



Drying guide for cocoa



IMPORTANT: Data from samples may be used in investigations and enforcement actions. It's vital to avoid mold growth and keep samples below 60°C.

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Basic drying protocols for cocoa

- 1. All efforts must be made to avoid mold on samples.
- 2. Do not use chemicals to prevent mold.
- 3. Ensure samples do not get mixed during the drying process.
- 4. To enable DNA analysis, temperature must never exceed 60°C.
- 5. Ensure ovens or drying equipment are set below 60°C.
- 6. Dry samples until moisture content is below 16%.
- 7. Avoid contamination of samples during the drying process.
- 8. Use the same drying technique for all samples.
- 9. Do not use a microwave for drying samples.

Tools and equipment for drying

- 1. Oven or dehumidifier.
- 2. Oven thermometer or infrared thermometer gun.
- 3. Cocoa/grains moisture meter.
- 4. Sharp knife.
- 5. Aluminum trays.
- 6. Racks & muslin sheet if air drying.
- 7. Large clear plastic bags if fermenting.
- 8. Large bags for complete sample set from one tree.
- 9. Vacuum bags for beans.
- 10. Permanent marker pen.



Drying overview and options



BEAN EXTRACTION:

All beans need to be extracted into containers that are clearly marked with the correct barcode number.

PRE-PROCESSING (OPTIONAL):

Washing or fermenting can help remove the outer flesh from beans. It may take longer but can help reduce drying time/energy cost.

DRYING:

This can be done with a dehydrator, oven, or through air drying but the temperature of the beans must not exceed 60°C.

MOISTURE CHECK & PACKAGING:

All samples must have a moisture content below 16% before they are vacuum packed for dispatch.

Bean extraction

1. Mark trays with matching barcode numbers for all pods.



3. Snap the pod in half to reveal the beans inside.

2. Cut the outside of the pod avoiding contact with the beans.



4. Place these directly in clean trays marked with the correct barcode.



5. Repeat this process, extracting the beans of 3 pods leaving the fourth as a spare.





Pre-processing

METHOD 1: WASHING

Gently rinse beans in a colander, removing pulp under running water. After rinsing, check beans and rub off any remaining pulp. Dry beans immediately after washing to prevent mold.

Washing time: approx. 10 mins per pod



Seal beans in a plastic bag marked with their corresponding barcode and stir every few days to ensure even fermentation.

Fermentation time: 5-7 days

Dehydrator and oven drying



DEHYDRATOR DRYING:

This is the most effective method of drying. Set temp at a maximum of 60°C. Stir the beans periodically to ensure even dehydration.

Drying time: 12-24 hours

OVEN DRYING:

Set temp at a maximum of 60°C. Stir the beans periodically to ensure even dehydration and keep oven door slightly open or open it periodically to facilitate moisture escape.

Drying time: 12-24 hours



BEAN TEMPERATURE MUST NOT EXCEED 60°C

To check temperature use an additional oven thermometer or infrared thermometer gun.

Air drying

Place the aluminum trays on racks to enhance airflow and cover them with a muslin cloth to prevent contamination. Stir the beans periodically to ensure even dehydration. Using a dehumidifier in the room can speed up this process.

Drying time: 5-7 days



Checking the moisture level

Signs that beans are below the required 16% moisture level include:

COLOR: Dry beans shift from light tan to a darker brown.

TEXTURE: Dry beans are hard, brittle, and snap cleanly without bending.

SOUND: When shaken dry beans rattle due to drying induced shrinkage of the bean inside its shell.





Packaging

- 1. After drying, vacuum seal beans from each pod in bags and label each with a corresponding barcode.
- 2. Combine these packaged beans with the spare pod and leaf samples from the same tree into a single bag.
- 3. Attach a Proforma and a barcode, matching the samples inside, to this bag.
- 4. Complete all of the fields on the Proforma.



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