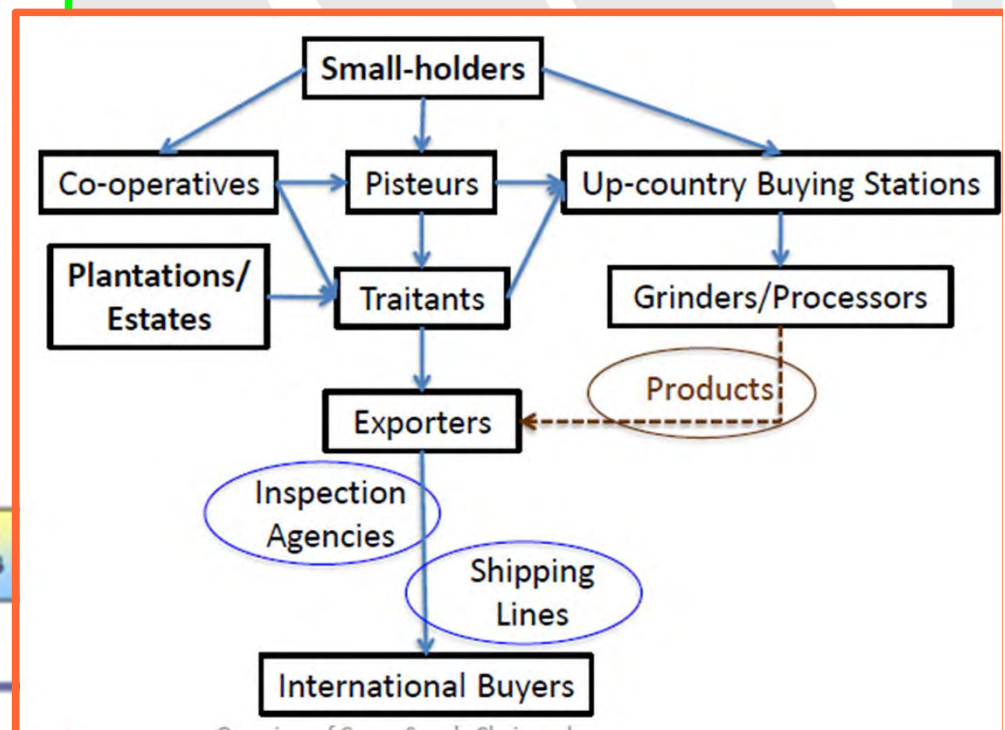
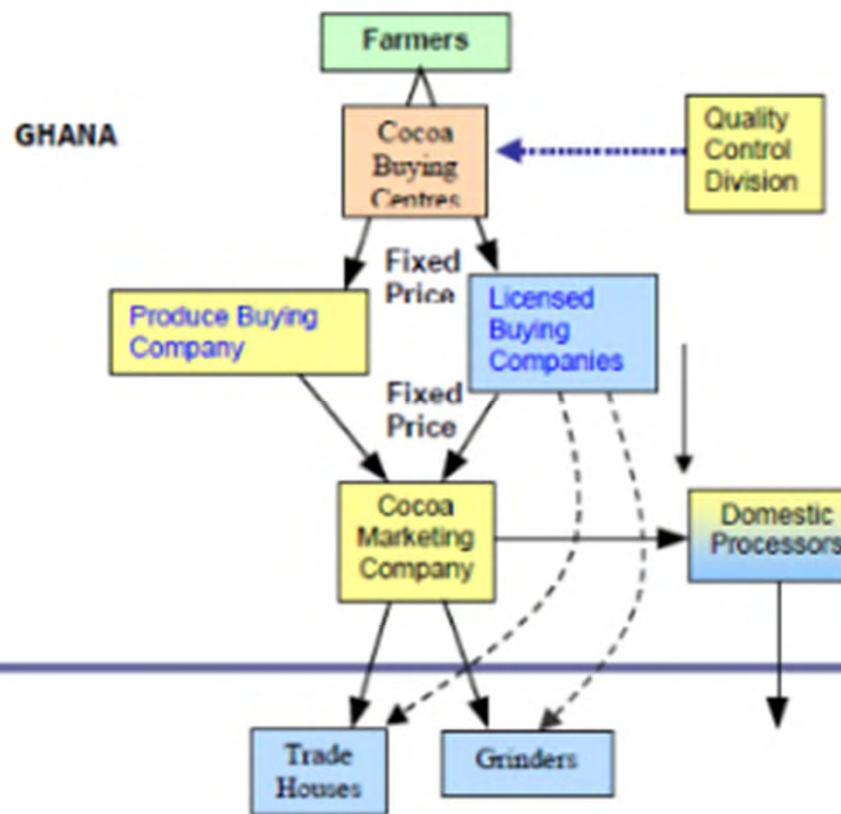
Fumigation



Modern warehouse, Tema



# ROADMAP FOR PREVENTION OF OTA IN COCOA IN GHANA



COTE D'IVOIRE





## ROADMAP FOR PREVENTION AND REDUCTION OF OTA IN COCOA IN GHANA

1. **ADOPTION** of Code of Practice (COP) as a National Standard
  - Make necessary amendments to suit local marketing structure
  - Final Draft Ghana Standard (**FDGS**) already drawn for Ghana



## CODEX ALIMENTARIUS PUBLICATION OF THE COP

*CAC/RCP 72-2013*

*Page 1 of 9*

### CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF OCHRATOXIN A CONTAMINATION IN COCOA

(CAC/RCP 72-2013)

#### 1. INTRODUCTION

**GHANA STANDARD**

**FDGS 1093: 2014**

### CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF OCHRATOXIN A CONTAMINATION IN COCOA

#### 1. Introduction





## ROADMAP...

### 2. Development of **TRAINING MANUAL**

- National Codex C'tee has formed C'tee to draft it
- To be used by Extension personnel

### 3. **SOCIO-ECONOMIC STUDIES**

- Social Science & Statistics Unit of CRIG to study

### 4. **COCOA EXTENSION IN GHANA**

- Cocoa Health & Extension Division (CHED)
- Cocoa Extn Private Public Partnership (CEPPP)
- QCC, CRIG

### 5. **PhD candidate Thesis on COP proposed (Codex C'tee)**



## ROADMAP: PROGRAM OF SOCIAL SCIENCE & STATISTICS UNIT (CRIG) FOR OTA

- Baseline study
- Documentation of GAP
- Adoption levels – current levels
- Awareness/Sensitization to change Attitudes
- Farmers, Purchasing Clerks, District Officers...
- Monitoring & Evaluation
- Stakeholder knowledge
- Attitude and Practice of GAP
- Training of Farmer Groups/Associations on COP
- Capacity building & Skills training



## ROADMAP FOR ALL PRODUCING COUNTRIES

ALL cocoa producing countries are encouraged to implement the tenets of the COP in next 5-10 yr

- ALL cocoa producing countries should be Armed with DATA awaiting setting of MRLs if it becomes a world IMPERATIVE in future
- A WRITTEN REQUEST by any interested member country or Intl Organnization to the Commission to set MRLs is all that it takes (subject to agreement by majority of members present at Plenary) to reactivate the race toward setting the limits
- But this REQUEST can be made only after 5-10 yrs after producing countries have had sufficient time to reduce or fail to reduce OTA in their countries (Excuses will no longer be valid)



## IN CONCLUSION

- The Code of Practice is a **set of food safety guidelines** on best practices to prevent and reduce OTA in cocoa
- Ochratoxin A is a **toxic contaminant** of food/feed
- Presence of fungi **not equiv.** to presence of OTA
- The COP if **meticulously implemented** would prevent and reduce OTA contamination of cocoa beans
- The COP **should be adopted** by all cocoa producing (GAP) and consuming (GMP) countries
- The COP would **improve livelihoods** of farmers
- All cocoa producing countries should **generate data** on level of OTA contamination to ensure informed decision making on setting of future **MRLs** in cocoa





# Cocoa Research Institute of Ghana





## ACKNOWLEDGEMENTS

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GHANA STANDARDS AUTHORITY

Prof Ardjouma DEMBELE – COTE D'IVOIRE

Kofi ESSEL – FOOD AND DRUG AUTHORITY

STANDARDS ORGANIZATION OF NIGERIA

Ligia SCHREINER – Brazilian Health Surveillance Agency

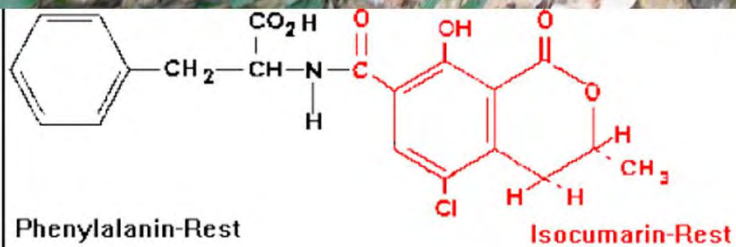
EWG for devtpt of Discussion Paper & Code of Practice







➤ **MERCI**



Ochratoxin A