



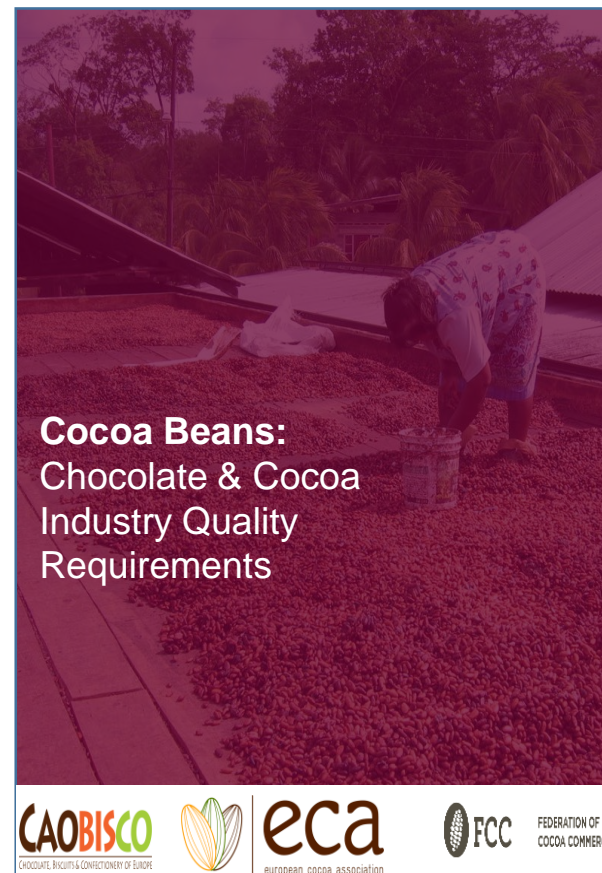
FEDERATION OF
COCOA COMMERCE

Cocoa Beans: Chocolate & Cocoa Industry Quality Requirements



Editors: Michelle End & Robin Dand

A publication supported by contributing members of ECA CAOBISCO FCC Joint Cocoa Quality & Productivity working group and in kind contribution from CRA LTD.



Global Cocoa Agenda Actions:

"improve cocoa quality by better communication of industry needs, post-harvest processing and quality assessment"

"enhance food safety by wider promotion and adoption of Good Agricultural Practices..."

Update of the 1996 BCCCA booklet to produce

« Cocoa Beans: *Chocolate and cocoa industry quality requirements* Guide.

- **Scope** «Farm to Factory Gate »
- Quality – General requirements & standards
- Food Safety aspects
- Pre-harvest & Post-harvest GAP affecting quality attributes,
- Transportation, Shipping, Warehousing practices affecting quality
- **Audience** « Those involved in the production, distribution and storage of cocoa beans »
 - ✓ Researchers and Extension services
 - ✓ Certifiers, Co-op managers
 - ✓ Internal company (Processor and manufacturer)
 - ✓ Buyers, traitants etc
 - ✓ Trainers of trainers, Co-op managers
 - ✗ NOT Farmer or Farmer training

1996



COCOA BEANS

CHOCOLATE MANUFACTURERS' QUALITY REQUIREMENTS

2016

Cocoa Beans:
Chocolate & Cocoa
Industry Quality
Requirements

CAOBISCO
CHOCOLATE INDUSTRY CONFEDERATION OF EUROPE



eca
EUROPEAN COCOA ASSOCIATION



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Content Overview

Original Structure

- Introduction
- Part 1 Aspects of Cocoa Bean Quality
- Part 2 Quality Standards
- Part 3 Aspects of Cocoa Production Affecting Quality
- References/Sources of Further Information
- Appendices
- International Cocoa Standards
- Protocols for the preparation and flavour evaluation of samples and small-scale fermentation techniques contributed by Darin Sukha and Ed Seguíne





Part 1
Aspects of Cocoa
Bean Quality

- 1. Flavour
- 2. Food Safety & Wholesomeness
- 3. Physical Characteristics
- 4. Cocoa Butter Characteristics
- 5. Colour Potential - "Colourability"
- 6. Traceability, Geographical Indicators & Certification

Flavour

Flavour evaluation

Types of cocoa: genetic and environmental effects

Off flavours and their causes

inc. mouldy, smoky, acid, earthy, bitter, contaminated

Food Safety

Main issues

Current legislation, guidelines

Summary GAP to mitigate contamination

Sources of further information

- Allergens
- Dioxins & PCBs
- Bacteria
- Foreign Matter
- Heavy Metals
- Infestation
- Mineral Oil Hydrocarbons
- Polycyclic Aromatic Hydrocarbons (PAH)
- Mycotoxins including Ochratoxin A (OTA)
- Pesticide Residues

2.7 Minimize the intake of MOSH/MOAH through commodities and semi-finished products

Part 1 Aspects of Cocoa Bean Quality

1. Flavour
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- No contact with mineral oil components in the supply chain of cocoa
(and other raw materials)
- Mineral oil free shipment/transport
- Mineral oil free jute/sisal bags
- Existing Regulations
 - FCC Guidelines Shipment of Cocoa Beans
 - International Jute Organisation – IJO Standard 98/01

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Part 1 Aspects of Cocoa Bean Quality

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Physical Characteristics

Consistency

Yield of edible material

bean size, shell %, fat %, moisture,
foreign matter, insect
damage, clumped beans

Cocoa Butter Characteristics

Free Fatty Acid

Hardness

Colour Potential – “colourability”

Important for cocoa powder



Traceability, Geographical & Certification

COCOA GAP - TOWARDS TRACEABILITY IN THE COCOA SUPPLY CHAIN

- ✓ Maintain appropriate farmer records.
Prepare export grade cocoa as close to farmer as possible.
- ✓ Avoid mixing and blending.
- ✓ Marks, codes should allow traceability to and from collector/cooperative.
- ✓ Maintain lot integrity throughout the supply chain.

Part 2 Quality Standards

1. International Cocoa Standards
2. Other Standards
3. Bean Size

International Quality Standards

Refers to ISO 2541 “Cocoa beans – Specification (revised 2014) & ISO 1114 Cocoa beans – Cut Test

Other Standards including FCC terms

Bean size

ISO 2451 now also specifies bean size standards, defined by the bean count and usually expressed by the number of beans per 100g (see Appendix A for further details). The specifications are currently:



Large beans:
Bean count of less or
equal to 100



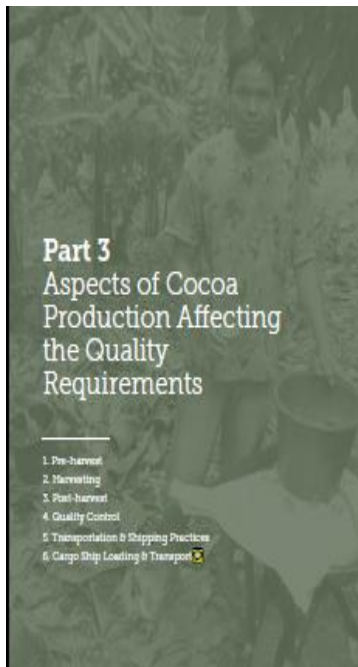
Medium beans:
Bean count of 101 to 120



Small beans:
Bean count greater than
120

From June 2015, the FCC terms require the cocoa to be of a certain condition; namely “In addition to any specified quality terms, the parcel shall consist of beans which shall be reasonably;

- Uniform in size,
- Uniform in fermentation,
- Dry,
- Homogenous in all other respects and the parcel shall be:
- Fit for the production of a foodstuff,
- Free from adulteration, contamination and rodents,
- Virtually free from live insects (including mites) or other type of infestation,
- Virtually free from germinated beans
- Within the customary range for violet or purple beans of the specified grade/ origin.”



Collates information from sources including

- Codex Code of Practice for the Prevention and Reduction of Ochratoxin A Contamination
- CCE Sustainable Cocoa Trainers Manual
- ICCO CB Guidelines on Best Known Practices in the Cocoa Value Chain
- Research reports

Provides links to other sources eg ICCO Pesticides manual

•Covers:

•Pre-harvest GAP

- e.g. planting materials, cadmium uptake
- integrated pest management,

•Harvesting

•Post-harvest GAP

Fermentation, Drying, Storage

•Transportation & Shipping Practices



Photos: E. Ciro, D. Smith, M. Gilmore

KEY POINTS: FERMENTATION

- ✓ Ensure fermentation method is appropriate to the variety, climate, quantity of beans and locally available technology.
- ✓ Discard any pieces of husk, placenta, black beans, germinated beans.
- ✓ Ensure basket, platforms and any equipment is kept reasonably clean between fermentations.
- ✓ Site fermentation in a space with adequate protection from rain, wind and direct sunlight.

Appendices

Definitions used in FCC quality contract
Cut Test and Bean Count Methods

Appendix A

Definitions
Specification of Quality Requirements & Standards

Contributed by Darin Sukha and Ed Seguine

Protocols and terminology developed by partners from research institutes and industry enabling flavour assessment using small-scale/basic laboratory equipment adopted by Cocoa of Excellence and Heirloom Cacao Preservation Initiatives

Outlines methods for small scale fermentations and drying techniques suitable for use where limited supply of raw cocoa beans eg experimental samples

Appendix B

Protocols for the preparation
and flavour evaluation of samples
and small-scale fermentation techniques

D. Sukha and E. Seguine.

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C R A^{Ltd.}

Cocoa Research Association Ltd (CRA Ltd) is a non-profit organisation based in the UK which

carries out scientific research on behalf of Mars, Mondelez International and ICE Futures Europe

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Español



English



Français



Cocoa Beans: Chocolate & Cocoa Industry Quality Requirements

Fèves de Cacao:
Exigences de Qualité
de L'Industrie du
Chocolat et du Cacao

Cacao en Grano:
Requisitos de Calidad
de la Industria del
Chocolate y del Cacao



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