

Good Hygiene Practices along the coffee chain



Module 4.8

Establish Critical Limits
for each CCP
(Task 8 / Principle 3)

Objectives and contents

- Objectives
 - To equip trainees to be able to establish critical limits for the identified CCPs in a HACCP system
- Contents
 - What are critical limits and how are they determined?
 - What are operating limits?
 - Documenting critical limits in the HACCP plan

What are critical limits?

Critical limits

Criteria that separate acceptability from unacceptability
(Codex definition)

- Critical limits must be set for each CCP
- These ‘criteria’ refer to characteristics of the process or product that determine whether or not there is control of identified food safety hazards at a CCP

Determining critical limits

- Sources of information to establish a critical limit can be
 - Scientific publications
 - Research data
 - Regulatory requirements & Guidelines
 - Experts
 - Experimental studies and surveys

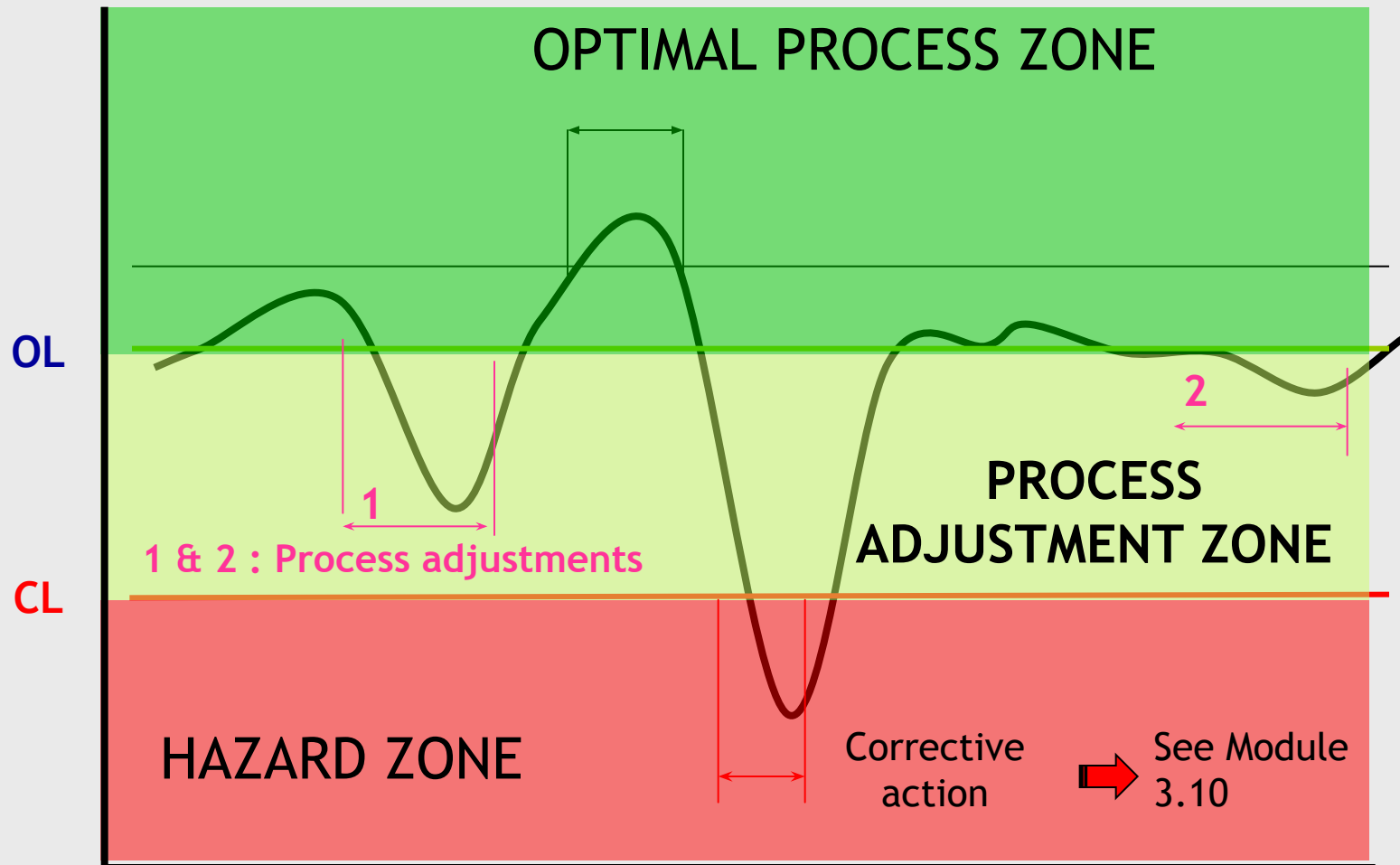
Operating limits

- Once a critical limit is breached, the process is ‘out of control’ and safety cannot be assured
- To enhance control, processors establish **operating limits**, which are
 - Criteria that prompt corrective action **before** unacceptability is reached

Operating limits

- Characteristics compared to critical limits are
 - More strict than critical limits
 - May be required for non-safety quality aspects
 - May have to account for inherent monitoring or control device error
 - Protect against violation of critical limits

Process control



Coffee drying

- Critical limit
 - Could be around 16% m.c. (global project is investigating)
- Operating limit
 - ICO recommended limit of 12.5% might be an appropriate OL

Form 10 - documenting critical limits - example of *boia*

Process step	CCP No.	Hazard description	Critical limits	Monitoring procedures	Deviation procedures	HACCP records
6. <i>Boia</i> sun-drying	CCP1 a (B)	Long residence time in a partially dried condition can allow development of mould and production of OTA	5d or less between A_w 0.95 and 0.80			
	CCP1 b (B)	Reintroduction of water after drying mostly accomplished can lead to growth of mould	No exposure to condensation at night; No exposure to rain			

Schematic HACCP outline for copra production

Coconut Farm Harvesting / dehusking	CCP1	Elimination of nuts found to be split during harvesting and dehusking: Aflatoxin already present is eliminated
Coconut Farm Splitting	GAP	During splitting, coconut meat must not be in contact with soil, a source of inoculum - this step is considered to be relevant to GAP
Coconut Farm Drying	CCP2	Drying to safe moisture content within 48 hours - this CCP will prevent from mould growth and aflatoxin production
Primary Trader Accumulating/Drying	GMP	National grading system in place which provides a premium for copra showing <1% mouldy meat and moisture content <12%: GMP
City Traders Storage	GMP	Good storage practices such as use of pallets, good ventilation prevent from re-wetting of Grade 1 copra
Oil Mills Procurement	GMP	Elimination of nuts found to be split during harvesting and dehusking: Aflatoxin already present is eliminated
Oil Mills Extracting	CCP3	Classified as a CCP with a critical limit of 12% moisture in the cooled pellet - insufficient cooling will result in an unacceptable moisture
Export Shipping copra cake	GHP	No increase of aflatoxin during transport when copra by-product is at a moisture content <12 %

Form 10 - documenting critical limits – copra production

Process step	Description of hazard	Possible control measures	Control step	Critical limits	Monitoring procedures	Corrective actions	Records
Farm harvest / dehusking	Mould	Select sound nuts only	CCP1	No visible crack	Select sound nuts only		
Farm drying	Mould	Smoke drying < 16% m.c. Hot air drying < 12% m.c. within 48 hrs	CCP2A CCP2B	<ul style="list-style-type: none"> Into drier within 12 hrs Dry for 24 hrs Turn copra every 8 hrs 	Smoke drying < 16% m.c. Hot air drying < 12% m.c. within 48 hrs		
Oil mill expelling / pelleting	Aflatoxin	Control moisture of pelleted product	CCP3	Final moisture content <12%	Control moisture of pelleted product		

Summary

- Explaining critical limits
- Explaining operating limits
- Documenting critical limits in a HACCP plan

Next module: Establishing monitoring
Systems for each CCP