



CAOBISCO –ECA presentation on Trade and Industry’s Perspective on legislations and other measures on pesticide residues and food safety

**ICCO International Workshop on the Safe Use of Pesticides in Cocoa
Kuala Lumpur, Malaysia from 25.01.2011 – 28.01.2011**

EU Pesticides legislation that EU Industry & Cocoa producing countries have to comply with

- EU cocoa & chocolate manufacturers are facing continuous increase of food safety requirements in the EU: EU Pesticides legislation in force & regularly updated: [Regulation \(EC\) No 396/2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin, as regards the implementing powers conferred on the Commission amended by Regulation \(EC\) No 299/2008 of the European Parliament and of the Council of 11 March 2008](#)
http://ec.europa.eu/food/plant/protection/pesticides/community_legislation_en.htm
- This legislation applies to 'fermented beans' (Beans after removal of shells) as defined in [Commission Regulation \(EC\) No 178/2006](#) of 1 February 2006 amending Regulation (EC) No 396/2005 of the European Parliament and of the Council to establish Annex I listing the food and feed products to which maximum levels for pesticide residues apply.
- [EU Method Validation and Quality Control procedures for Pesticide Residues \(Doc. SANCO/2009/10684\)](#), implemented from 01/01/2010
- When there is exceedance of MRLs then it is notified under the RASFF [RASFF - notification criteria for pesticide residues](#) (Doc. SANCO/3346/2001), rev 7 24 July 2004. In this Commission guidance it is clearly stated what are **legal bases for MRLs: MRLs are not necessarily safety limits**

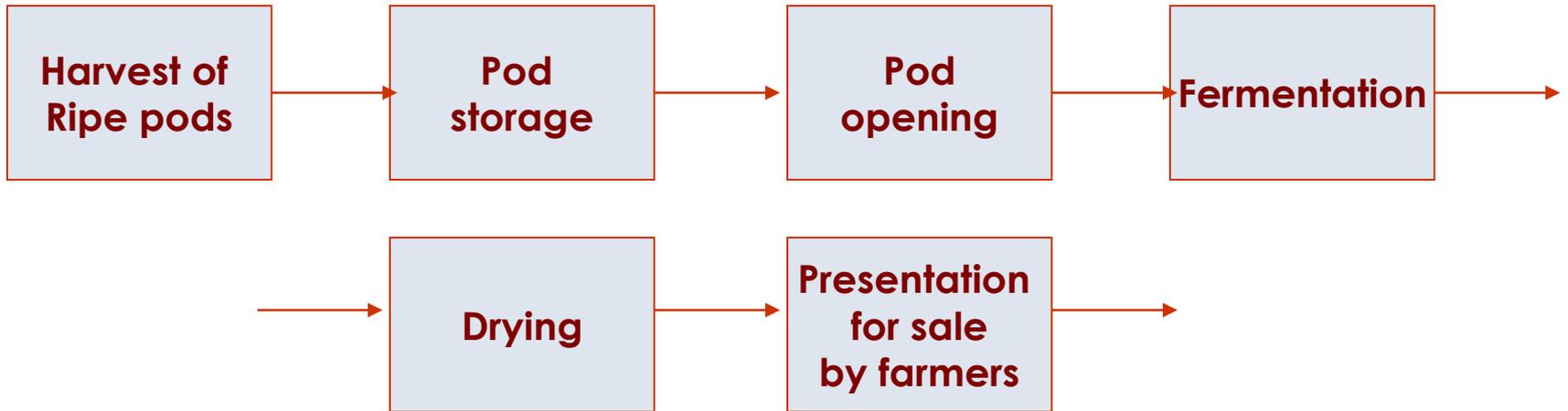
EU Legislation impact on Industry & Cocoa Producing Countries

- European cocoa industry imports close to 83% of its bean usage from West Africa (source ICCO)
- This links EU (27 countries) to West African cocoa, ...
- ***... and links the african cocoa farmer to our EU food safety requirements ...***
- **For EU Industry top priorities are:** Farmer safety, environmental sustainability, as well as food safety,
- **EU Industry is supportive of a legislation based on science, which includes IPM and GAP and which respond to our top priorities listed above**

EU Legislation impact on Industry & Cocoa Producing Countries

- All this has a direct impact on the economy of cocoa not only in EU but also abroad i.e. in Cocoa Producing Countries
- Questions arise:
 - What has the EU Industry done to sensitise farmers in order to comply with EU legislation, to promote IPM and the identification of problematic pesticides?
 - What have Cocoa Producing Countries done to cope with new EU safety requirements ?

Structure of Complex Cocoa supply chain in producing countries which has an impact on management of pesticides



Crop :

- Twice a year: 1 major crop (in Autumn), 1 minor (end spring)
- Quality of crop depending on climatic conditions
- During dry season higher incidence of capsids → requires insecticides
- During rainy season higher threat for outbreak of fungal diseases (a.o. *Phytophthora* spp) → requires fungicide treatment

Farmers:

- approx 1.5 million farmers in West Africa mainly rural populations and difficult to reach to spread information
- unidentified lots sold to local buyers who sell to collection centres
- farm lots are mixed

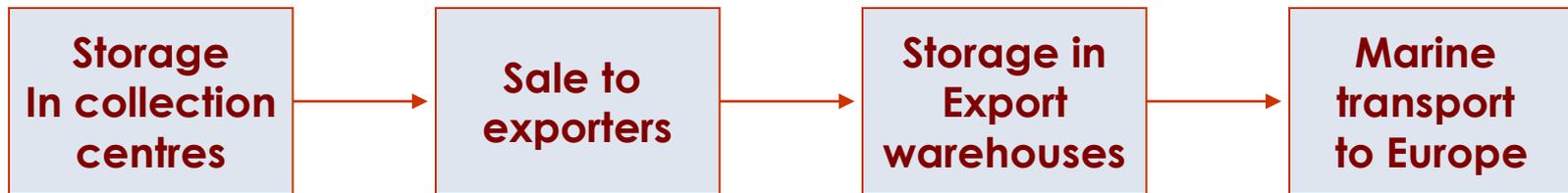
The west african cocoa farmer



Our major stakeholder !

Source : Cargill

Complex cocoa supply chain in producing countries: many steps....



Collection centres:

- beans stored briefly
- additional bean drying if needed

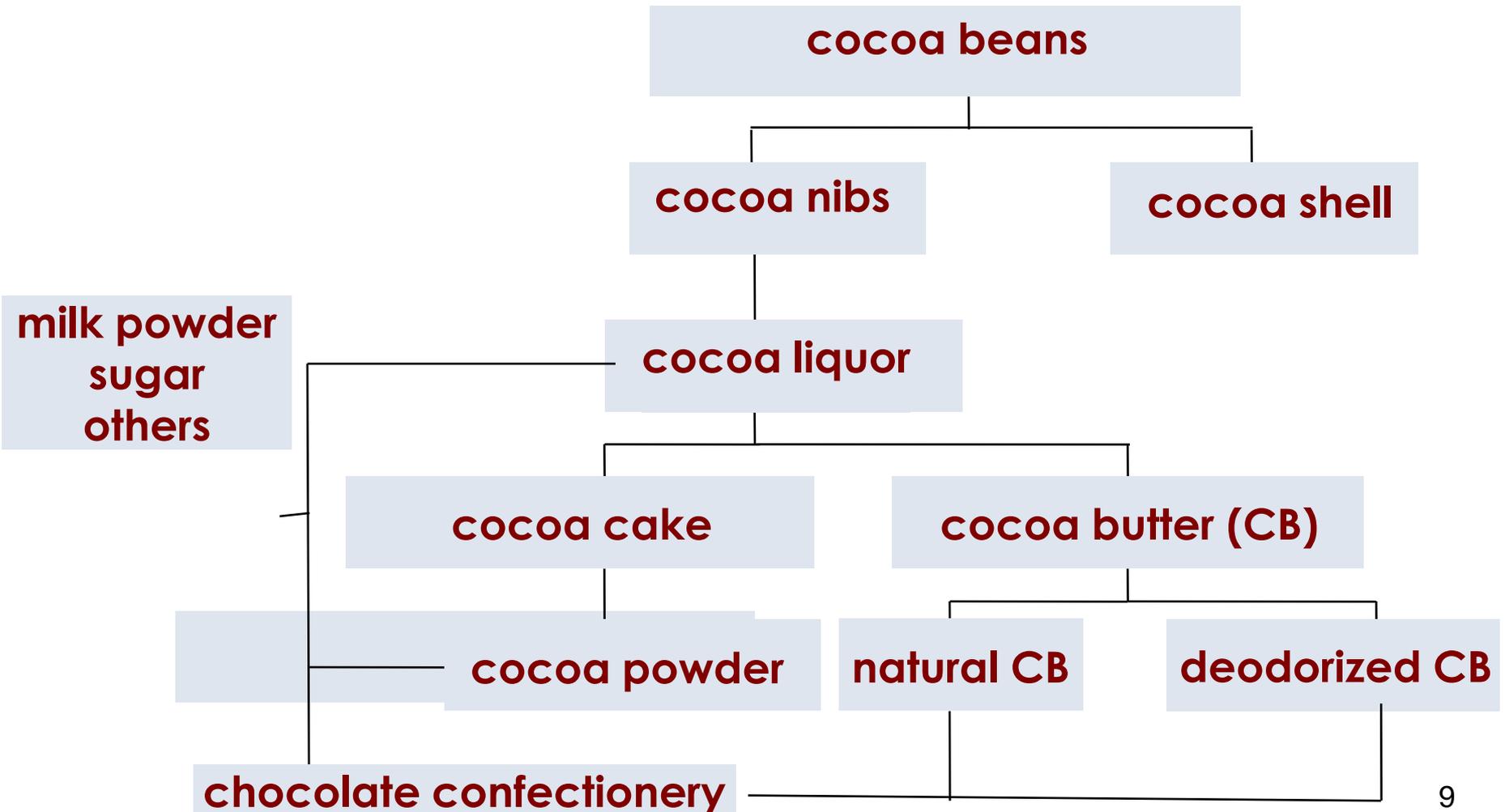
Middlemen :

- buy beans from collection centres and transport/sell to exporters

Exporters :

- drying, grading and mixing of beans by exporters, predominantly operating in harbour areas
- large lots stored in export warehouses until shipping
- fumigation of cocoa prior shipment often compulsory
- marine transport in bags, containers or breakbulk

Cocoa supply chain in processing cocoa beans



Calculation of Factors & MRLs for Cocoa Products

- EU MRLs apply not only to fermented cocoa beans but also to products processed from cocoa beans after taking changes in pesticide levels caused by processing and dilution or concentration during processing into account.
- EU legislation has today not set any harmonised rules for correlation factors when finished products are tested
- Each EU country can develop its own rules....
Huge burden for Industry !!!

EU INDUSTRY APPROACH

- Determination of solubility
- Calculation of factors per type of solubility
- Calculation of MRL for
 - Cocoa liquor (CL)
 - Cocoa butter (CB)
 - Cocoa powder (CP)
 - Chocolate
- Simplified approach
- Limited to pesticides with MRL set above LOD
- Fate of processing?

Calculation of factors: necessary to adopt pragmatic approach

Composition cocoa nibs used (%)	
fat*	53
Fat Free Cocoa (FFC)	47

Simplifications
Fat soluble pesticides (marked with F in column P) are transferred in the CB phase for 100%
Water soluble pesticides (marked with W in column P) are transferred in the FFC phase for 100%
Moderate soluble pesticides (marked with M in column P) are transferred equally in the CB and FFC phase.

Factors FAT soluble pesticides	
Factor CL	1,00
Factor CB	1,89
Factor FFC	0,00

Remark: default MRL 10 ppb applies

Factors WATER soluble pesticides	
Factor CL	1,00
Factor CB	0,00
Factor FFC	2,13

Remark: default MRL 10 ppb applies

Factors MODERATE soluble pesticides	
Factor CL	1,00
Factor CB	0,94
Factor FFC	1,06

Calculation of factors

Applied factors

FAT soluble pesticides	
Factor CP 10/12	0,2
Factor CP 20/22	0,4
Factor chocolate**	0,63
Factor milk chocolate***	0,57

WATER soluble pesticides	
Factor CP 10/12	1,9
Factor CP 20/22	1,5
Factor chocolate**	0,46
Factor milk chocolate***	0,12

MODERATE soluble pesticides	
Factor CP 10/12	1,05
Factor CP 20/22	1,03
Factor chocolate**	0,54
Factor milk chocolate***	0,34

**Chocolate: 44% sugar, 44% cocoa liquor, 10% cocoa butter, 1% fat-reduced cocoa powder, lecithin & vanillin

*** Milk Chocolate: 42% sugar, 11,5% cocoa liquor, 24% cocoa butter, 21,5% full cream milk powder, lecithin & vanillin

Calculation of MRLs

Active substances with MRL set above LOQ	Solubility	MRL mg/kg					
		Cocoa Liquor	Cocoa butter	CP 10/12	CP 20/22	Chocolate	Milk chocolate
Aldrin & dieldrin	F	0,05	0,09	0,01	0,02	0,03	0,03
Copper	W	50	0,01	95	75	23	6
DDT	F	0,50	0,94	0,10	0,20	0,32	0,28
Dieldrin	F	0,05	0,09	0,01	0,02	0,03	0,03
Diuron	M	0,10	0,09	0,10	0,10	0,05	0,03
Lindane	F	1,00	1,89	0,21	0,40	0,63	0,57
Malathion	M	0,50	0,47	0,52	0,52	0,27	0,17
Phosphide	M	0,05	0,05	0,05	0,05	0,03	0,02
Bromide ion	W	70	0,01	133	105	32	8

- For pesticides with MRL = LOD → LOD for all cocoa products?
- Fate of processing?

Problematic Pesticides for Cocoa

Information gathering as identified in 2008

- Information from ICCO on which pesticides are used on cocoa in producing countries
- Information from scientific papers
- Information for West Africa from CABI
- Type, action and use of pesticide
- Data on residue levels from industry monitoring
- Other residue data including information from Japan
- EU MRLs
- EU approval status

CABI field Research Programme

- CABI (*) as lead research institute & Partner national research institutes :
 - IRAD – Cameroun
 - CRIG & Ghana Cocoa Board – Ghana
 - CNRA – Côte d'Ivoire
 - CRIN – Nigeria& CAOBISSCO-ECA
- Project co-funded by LNV (Ministry of Agriculture, Nature and Food Quality, the Netherlands) and cocoa/chocolate Industry.
- For Results, please see presentation made earlier in the workshop by M. Rutherford (CABI)



(*) CABI (CAB Intern.): not for profit organization established by a U.N. treaty level agreement between more than 40 Member Countries; web: www.cabi.org

CABI Field Research Programme

- Objectives :
 - Identify use of pesticides and resulting residue levels in cocoa
 - raise awareness on pesticide usage
 - contribute to development of GAPs
- Duration : Sept 2006 – October 2008
- Geographic Coverage: Ghana, Cameroon, Nigeria and Côte d'Ivoire
 - +/- 75 % of worldwide cocoa bean production
 - +/- 85% of EU imports

Results of ICCO, CABI & Industry surveys project on Pesticide usage in cocoa

- About 100 different active substances (AS) used on cocoa in producing countries
- About 30% of AS widely used; used in at least three countries
- But almost 50% of AS used only in one country
- 50% of used AS are insecticides; 30% fungicides and 20% herbicides
- Majority of used insecticides (>60%) are old and no longer approved for use in EU

Evaluations as identified in 2008

- Analytical results available for about 25% of the used AS
- Not expected to find residues of herbicides in cocoa but could be found indirectly coming through use on other crops;
- Also for fungicides low probability of residues; very limited analysis
- Insecticides most frequently analysed
- All results except for endosulfan and pirimiphos-methyl < MRLs
 - Endosulfan a few % > MRL 0.1 mg/kg
 - Pirimiphos-methyl up to 8 % > MRL 0.05 mg/kg
max 0.13 mg/kg
- A few samples with traces >LOQ but <MRL of four insecticides (chlorpyrifos, fenobucarb, lindane, propoxur) and two fungicides (benalaxyl, metalaxyl)

Industry sharing Information with cocoa producing countries

- Letters with information about MRLs for cocoa in EU
- Made aware that a number of AS used on cocoa are no longer approved for use in EU; encourage phase out of these AS
- Concern about residues of lindane, even if residues are <MRL; lindane on PIC convention list and should be banned
- Stressed importance of following instructions on labels when using pesticides; especially when applying pesticides directly on cocoa beans during storage
- European cocoa / chocolate industry concerned that residues above MRL are found of endosulfan and pirimiphos-methyl. EU Industry supporting EJF call for global ban of endosulfan
- If data available to support higher MRL for pirimiphos-methyl than current 0.05 mg/kg, application for import tolerance might be an option
- Ecuador and Venezuela made aware of European industry's concern about presence of 2,4-D in cocoa beans

EU Industry supports & encourage use and implementation of ICCO MANUAL

**Pesticides Use in Cocoa:
A Guide for Training,
Administrative and Research Staff
by Roy Bateman PhD (ICCO
& Cocoa Industry Consultant
– IPARC, Imperial College,
London)**

Pesticide Use in Cocoa

A Guide for Training, Administrative and Research Staff



by Roy Bateman PhD (ICCO & Cocoa Industry Consultant)

version: 14 May 2008



Manual Outline

Purpose: Raise awareness of general and specific issues relating to pesticide use in cocoa

Manual designed to:

- Summarize important underlying administrative and technical issues with pesticides
- Provide more background information on pesticide to research staff
- Help define a “road map” for establishing good crop pest control, storage and distribution practices for bulk cocoa

It also describes/contains:

- Good Agricultural Practices for cocoa on the field
- Good Crop Storage Practices
- Several recommendations such as the need for improved:
 - Choice of PPPs,
 - Application method and timing
 - Communication on the above

Final document available on ICCO website: www.icco.org

List of EU Industry actions to disseminate & support implementation of information

Regarding IPM:

EU Industry supports of Initiatives in-the-field, notably 'Farmer Field Schools' and the 'Sustainable Tree Crops Program' (STCP)

EU Industry is investing in many areas to try and improve cocoa yields and safety on smallholder farms: Better planting material, better pest and disease management and better farmer organization will all contribute significantly to a reduction in pesticide use on cocoa farms. Specifically, the industry supports:

- Strengthening of farmers' organizations
- Training on Rational Pesticide Use
- Setting up Integrated Pest Management programs
- Development of more resistant planting material
- Cultural control to reduce insect pests
- Research and trials on biological control systems
- Large scale trials on establishing traceability in the cocoa supply chain

List of EU Industry actions to disseminate & support implementation of information

- Gro-cocoa article (Ed. 10 December 2006) “Meeting new European pesticide residue regulations” circulated widely to the global cocoa research community(> 500 copies provided to organisations and individuals in 46 countries, incl. Cam., Ghana., I.C., Nig.)
- FCC/ECA/CAOBISCO visit to Indonesian Min. of Agriculture. Jan 2007: presentation on contaminants
- Round table for sustainable cocoa economy (Accra, 2007 and in Port of Spain, Trinidad 2009– contributions to the development of the background document on best practices).
- Industry initiated Research Project to assess pesticide supply and use and identify and start to address areas of inappropriate practice. Project funded by LNV (Dutch Ministry of Agriculture) and with in kind support from CAOBISSCO/ECA members. CABI was lead research institute and worked together with Cocoa Producing Countries Cocoa Research Institute (Ghana, Ivory Coast, Cameroon and Nigeria). The project started in 2006 and final report delivered in 2008.

List of EU Industry actions to disseminate & support implementation of information

- CAOBISCO/ECA informed producing countries about pesticide MRL's for cocoa in EU and regulatory status for pesticide use in EU.
 - EU Industry developing information package & recommendations tailored to each origin country to allow country to focus/take appropriate actions on specific active ingredients of concern
 - CAOBISCO/ECA working on a recommended list of Pesticides to be used on cocoa and on promotion of IPM in Cocoa Producing countries
 - Promotion of outcome of Joint research project to various EU representation of Cocoa Producing countries (ACP Embassy, Ghana Embassy, Indonesian Embassy, Ivory Coast Embassy)
- Regular update on findings and recommendations at the ICCO (International Cocoa Organization) meetings and support an ICCO document on GAP
- Technical & Financial Participation to the ICCO Pesticides Manual
- International promotion of Good agriculture practices at 16th International COPAL conference (Cocoa Producing countries Alliance) conference in Indonesia 2009
- EU Industry supports co-financing ICCO Project proposal : Integrated Management of Cocoa Pests and Pathogens in Africa

List of EU Industry actions to disseminate & support implementation of information

- EU Cocoa and Chocolate Industry requesting from Pesticides manufacturers actions toward problematic pesticides
- EU Industry supporting NGOs work, publication in PAN newsletter (sept 2009) of information on CABI field research program and call from EJF of global ban of the use of Endosulfan
- EU Industry will coordinate dissemination of information within the International confectionery association and will share its knowledge and will support each project which will be undertaken on Pesticides or any contaminants in any Cocoa Producing Countries

Thank you for your attention



Source: Cargill