Barista Hustle Cupping Protocols

A New Scoring System for Coffee

Introduction

This document outlines the protocols and the language we recommend for cuppers who are looking to judge the quality of brewed coffee, conduct roast assessments, or grade specialty coffee on a 100-point scale.

· A 100-point system
· Designed for quality control and training for any brew method
· Ten scoring categories, each scored out of 10 with a resolution of 0.1
· Three scores for aromatic properties (aroma, flavour and aftertaste)
· Three scores for taste (sweetness, acidity and bitterness)
· Three for tactile properties (weight, texture and afterfeel)
· A balance score brings the total to 100
· No points deductions
· No 'overall' score — because it's ridiculous having an overall score

Drinking a cup of coffee is a heady experience. The complex mix of strong aromas, intense flavours, acidity, and bitterness, combined with the sensations in the mouth of body, texture, and temperature, can be overwhelming. Trying to describe or evaluate this complexity in a way others can understand presents a challenge.

Our sense of smell in particular is closely linked to memory — specifically, the episodic memory, the part of the brain responsible for remembering the events and experiences of our lives (Aqrabawi and Kim 2018). The sense of smell evolved much earlier than the other senses, and it is associated with the hippocampus, deep within the brain. This may explain why certain smells and flavours can trigger buried memories or emotional responses that can be hard to describe in words. Describing the smell and flavour of a cup to someone else thus relies on finding some kind of shared experience and a shared language to describe those memories.

Setting Up A Cupping

Step One

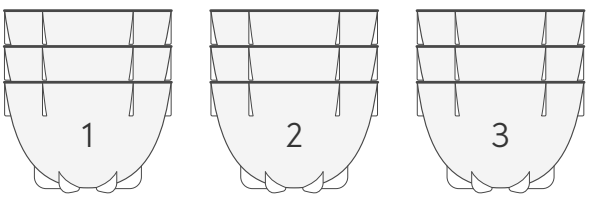
BH Cupping Guide

Choose the coffees you want to cup. We recommend you cup no more than twelve samples at one time.
· Sampling more than twelve cups is feasible if you are performing 'go / no-go' checks for production roasting.

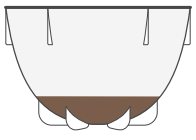
Assemble a sufficient number of cupping bowls, each with a capacity of between 150–200 ml.
· Cupping bowls should be dry, odourless, and at room temperature.

Prepare two to six bowls of each sample you wish to cup.
· One cup per sample is sufficient only if you are conducting a roast assessment.
· Cup on a brew ratio of 55 g/L (grams per litre).
· We recommend you use 10 g of coffee per sample, plus enough to purge the grinder before you begin to grind the coffee for each bowl.

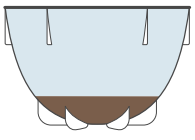
Label the samples such that you are unaware of their identity after you have ground them and randomised their order.
· We recommend you use a label that can remain with each sample but be kept upside down (and out of sight) as you grind and arrange the samples on the cupping table.



Assemble cupping bowls and add a label



Target: 10g coffee



Target: 180-ml water

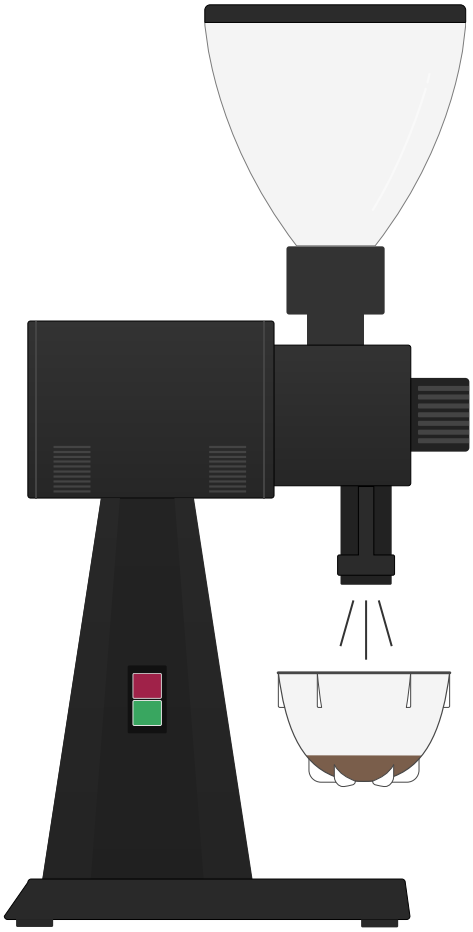
Step Two

BH Cupping Guide

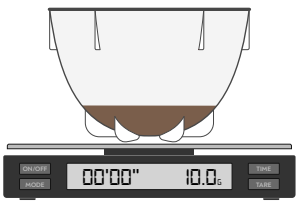
Purge your grinder with a few beans taken from the sample you are about to grind for.

Grind your coffee on a setting that brings your best coffees to approximately 1.4% total dissolved solids after 8 minutes. (Refer to the BH Refractometry Protocols)
· The weight of every bowl should be checked with a scale to ensure it is accurate to within +/- 0.1 g.

Position the samples in a line around your cupping table, keeping them arranged in order.



Purge grinder, then grind your sample



Target weight (+/- 0.1g)

Step Three

BH Cupping Guide

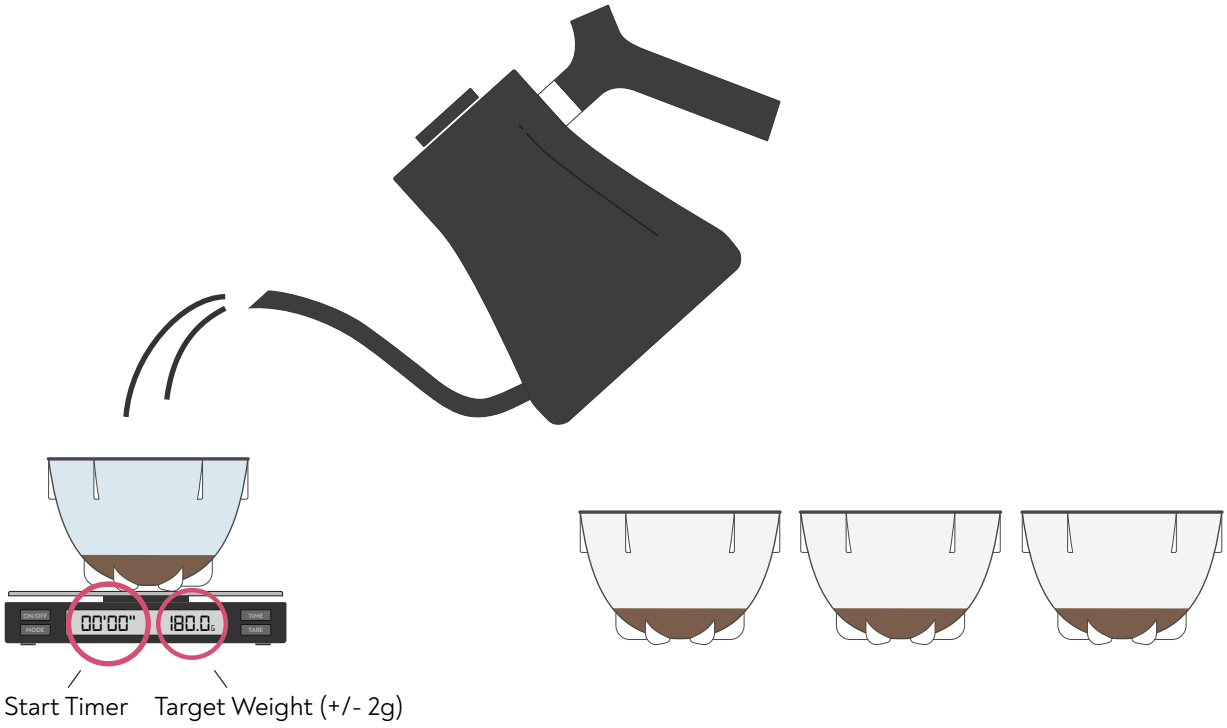
Start a timer and begin to add hot water (just after a rolling boil) to each bowl, weighing the water precisely for each bowl +/- 2 g.

· The hot water should be odourless, with a pH between 7.0 and 7.4 and a level of buffer no higher than 70 ppm.

· We recommend adding no less than 150 ml and no more than 200 ml of water.

Aim to fill bowls quickly but without making a mess.

· Spend the same amount of time filling each bowl, at a pace of about three bowls per minute.



Step Four

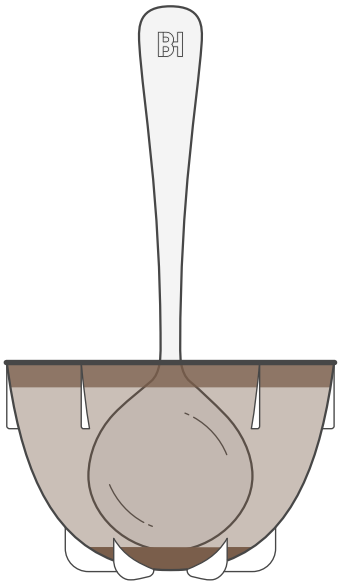
BH Cupping Guide

Break the crust at 5:00 minutes.
· Break the crust with four stirs with a cupping spoon.
· Each stir should reach to the bottom of each bowl.

Continue to break the crust of each additional bowl, in the same order and at the same pace that you added the hot water.
· Rinse spoons in a pitcher of clean, hot water between samples.

Skim the surface of each bowl.
· It is preferable to have a colleague skim the cupping bowls immediately after you have broken the crust.
· Skim the bowls in the same order in which you broke the crust and after exactly the same time period – at a rate of three per minute.

After 5 minutes



Break the crust

Step Five

BH Cupping Guide

At 8:00 minutes, remove a 5-ml sample from the centre of each cupping bowl into a syringe filter. This sample will be used later to collect TDS readings.

· Draw the sample at a depth of 1 cm from the surface, without stirring the contents of the bowl.
· Keep the 5-ml sample with each cupping bowl, and return to this sample after you have finished scoring the coffees.

After the coffee temperatures drop below 65°C (at approximately 10:00 minutes), begin to score the samples.

Sample the coffee at three temperatures during your sensory assessment:

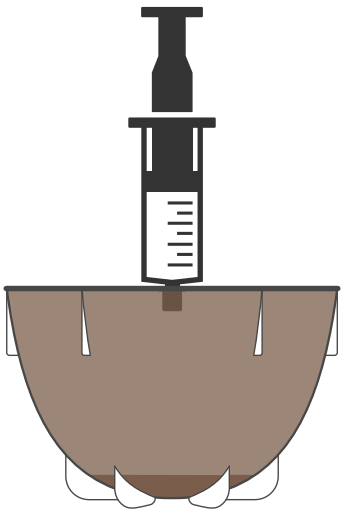
· First pass, hot – 65°C, when the samples are hot but palatable.
· Second pass, comfortable – 55°C, very comfortable to the palate, when the samples are highly aromatic.
· Third pass, warm – 45°C, when the samples are still aromatic but are at the lowest temperature before they might be considered to be too cool to be served.

Record your scores in a cupping journal.

After scoring the coffees, return to the 5-ml samples.

· Take and record TDS measurements in the same order in which you drew the samples.

After 8 minutes



Remove a 5-ml sample

Scoring A Coffee

The Scoring System

Resolution
This scoring system is designed to grade roasted specialty coffee on a scale of 0 to 100 points. Specialty coffee produces only positive olfactory, gustatory, and tactile sensations. We expect specialty coffees to score over 80 points on this scoresheet. This scoring system can be used for any brew method. Cuppers assign scores with a resolution of 0.1 of a point. Scores range from 7.5 to 10 points for each of the ten categories. High scores reflect a high intensity and abundance and/or complexity of positive traits – olfactory, gustatory, and tactile sensations.

Calibration – Positive or Negative
Cuppers and QC teams work together to identify and clarify the olfactory, gustatory, and tactile sensations they consider to be positive or negative. This important process is called calibration. (Refer to the appendix at the end of this document for a complete list of aromatic compounds that sit above the flavour-detection threshold.) A score greater than 8.0 indicates a relative absence of negative traits. A score below 8.0 indicates the presence of some negative traits.

Disqualification
The predominance of negative traits may be caused by green and/or roasting defects. Coffees that score below 7.5 in any of the ten categories have a predominance of negative traits that disquality (D/Q) the coffee automatically.

Aroma Scoring

Olfactory Elements

+ **Highest scores should be given to the most intense, complex, and positive aromatic associations.**
- **Lower scores for weak, insipid positive aromas.**

D/Q **A predominance of negative aromatic sensations — e.g., medicinal, earthy, ashy, or vegetal — or the complete absence of aroma.**

'Aroma' refers to qualities that can be perceived by the olfactory system. In coffee, aromatic qualities involve over 800 different volatile components, although only 37 of them have been shown to achieve the flavour detection threshold (Blank, Sen, and Grosch 1992). (Refer to the appendix for a list of these odorants and descriptions of how they smell.) In The Coffee Cupper's Handbook, Ted Lingle identifies four time at which coffee aroma may be perceived: in the smell of the dry grounds, in the smell of the wetted coffee during brewing or before drinking, in the aromas that reach the olfactory system during tasting (via retronasal olfaction), and in the aromas perceived after the evaluator swallows.

The aroma category in most cupping forms encompasses only the first two of these — the smell of the dry coffee, often called 'fragrance', and the smell of the wetted coffee or the final brew, referred to as 'aroma'. Sometimes the latter is called 'wet aroma' to make the distinction clear.

In a cupping, the wet aroma is typically evaluated at or just after breaking the crust. If you're not breaking the crust yourself, then the best option is to get a close sniff as soon as possible after the crust has been broken. The brain tends to perceive aroma and taste together, and it combines the sensations to create a flavour impression. Thus the aromas perceived during and after tasting are usually evaluated as part of the 'flavour' and 'aftertaste' attributes.

According to Lingle, the polarity and volatility of aroma molecules determine our perceptions of the dry coffee, the aftertaste, and the phases in between. Smaller molecules, which are more volatile, escape from the coffee more easily and can be smelled even before the coffee is brewed. Heavier or more polar molecules may be bound to the coffee or dissolved in the brew and take more time to escape and reach our nose. This explains why a coffee can have a light floral aroma and still leave a heavy, tarry aftertaste. The appendix lists the 37 aromatic compounds that sit above the flavour detection threshold, in order of their volatility.

Compared with our other senses, olfactory perception is highly variable and unreliable. Keller et al., (2012) found large differences in the way people from different populations responded to the same odours. They observed that even one individual will respond differently to the same odour at different times, finding it more or less strong but also more or less pleasant. To help evaluators be more objective in their scoring, cupping forms separate out different sensory attributes, focusing on desirable tastes and mouthfeel.

Flavour Scoring

Olfactory Elements

+ **Highest scores should be given to the most intense, complex, and positive flavour associations.**
- **Lower scores for weak, insipid positive flavour associations.**

D/Q **A predominance of negative flavour traits — e.g., medicinal, earthy, ashy, or vegetal.**

'Flavour' encompasses the aromas sensed while the coffee is in the mouth, combined with the various tastes experienced simultaneously on the tongue. Although five (or more) tastes have been identified, most tasters in coffee focus mainly on the sweetness, acidity, and bitterness — for example, as specified by the World Barista Championship (WBC) scoresheet. There is conjecture as to how bitterness should be treated in coffee scoring. For example, in The Coffee Cupper's Handbook, Lingle argues that bitterness should be treated not as an important quality of the coffee but rather as something intrinsic to the coffee experience. He suggests that evaluators should instead focus on the coffee's sweetness, acidity, and saltiness. Sweetness and acidity are often scored separately, leaving the flavour score to be more about the overall impression given by the combination of taste and aroma, rather than trying to separately identify the taste and aroma components in the mouth.

Flavour and aftertaste should be evaluated only after coffee temperature has dropped to below 71°C, to avoid scalding your mouth (Brown and Diller, 2016). Temperatures should be taken using a thermometer rather than using time as a metric, due to the differences in thermal conductivity in glass, plastic, and ceramic cupping bowls.

Aftertaste Scoring

Olfactory Elements

+ **Highest scores should be given to the most intense, complex, and positive flavour associations.**
- **Lower scores for weak, insipid positive flavour associations.**

D/Q **A predominance of negative traits – e.g., medicinal, earthy, ashy, or vegetal.**

'Aftertaste' refers to the aromas and tastes remaining after the evaluator has swallowed or expectorated (spat out) the sample. When we aspirate (slurp), liquid is thrown to the back of the mouth and lands on the pharyngeal wall, just as it does during normal swallowing.

An added benefit of aspirating liquid as you sample coffee is that it delivers aromatic gases to your olfactory epithelium almost instantly. It is more efficient than waiting for aromatics to reach the olfactory epithelium through retronasal olfaction (Heath, 1988).

The aftertaste is derived from the less-volatile and less-polar aroma components. These take longer to volatilise and reach the nose, so they are experienced seconds and even minutes after coffee is aspirated or swallowed. Some of the aroma compounds involved come from the coffee oils that coat the tongue, gradually releasing their aromas (Petracco, 2005).

Acidity Scoring

Gustatory Elements

+ **Highest scores should be given for refined, complex, and structured acidity. If the acidity of a coffee reminds you a quality food or beverage, particularly fresh fruit, it warrants a high score.**
- **Lower scores should be given for sour, harsh, or dull acidity or if the acidity is overpowering or extremely lacking in intensity.**

D/Q **A predominance of vinegariness or intense sourness.**

We ask cuppers to rate acidity by quality rather than quantity. Negative descriptions of acidity include ‘harsh’, ‘hard’, ‘thin’, ‘flabby’, ‘dull’, ‘acetic’, ‘sour’, ‘flabby’, ‘biting’, or ‘tart’. A positive acidity might be referred to as ‘refined’, ‘snappy’, ‘winey’, ‘nippy’, or ‘fruity’. SCA suggests ‘bright’ and ‘lively’ as attributes for positive acidity that gives a fresh fruit sensation and ‘sour’ for negative acidity. When intensities are high or low, coffees can still score well in this category if the acidity is of a high quality and interacts well with the other tastes and flavours.

Unlike the other organic acids in coffee, acetic acid contributes an aroma as well as the acidic taste. This means that excessively high levels of acetic acid can be perceived as very negative in the cup. Small amounts, however, probably contribute to an overall positive perception of acidity.

The sensation of acidity in coffee is not closely linked to a coffee’s pH. Instead, perceived acidity is linked to titratable acidity (Rao and Fuller, 2018), the ability of the liquid to buffer alkalis.

According to the SCA, acidity, body, and balance should be evaluated when the coffee temperature is around 60–70°C.

1: "COE Cupping Form | Sweet Maria's Coffee Library." https://legacy.sweetmarias.com/library/coe_cupping_form/. Accessed 13 Dec. 2019
2: T. R. Lingle (2011), The Coffee Cupper’s Handbook, SCA Education Pathways 3: Ibid. 4: World Coffee Events (2020), World Brewers Cup Rules and Regulations

Bitterness Scoring

Gustatory Elements

+ **Highest scores should be given for bitterness that is piquant and interesting. A positive sensation of bitterness always depends on the presence of sweetness.**
- **Lower scores should be given where bitterness predominates.**

D/Q **A predominance of bitterness.**

Even with coffees considered to be very low in 'bitterness', the bitter sensation is by far the most intense taste modality, compared with sweetness or acidity. The bitterness of coffee can be experienced as a positive or a negative taste sensation, depending on the intensity of the bitterness and by what chemicals are responsible for producing the sensation. The success of bitterness in the cup relies on the accompanying presence of sweet tastes (and aromas) to restore balance. Testing indicates that humans can categories a range of bitter-tasting chemicals in terms of pure bitterness, including sour-bitter and salty-bitter subgroups. This evidence suggests that we can differentiate the tastes of a large range of bitter chemicals. Similarly, testing has shown that the bitter taste system performs a 'physiological risk–benefit analysis' and attributes greater bitterness to increasingly toxic chemicals.

A form of positive bitterness might be experienced, like the quininic acid in tonic water, which relies heavily on the acidity and sweetness of the beverage to repackage the bitter taste as a positive. A negative bitter sensation comes from medicines such as aspirin or quinine (used in anti malaria pills), which, undiluted, can be intensely objectionable.

Caffeine is often thought to contribute to coffee's bitterness, but decaffeinated coffee tastes bitter too. Degradation products of chlorogenic acid (CGA) known as quinides and phenylindanes are the primary contributors to bitterness in the cup: Quinides are 'the key bitter constituents of a medium roasted coffee', contributing to the pleasant bitterness expected in coffee (Hofmann, 2009). A number of quinides were isolated from brewed coffee by ultrafiltration, progressively separating larger molecules from the brew and determining which parts of the brew had the strongest bitter taste (Frank et al., 2005).

Phenylindanes are formed when coffee is roasted darker, from the breakdown of caffeic acid, which is itself formed by the breakdown of CGA into quinic and caffeic acids. Caffeic acid breaks down on heating into 4-vinylcatechol molecules, which then join together in short chains to form a family of molecules called phenylindanes. When tasted in isolation, phenylindanes have a lingering and harsh, bitter taste reminiscent of espresso-type coffee (Frank et al., 2007), and they are thought to contribute to the increased bitterness of dark-roasted coffee.

These compounds also extract in water much more slowly than the quinides, which in turn extract more slowly than the parent CGAs, indicating that controlling extraction can determine how much of these strongly bitter compounds make it into a brew (Blumberg et al. 2010).

5: Thomas R. Scott, Barbara K. Giza, and Jianqun Yan (1999). Gustatory Neural Coding in the Cortex of the Alert Cynomolgus Macaque: The Quality of Bitterness. https://doi.org/10.1152/jn.1999.81.1.60 6: Ibid

Sweetness Scoring

Gustatory Elements

+ **Highest scores should be given to sweetness that gives the sense of ripe fruit. Intensely sweet coffees should score high in this category.**
- **Lower scores should be given where sweetness is less obvious.**

D/Q **A total absence of sweetness.**

Although sweetness is, strictly speaking, a taste, the perception of sweetness in coffee may not be entirely driven by the taste sensation. Roasted coffee has very little sugar remaining in it. Other compounds present in roasted coffee, apart from sugar, do taste sweet, but it is more likely that much of the sensation of sweetness comes from the sweet-smelling aromas present, such as caramels. Some aromas enhance our perception of sweetness., where sugars actually are present. For example, the aromas of furaneol and ethyl-methylbutyrate, both found in roasted coffee, can make fruit juices taste sweeter (Barba et al., 2018). A similar compound, ethyl butyrate, enhances the perception of sweetness even at concentrations so low you can't smell it directly (Labbe et al., 2006). At levels too low to be tasted directly, sweet-tasting molecules play a role in modulating our response to the other tastes, reducing any negative sensations of bitterness or acidity.

The Cup of Excellence (COE) form specifies that 'sweetness is not entirely dependent on how much sugar is in the roasted coffee, but also on other components which combine to give the impression of sweetness'. When evaluators are scoring sweetness, intensity and quality are presumed to be equivalent.

We are most receptive to the sweet taste of liquids that are close to body temperature. Research by Lu et al., (2016) found that the responses to sucrose, glucose, fructose, and maltose were maximal at temperatures between 35°C and 39°C (95°F and 102°F) and progressively less at cooler as well as hotter temperatures. However, the impression of sweetness should be present throughout the cupping protocol in order for coffees to score well in this category.

7: Blumberg, S., Frank, O., & Hofmann, T. (2010). Quantitative studies on the influence of the bean roasting parameters and hot water percolation on the concentrations of bitter compounds in coffee brew. Journal of Agricultural and Food Chemistry, 58, 3720–3728.

Weight Scoring

Tactile Elements

+ **High scores for weight require a mouthfeel that feels comfortable and thirst quenching. High scores can be awarded to coffee with less weight if this element harmonises with other qualities in the cup.**
- **Lower scores should be given if the body is insipid.**

D/Q **Unacceptably thin and watery body.**

The 'weight' of a coffee involves its measurable viscosity as well as factors that add to the perception of coffee being thick and creamy and/or syrupy. The perceived creaminess is positively correlated to viscosity (Mela, 1988). In this way, an espresso with a high volume of crema is expected to be more creamy than a filter coffee. However, viscosity is not the only contributing factor to creaminess. Frictional forces and particle size (e.g., suspended particles of coffee grounds or fat globules) also contribute to the perceived creaminess of a coffee.

Weight and texture, perceived via mechanoreceptors, engage both the peripheral and central nervous systems. They involve not only the finely tuned receptors in the oral cavity but also the movements of the jaw and lips, even measuring the pressure changes on our gums and teeth (Guinard and Mazzucchelli, 1996). The mechanoreceptors in the mouth that are responsible for detecting changes in the weight and texture of foods and liquids are extremely precise: 'differences in viscosity as small as 1 millipascal (mPa) can be sensed and particles as small as 5 µm can be detected' (Tyle, 1993).

Texture Scoring

Tactile Elements

+ **High scores for texture depend on a smooth (not dry), creamy, and/or juicy mouthfeel. A high-scoring texture should feel comfortable in the mouth.**
- **Lower scores should be given where the texture becomes astringent.**

D/Q **Overpowering astringency.**

The 'texture' of a beverage encompasses its density, viscosity, surface tension, and the temperature at which it is consumed. Coffee has a lower surface tension than water and, for this reason, can penetrate to deeper recesses in the mouth.

Smoothness

'Smoothness' is a textural property that is prized in most foods and drinks but none more so than coffee. For a coffee cupper, smoothness is the opposite of astringency; smooth coffees score high, and astringent coffees are penalised. Research examining the perception of grittiness or smoothness have shown that particle size, hardness, and shape contribute strongly to how smooth or dry a liquid is perceived to be. Hard and irregularly shaped particles are perceptible at very small sizes (11–22μm). Soft and round-shaped particles, however, such as oil droplets, can range up to four times larger (approximately 80μm) before they are perceived to be gritty (Tyle, 1993).

Creaminess/Juiciness

The oils in coffee also reduce surface tension, allowing the coffee to coat the mouth more effectively (Navarini et al., 2003). This can contribute to a 'smooth' or 'creamy' texture and may also affect the sensation of finish (after-feel). The quality of juiciness in coffee evokes the sensation of having fruit juice in your mouth.

Astringency

Some chemicals in coffee bind to the mucoproteins that normally lubricate the tissues of the mouth. The chemicals cause the mucoproteins to precipitate out of solution. This results in the reduced lubrication of the mouth and a feeling of dryness (Guinard et al., 1986).

Afterfeel Scoring

Tactile Elements

+ **High scores for afterfeel depend on the comfortable and positive sensation after coffee is swallowed or expectorated. Afterfeel should never be astringent, even minutes after coffee is cupped.**
- **Lower scores should be given where any dryness, roughness, or grittiness is experienced.**

D/Q **A high degree of astringency and/or grittiness and/or roughness.**

The 'afterfeel' describes the effect of coffee residues on the palate. Astringency and mouth-coating are often included under the general term 'afterfeel' (Guinard and Mazzucchelli, (1996). This is similar to the way the term 'aftertaste' describes the effect of retronasal olfaction experienced from aromatics that are emitted from coffee residues left in the throat after swallowing.

Coffee residues contribute strongly to an evaluator's tactile impression of a coffee. They can persist on the palate for as long as 15 minutes (Illy and Viani, 2005). Coffee is expected to remain smooth for minutes after it is tasted. Coffees that are more mouth coating will be expected to persist for longer on the palate. The mouth-coating effect is a function of reduced surface tension of a coffee, which is enhanced by the presence of coffee oils (Navarini et al, 2003) and other surfactants (Abbott, 2019).

Negative afterfeel sensations derive from rough or caustic-feeling coffees as well as grittiness. This gritty sensation can result from an excess of suspended solids.

A more mouth-coating coffee is not expected to outscore a coffee that leaves a less persistent residue – but in either scenario, the sensation must work with the other cup qualities. It is not the case that the longer the finish, the better; very bitter and astringent coffees can linger for an uncomfortably long time. A quality finish need only be smooth and thirst quenching.

Balance Scoring

Aggregate

+ **High scores for balance depend all the olfactory, gustatory, and tactile sensations working well together. If one element is deficient, it can be compensated for by another element, resulting in high scores. Coffees with an extremely dominant element that is positive can still achieve a high score for balance.**
- **Lower scores should be given for balance when negative elements aren't compensated for or harmonised into a combination that works well.**

D/Q **A heavy imbalance towards an element that is negative in the cup.**

'Balance' can be considered to be the aggregate of coffee's profile from the moment it is tasted until the final aftertaste is experienced. This means the tactile elements (body) also form part of this definition. In cupping forms, 'balance' refers to the idea of harmony in the flavours in the cup – whether any tastes or aromas are overpowering or missing, and how the tastes and aromas interact to produce a pleasing impression. Ted Lingle's Coffee Cupper's Handbook as well the World Brewers Cup protocols include body and coffee's tactile attributes in the balance score. In espresso scoring, however, such as in the WBC scoresheet, the concept of balance is usually specifically focused on the balance of tastes, particularly sweet, acid, and bitter.

Appendix

37 aromatic compounds above the flavour detection threshold listed by degree of volatility.

Aroma compound	Aroma compound	Odour description
3-Methylbutanal	Aldehyde	Malty
2-Methylbutanal	Aldehyde	Malty
2,5-Dimethylfuran	Furan	Ethereal
2,3-Butanedione	Ketone	Buttery, cheesy
2,3-Pentadione	Ketone	Oily, buttery
Dimethyl disulphide	Sulphide	Onion
2-vinylfuran	Furan	Ethereal, rum, cocoa note
Hexanal	Aldehyde	Rancid, grassy, green, oily
3-Methylthiophene	Sulphide	Ash
2,3-Hexandione	Ketone	Buttery, cheesy, sweet, creamy
Pyridine	Heterocyclic N	Bitter, astringent, roasted, burnt
Furfuryl methyl ether	Ether	Nutty, coffee grounds-like, rich, phenolic
2-Methylpyrazine	Pyrazine	Nutty, roasted, chocolate
Dihydro-2-methyl-3-furanone	Ketone	Sweet, roasted
2,5-Dimethylpyrazine	Pyrazine	Nutty, roasted, grassy, corn
2,6-Dimethylpyrazine	Pyrazine	Nutty, sweet, fried
2-Ethylpyrazine	Pyrazine	Nutty, roasted
2,3-dimethyl-Pyrazine	Pyrazine	Nutty, roasted, green
Dimethyl trisulfide	Sulfide	Onion
2-Ethyl-6-methylpyrazine	Pyrazine	Roasted, hazelnut-like
Trimethyl pyrazine	Pyrazine	Nutty, roasted
2-Furfural	Aldehyde	Bread, almond, sweet
Acetic acid	Organic acid	Sour
2-Acetylfuran	Furan	Balsamic-sweet
Pyrrole	Heterocyclic N	Nutty, hay-like, herbaceous
Furfuryl alcohol	Alcohol	Burnt
Butanoic acid	Organic acid	Sour
Hexanoic acid	Organic acid	Fatty-rancid, acrid-acid
2-Furfuryl methyl disulfide	Sulfide	Coffee-like
1-Furfurylpyrrole	Heterocyclic N	Hay-like, mushroom-like, green
Maltol	Alcohol	Caramel
1-(1-H-pyrrol-2-yl) ethanone	Ketone	Nutty, musty
Difurfuryl ether	Ether	Coffee-like, toasted odour
Phenol	Phenolic	Smoky
4-Ethyl-2-methoxyphenol	Phenolic	Smoky, spicy
Octanoic acid	Organic acid	Sweet, cheesy
Indole	Heterocyclic N	Burnt, mothball

Sources: Flament, (2002) and Yang et al., (2016)

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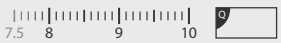
World Coffee Events (2020), World Brewers Cup Rules and Regulations

The Scoresheet

Printable in A4 format

Cup	No.:	No.:	No.:	No.:	No.:	No.:
Aroma						
Flavour						
Aftertaste						
Acidity						
Sweetness						
Bitterness						
Weight						
Texture						
Afterfeel						
Balance						
Total						

Cup	No.:	No.:	No.:	No.:
Aroma				
Flavour				
Aftertaste				
Acidity				
Sweetness				
Bitterness				
Weight				
Texture				
Afterfeel				
Balance				
Total				

Cup	Aroma	Flavour	Aftertaste	Acidity	Sweetness	Bitterness	Weight	Texture	Afterfeel	Balance	Total
No.:											
No.:											
No.:											
No.:											
No.:											
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