



Glossary of terms

For sensory evaluation of cacao beans processed into mass and dark chocolate



Attribute intensity scale and meanings:

Intensity Meaning

0	Absent.
1	Just a trace and may not be found if tasted again.
2	Present in the sample but at low intensity.
3 to 5	Clearly characterising the sample.
6 to 8	Dominant characterisation of the sample.
9 to 10	Maximum. Strong intensity. Overpowers some other flavour notes in the sample.

The flavour attributes are divided into three groups:

- 1. Core attributes:** cacao, acidity, bitterness, astringency and roast degree expected to be present in every sample and scored.
- 2. Complementary attributes:** characteristics that may or may not be perceived in cacao samples.
- 3. Off-flavours:** resulting from defects that may or may not be perceived in cacao samples.

Descriptor	Description	Intensity level / Reference notes
Cacao	Typical flavour of roasted cacao beans that are well fermented, dried, free of defects.	0–2 Under-fermented cacao, ancient Criollos.
		3–5 Appropriately fermented “Nacional” and Papua New Guinean lots.
		6–8 Appropriately fermented cacao, some West African and some Dominican Republic Hispaniolan lots.
		9–10 Some West African lots.
Acidity	<p>Total acidity is the sum of the following individual acidities. If the result is ≥ 10 it is rounded to 10 as the maximum:</p> <ul style="list-style-type: none"> • Fruit: citric or other fruit acids. • Acetic: vinegar (can be smelled in the sample). • Lactic: typically occurring in sour milk and yogurt • Mineral and butyric: harsh metallic tasting (mineral) and rancid butter (butyric). <p>Perception of acidity intensity is particularly dependent on the amount of sample in the mouth.</p>	0–2 Some well-prepared West African lots.
		3–5 Some Ecuadorian, Peruvian and Central American lots.
		6–8 Some Dominican Republic Hispaniola, Papua New Guinean and Malaysian lots.
Bitterness	<p>Basic taste, typically perceived in caffeine, coffee, kola nut, some beers and grapefruit.</p> <p>Perception of bitterness intensity is particularly dependent on the amount of sample in the mouth.</p>	1–2 Some ancient Criollos.
		3–5 Well-prepared West African lots.
		6–8 Severely under- and un-fermented cacao.

Descriptor

Description

Intensity level / Reference notes

Astringency

Astringency could be perceived in two ways:

- **Sharp mouth-drying effect**, sharp, perceived between tongue and palate and /or at the back of the front teeth and inside lips and gums – typical of raw nut skins and green banana skins.
- **Velvety sensation** on the sides of mouth and tongue. Typical of tannins in some wines or beers.

Perception of astringency intensity is particularly dependent on the amount of sample in the mouth.

I
N
T
E
N
S
I
T
Y

1–2	Some ancient Criollos.
3–5	Normal intensity for most cacao.
6–8	-
9–10	-

T
Y
P
E

Sharp-mouth drying	Typical of under-fermented cacao.
Velvety	Typical of appropriately fermented “Nacional”.

Fresh fruit

Total fresh fruit is composed of the following sub-attributes:

- **Berry**: red or black currant, strawberry, raspberry, blackberry, acai berry.
- **Citrus**: orange, lemon, lime, grapefruit or generic sensation of citrus-like fruit.
- **Dark**: cherry, plum.
- **Yellow / orange / white flesh**: apricot, peach, pear, banana.
- **Tropical**: passion fruit, pineapple, mango or soursop.

0–2	Many West African lots.
3–5	Some Central and South American, well fermented Asia and Pacific country lots.
6–7	Madagascar, some Central and South American country lots, some Papua New Guinean lots.

Browned fruit

Total browned fruit is composed of the following sub-attributes:

- **Dried**: dried apricot, banana, yellow raisin, fig that has undergone an un sulphured drying process.
- **Browned**: dark raisin, dates, prunes.
- **Over ripe**: No longer fresh and severely over-ripe fruit, turning brown inside and outside, as a step towards over-fermentation.

0–2	Many West African lots.
3–5	Fully fermented Indonesian and some Caribbean country lots.
6–8	Some Papua New Guinean and some Caribbean country lots.

Vegetal

Total vegetal is composed of the following sub-attributes:

- **Grassy / Green vegetal / herbal**:
 - » Grassy – freshly cut grass, young green leaves.
 - » Green vegetal – crushed mature leaves.
 - » Herbal – hay, straw or herbal / dried green, herbs like thyme and rosemary.
- **Earthy / mushroom / moss / woody**:
 - » Earthy – smell of dampness rising from soil after rain.
 - » Mushroom – smell of fresh mushrooms.
 - » Moss – damp moss often associated with earthiness.
 - » Woody – leaves and wood on a forest floor.

0–2	West African lots.
3–5	Appropriately fermented “Nacional” and some Caribbean country lots.
6–8	Some Caribbean country lots and some Peruvian lots.

Descriptor	Description	Intensity level / Reference notes
------------	-------------	-----------------------------------

Floral	Total floral is composed of the following:	0–2 West African lots.
	<ul style="list-style-type: none"> • Orange blossom: orange blossom flavour. • Flowers: jasmine, honeysuckle, rose, lilac, lilies, etc. 	3–5 Appropriately fermented “Nacional” and some Caribbean country lots.
		6–8 Some Caribbean country lots and some Peruvian lots.

Woody	Total woody is composed of the following sub-attributes:	0–2 -
	<ul style="list-style-type: none"> • Light wood: freshly cut cacao wood, white pine wood, maple wood, ice-cream/popsicle wooden stick. • Dark wood: oak, walnut, teak, mahogany. • Resin: pitch of pine or other resinous wood. 	3–5 Some “Nacional” and many West African lots.

Spice	Total spice is composed of the following sub-attributes:	0–2 In most origins.
	<ul style="list-style-type: none"> • Spices: dried coconut, nutmeg, cinnamon, cloves, cacao mass, tonka, vanilla, black pepper. • Tobacco: dried tobacco leaves. • Savoury/Umami: sodium glutamate, umami. 	3–5 In some West African, Central and South American and Caribbean country lots.

Nutty	Total nutty is composed of the following sub-attributes:	0–2 In most origins.
	<ul style="list-style-type: none"> • Nutty – nut flesh: the edible kernel of a light roasted nut – hazelnut, macadamia, pecan, walnut, cashew, almond, Brazil nut. • Nutty – nut skins: the flavour of lightly roasted nut skins – hazelnut, macadamia, pecan, walnut, cashew, almond, Brazil nut. 	3–5 Some Central and South American and Caribbean countries’ lots and ancient Criollos.

Caramel / Panela	Aromas reminiscent of caramel, brown sugar and panela (unrefined cane sugar)	0–2 In most origins
		3–5 Some Central and South American and Caribbean countries’ lots and ancient Criollos

Sweetness (only for chocolate)	Basic taste of white sugar solutions, typically perceived in foods like candies and desserts that contain sugar (or other sweeteners such as aspartame) and also naturally found in other foods like fruits.	
---	--	--

Descriptor	Description	Intensity level / Reference notes
Roast degree	A measure of the extent of the roasting the beans. Significant under or over roasting alters many of the attribute values.	2–3: Low roast 4–6: Medium roast 7: High roast 8–10: Levels of burnt/over-roasted
Off-flavours	<p>Total Off-Flavours is the sum of any unpleasant characters from the following. If the result is ≥ 10 it is rounded to 10 as the maximum:</p> <ul style="list-style-type: none"> • Dirty/dusty: not related to texture but to an off-flavour. • Musty: stale, damp, mildew, decaying. • Mouldy: characteristic of mould growth. • Meaty/animal/leather: <ul style="list-style-type: none"> » Meaty – cured meat, ham, rendered fat. » Animal – dirty animal / farmyard. » Leather – used old leather. • Over-fermented/rotten fruit: decomposing fruit. • Putrid/manure: <ul style="list-style-type: none"> » Putrid – wet decomposing vegetative matter. » Manure – farmyard animal manure. • Smoky: contamination from the smoke (any kind). • Other off-flavours: rancid, diesel, oil fumes, petroleum, tar, paint, tyres, chemicals, burnt, etc. 	0: Absent – clean, well fermented, dried and stored cacao beans. 1–2: Low intensity. 3+: Clearly characterizing the sample as a defect.
Global Quality	<p>The Global Quality score reflects the overall impression of the:</p> <ul style="list-style-type: none"> • expressed flavour potential • uniqueness of the sample • balance of flavour and cleanliness of the finish <p>It celebrates the expression of genetics and terroir diversity through the farmer's knowhow.</p>	Global Quality scores and meaning below

Meaning of the global quality scores for the sensory evaluation of cacao beans processed into mass and chocolate

	Off-flavours	Core attributes	Complementary attributes	Notes
0	Serious off-flavours clearly characterizing the sample as defective	Masked by off-flavours	Masked by off-flavours	Be as specific as possible on the type of off-flavours as this is valuable feedback to the producers
1				
2				Depending on the type, number and intensity of off-flavours, 0 would be the worst case and 3 the least but still bad
3				
4	In low intensity	Seriously unbalanced	Masked by off-flavours and unbalanced core attributes	
5	In low intensity	Unbalanced	Partially masked by unbalanced core attributes	
6	In low intensity or absent	Unbalanced	In low intensity, none outstanding, not in balance to core attributes	Overall plain flavour – mainly characterized by the core attributes and less by the complementary attributes
7	Absence of any	Balanced	One or more are outstanding but not in balance to core attributes	Overall plain flavour – mainly characterized by the core attributes and less by the complementary attributes
8	Absence of any	Well balanced with moderate base cacao flavour	One or more are outstanding, in balance to core attributes and to each other	Overall flavour presents some complexity
9	Absence of any	Well balanced, good base cacao flavour	Many outstanding, in balance to core attributes and to each other	Overall flavour presents a combination of complexity, uniqueness, harmony, brightness, clean finish
10	Absence of any	Well balanced, in low to moderate intensity, good base cacao flavour	Clearly recognizable, many outstanding, in balance to core attributes and to each other	Overall flavour presents a combination of complexity, uniqueness, harmony, brightness, clean finish The sample is of extraordinary quality, rarely seen



cacaoofexcellence.org

Citation: Cacao of Excellence. 2024. Glossary of terms for the evaluation of cacao beans processed into mass and dark chocolate. Bioversity International. 5 pages.