Cocoa Beans: Chocolate & Cocoa Industry Quality Requirements

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

- 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
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
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
Appendices

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

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
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