

JICA CUP2 Project

ANAEROBIC NATURAL PROCESS



8. Anaerobic Natural

Advantage of the process	• Create unique and complex flavor profiles, including bright acidity and fruity notes. • Consistent and high-quality outcomes in terms of flavor. • Appeals to consumers seeking high-quality, innovative coffees beyond traditional profiles.				
Recommended conditions	1. Sugar contents >18.0 2. Requires oxygen-free environment to activate different microbes such as tanks or GrainPro bags				
Steps	1	2	3	4	5
	Harvesting	Sorting	Anaerobic fermentation	Drying	Storage
	DAY 1		DAY 1-4 (if 72 hours)	DAY 5- (for 35-40 days)	-
					

Step 1: Harvesting

Purpose: Ripe cherries have good sugars and acidity to create flavors

Recommended equipment



Use a **container** of cherries during harvesting to easily collect cherries



Use a **plastic sheet under the tree** to collect any falling cherry.



Use **clean bags** to hold cherry during harvesting

Key concept

① Harvest **only well-ripen cherries**



Because well-ripen cherries are heavier



Weight	70kg	100kg
Farmgate price	700rwf	700rwf
Total income	49,000rwf	70,000rwf



② Start to harvest in **the morning**.



③ Deliver cherries to the station **within 8 hours** after harvest



④ Do **not** pick cherries **on the ground** to avoid **contamination**



⑤ Put coffee **under shade** after harvesting to avoid rapid fermentation

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Step 2: Sorting – color sorting

Purpose: Classify cherries – Ripen / unripen / overripen

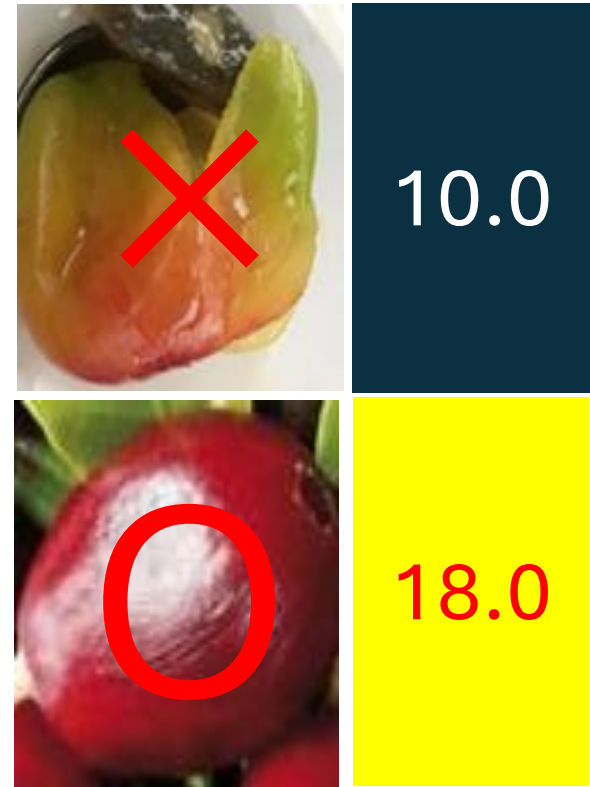
Checking point ①

At least 70% of cherries are **well ripen**



Checking point ②

Sugar contents: above 18.0



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Step 3: Anaerobic fermentation

Purpose: Achieve anaerobic fermentation for flavor development

Equipment

An airtight tank to shut out oxygen to go inside

or

A GrainPro (plastic bag)

Key concept

- ① **Anaerobic condition:** The airtight tank or GrainPro bag is **kept sealed** to prevent airflow from entering.
- ② **Control temperature and humidity:** Store under a roof where temperature and humidity are stable.
- ③ **The length of fermentation** should be adjusted depending on the market demand for anaerobic natural.

**pH should be carefully controlled*

Checking points

- ① **Smell:** Avoid sour or vinegary aroma.
- ② **Color:** Check if beans changed their color.
- ③ **pH:** Should fall to **4.0 – 5.0** by the end of fermentation.

**Though you can adjust depending on buyers' demand*



Step 4: Drying

Purpose: develop specific fruity flavors and reduce moisture content.

Equipment



A shade net to avoid strong heat



A plastic sheet to avoid rain and dew



A moisture meter to check moisture

*Moisture meter must be calibrated before use

Key concept

- ① On the first day, **strong sun is required** to stop fermentation. Without sun, please extend the time to open and dry.
- ② **Control temperature:** Use a **shade net** to cover from **11:00-15:00** to avoid strong heat. **Adjust according to the weather condition.*
- ③ **Control humidity:** Cover cherries with a **plastic sheet** to avoid rain & dew.
- ④ **Resting:** 1 day in a week, **cover cherries completely for resting.**
- ⑤ **Uniformity:**
 - **Stirring 5-6 times a day** for first 2-3 days. After, **3 times a day.**
 - Thickness of the layer: **Thin like 3cm** (first 2-3 days) → **Thick.**



Checking points

- ① **Moisture contents:** Aim for **11.0-12.0%** for best condition. Use moisture meters twice a day.
- ② **Duration:** Typically, **35-40 days.** The drying process must be carefully controlled to avoid rapid or uneven drying.
- ③ **Cherry temperature:** It should be **kept below 40°C.**



Step 5: Storage

Purpose: stabilize beans post-drying for export or milling

Equipment

Use pallets to avoid damage
(e.g., water, bugs)



Key concept

- ① **Moisture control:** Maintain the bean moisture content at **10-12%**
**Adjust the MC if storage is either very hot or very humid*



- ② **Ventilation:** Control consistent **air flow** to avoid dew and high humidity



Checking point

- ① **Temperature:** Keep temperature at **15–23°C** to avoid damage



- ② **Humidity:** Keep humidity at **50-70%** to avoid mold



- ③ **Resting:** Beans should rest for **around 3 months** to stabilize MC

