
hacea
COFFEE SOURCE
Roast Approach
Experience

The Roast Approach Experience

“Roast Approach” began as a blog series to help provide roasters with comprehensive background information before they jumped into roasting a new coffee. As we expanded the library of roasting tutorials, we embarked on creating in-person education curriculum that allowed us to dive deeper into the roasting theory behind the blogs. At Hacea Coffee Source, we are always looking for ways that we can enrich the coffee roasting experience for all of our coffee roasting community.

This kit has been designed to bring a new educational experience to the comfort of your own roastery. In your kit, you’ll find three coffees each roasted three times with a different roast profile. This booklet will guide you through multiple tasting experiences that help you to explore the differences between the roasted samples.

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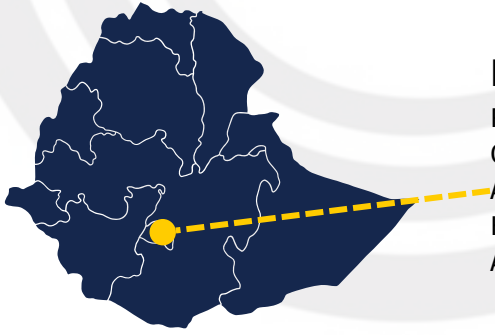
Coffee Information



Ethiopia Aricha Adorsi Washing Station

Region: Aricha Woreda, Yirgacheffe, Gedeo Zone, SNNPR
Coordinates: 6°10'51.7"N 38°13'57.3"E
Altitude: 1900-2150 m.a.s.l.
Harvest Date: January, 2025
Arrival Date: June-August, 2025

In the region of Yirgacheffe, the Yonis family operates the Adorsi washing station. The team at Hacea has worked with the Yonis family for over a decade. More than 800 smallholder farmers from the surrounding villages deliver freshly picked coffee cherries to the Adorsi washing station, where they are meticulously sorted and processed. In this roasting experience, we will explore three distinct processes from the Adorsi washing station including washed, black honey and natural processed Grade 1 coffee.

Washed Process

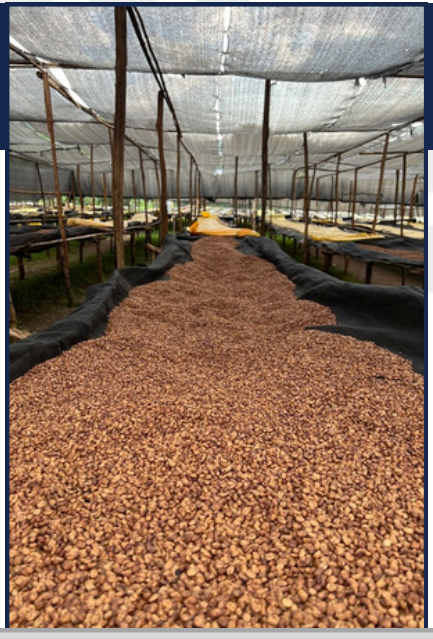
As part of the quality control process, fresh cherries are floated in water to separate lower qualities before depulping. Next, traditional disc pulpers remove the outer skin of the fruit. The mucilage-covered parchment is then put into a tank and submerged in water to ferment for at least 24 hours, after which point it is fully washed. The final step of the process is for the coffee to be set out and slowly dried on raised beds for 10-12 days.

HUMIDITY:
10.50%

DENSITY:
1.20 g/ml

CUP SCORE:
87.25

SAMPLE ROAST CUPPING NOTES:
Fragrance and aroma of lemon zest, peach and vanilla. Notes of stonefruit, white sugar and ripe banana with an aftertaste of jackfruit, lemon and vanilla. Complex acidity with citric, malic and lactic acid noted. Medium body and creamy mouthfeel.



Black Honey Process

The premium black honey processed coffee from Adorsi begins with 24 hours of soaking the cherry in water. This separated “floaters” and hydrates the fruit which softens the outer skin making it easier to remove without removing the mucilage that is desired for the black honey process.

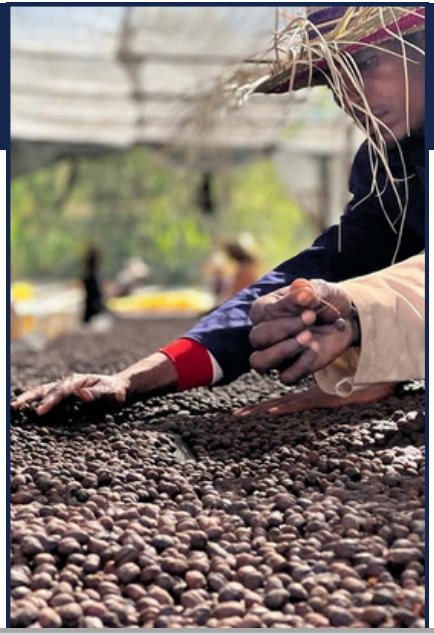
The pulped coffee is then laid out to dry on raised beds under parabolic shade. The location of the Adorsi Washing Station alongside a river gives cool airflow over the coffee as it dries. This improved honey process dries for about 35 days in these conditions.

HUMIDITY:
9.50%

DENSITY:
1.17 g/ml

CUP SCORE:
87.50

SAMPLE ROAST CUPPING NOTES:
Fragrance and aroma of dark chocolate, red currant, orange zest. Notes of green grape, pineapple, cherry and orange. Aftertaste of dark chocolate, red apple and red currant. Bright malic acidity with a syrupy mouthfeel and medium body.



Natural Process

In this natural process, coffees are soaked in water for 12 hours to remove floaters and rehydrate the seeds before processing. After the floaters are removed, cherries are dried on raised beds with a thickness of 5cm. The raised beds at the Adorsi station are position to receive high airflow and lower sunlight to provide a more even, slower drying process overall taking about 28 days to dry completely.

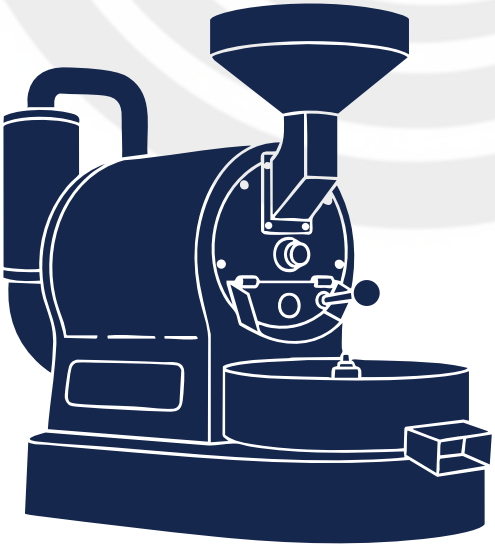
HUMIDITY:
10.40%

DENSITY:
1.19 g/ml

CUP SCORE:
86.13

SAMPLE ROAST CUPPING NOTES:
Fragrance and aroma of blackberry, blueberry and dark chocolate. Flavor notes of blueberry and dark chocolate with an aftertaste of pomegranate and rose. Medium acidity of citric and malic acid with a medium body and coating mouthfeel.

The Roaster

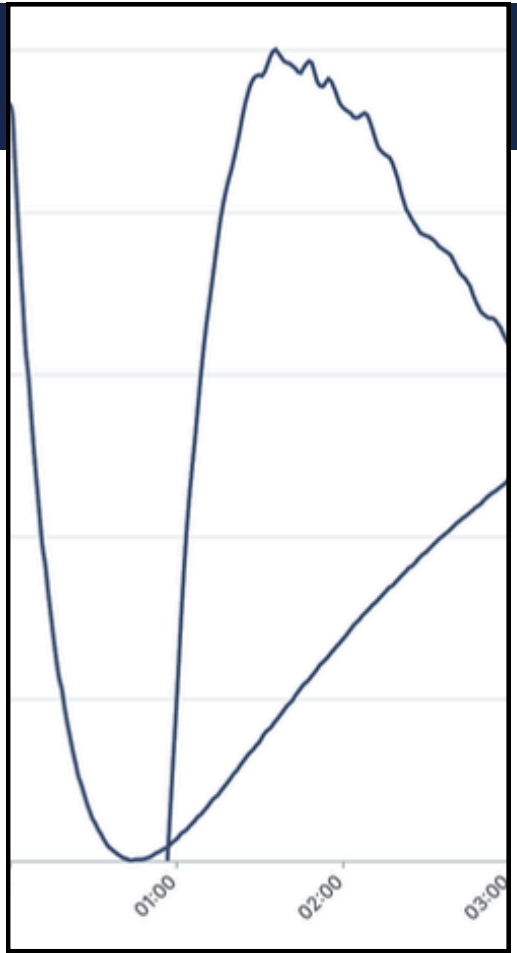


The Roaster

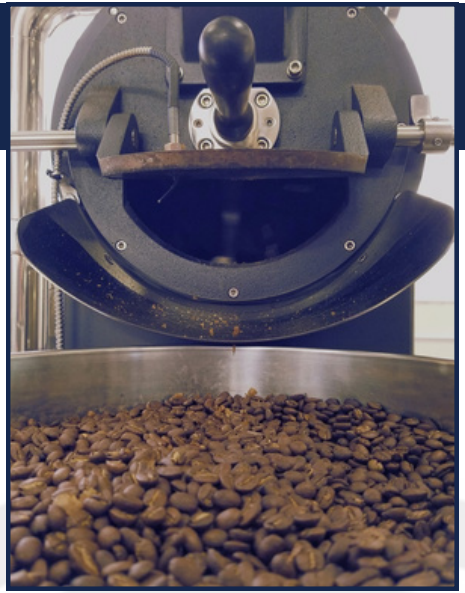
For these roasts, I'll be using a Proaster 1.5 kilo drum roaster hooked up to natural gas. Batch size is 400g, approximately 35% of roaster capacity. I've used a small batch size on this roaster to get closer to mimicking the gas power that you might find on a larger production roaster. This drum roaster mainly utilizes conductive heat, with an adjustable gas flame under the drum. A baffle at the top of the machine adjusts airflow. In the roasts, gas measurements are provided in percentage of total available gas and percentage of total available air flow (how open the baffle is). Cropster was used for tracking all roast data.

It must always be mentioned that each roaster is different. The type of probe, placement of probe, and batch size will all influence the way in which bean probe temperatures are registered in a roaster.

Roast Theory



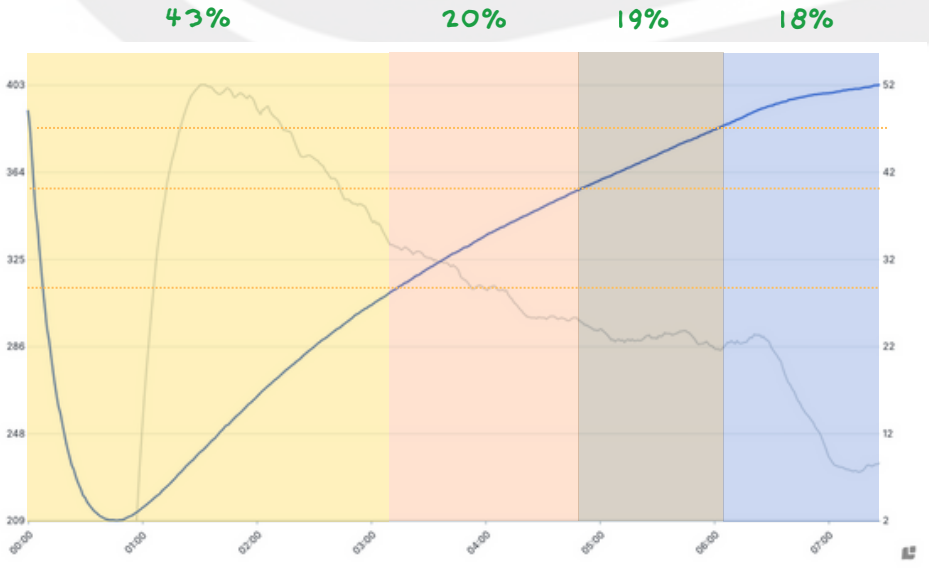
Roast Theory



In these roast evaluations, we will be looking at the roasting process in relation to the chemical reactions that are occurring in the coffee seed. With this in mind, I break the roast down into 4 main phases: drying, (early) Maillard, carmelization and post crack development. As these chemical reactions are closely tied to particular temperatures, I rely on the temperature readings from the roaster as the key indicator. This methodology provides a level of consistency that allows for a deeper analysis of the roast . The key point in this theory is that we are looking at how the coffee is responding to heat energy, asking why the coffee is responding in this manner, and then using that information to make meaningful changes to achieve a desired result.

Through these guided tastings, we will be asking the question: how are the changes we are making affecting the development of sugars, acids, and body?

Roast Phases



The roast phases are overlayed in color on the roast curve to visually show the amount of time spent in each phase. It is important to remember that these chemical reactions cascade and continue through the roasting process to some degree. The phase identifies where the most influential chemical reactions of each phase are occuring.

- Drying (Charge-305°)
- Maillard (305°-350°)
- Caramelization (350°-385°)
- Post Crack Development (385°-End)

Drying

The first phase of the roast is the drying or evaporation phase. Prior to entering the roaster, the processed green coffee is somewhere between 12-9% moisture. In order for the Maillard phase to begin, the coffee must get down to between 6-7% moisture. Once the coffee enters the roaster, the coffee begins absorbing heat and the moisture evaporates on the surface of the seed. Internally, water molecules try to preserve themselves by consolidating in the center of the seed. This bit of moisture in the center will be critical to the audible "pop" experienced at first crack.

Maillard

Maillard is the non-enzymatic browning, whereby heat (rather than an enzyme) is the catalyst for the change. These chemical reactions require a low moisture (6-7%) and typically begin happening around 305 degrees Fahrenheit. It should be noted that Maillard includes a whole series of chemical reactions. For the purposes of my roasting strategy, I'm looking at the early Maillard stage when I use the term "Maillard Phase". During this phase, sugars and acids are reduced and recomposed into volatile and non-volatile reaction products. The big take away here is that this is where many of the aromatics are formed and noticeable visual color change is taking place. Moving quickly through this stage of Maillard will produce more complex acidity and simple sweetness, while more time (slower) spent in this phase will produce more rounded acidity, full caramelized sweetness and heavier body.

Caramelization

This phase begins between 320-356 degrees Fahrenheit, with different sugars breaking down at different temperatures. Non-enzymatic browning at this point contributes to more color, aroma and flavor. This is where melanoidins begin to be produced. Melanoidins are heavy compounds in coffee formed from a combination of polysaccharides, proteins, and chlorogenic acids. They have a "bready", biscuit, or pastry-like character and contribute to the body and mouthfeel of the coffee. During caramelization, simple sugars like sucrose break into even simpler sugars such as fructose and glucose. Too little time in caramelization can cause a coffee to lack aromatics and body. Too much time in caramelization can break down acids that contribute to fruit-like cupping notes. Another important action happening during this phase is acids are breaking down. Citric acid begins to decrease at 350° and malic acid around 375°. During the roast, quinic acid (attributed to a bitter character) doubles as other acids break down.

Notes On The Roasts

Each coffee was roasted three unique ways. The same roast profile was followed between the three types of coffees, with small gas adjustments made to help follow the same roast curve.

Roast 1: Hot & Fast
This roast uses an aggressive gas application to move quickly through all of the phases.
Roast 2: Hot & Slow
This roast uses an aggressive gas application coming out of drying and into the early stages of Maillard to move quickly through the early Maillard phase. Ahead of caramelization, heat application is reduced to allow for more time to be spent in the caramelization phase for sugar development and melanoidin creation.
Roast 3: Extended
This roast uses a moderate gas application throughout the entirety of the roast to provide more time spent in all of the phases.

All roasts have the same starting charge temperature. Roasts 1 and 2 have the same end temperature. In order to allow for more post crack development, Roast 3 finishes with a slightly higher end temperature than roasts 1 and 2. You'll find detailed corresponding roast cards with your kit that you can lay out next to your cups. Reference these to see the expression of the roast profile during your tasting.

Coffee Tasting

On Coffee Tasting

When evaluating coffee, the most important thing is consistency. Every variable will impact your final cup, making it difficult to know if the differences you are tasting are due to the roast or from the way in which the coffee was prepared.

To assist with providing consistency, we have included a sachet of Third Wave Water with your samples so that you can use the same water that we are using in the Hacea Coffee Source cupping lab. You can choose to cup the samples or brew them as pour over, what is most important is that you use the same method and recipe for all 9 samples. Cupping through 9 samples can be daunting, so feel free to split them up. We recommend tasting each particular coffee (washed, honey, or natural) together at the same time, so that you can experience the subtle nuances between the roast profile changes. If you need suggestions for brewing recipes, you can find them on our website.

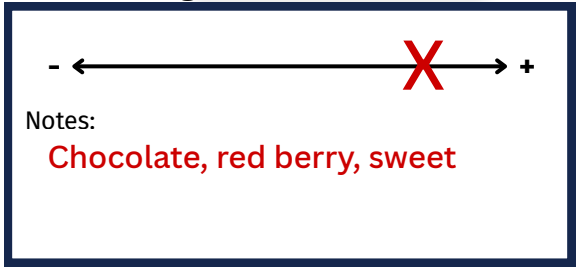
In this exercise, we will not be scoring the coffees. Rather, we are looking to discern major differences between them in aroma, acidity, body, and flavor. Our goal is to learn how changes within a roast will make a coffee taste more acidic, build body, or increase sweetness.

Lastly, we've included some sticky notes in your kit for you to jot down questions or add notes throughout the process. We'll be getting together online to discuss our findings, answer questions, and chat more about the coffees.

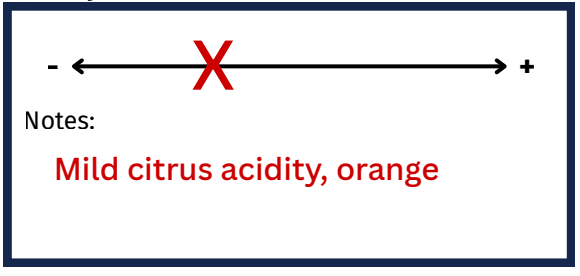
Quick and Easy Tasting Notes (example)

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

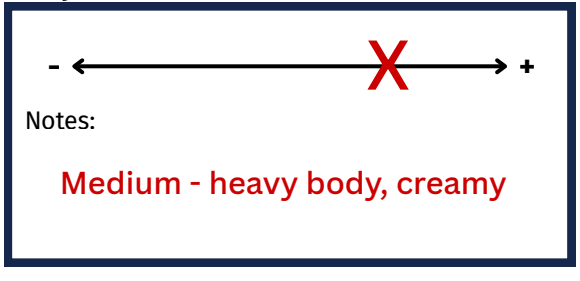
Aroma & Fragrance



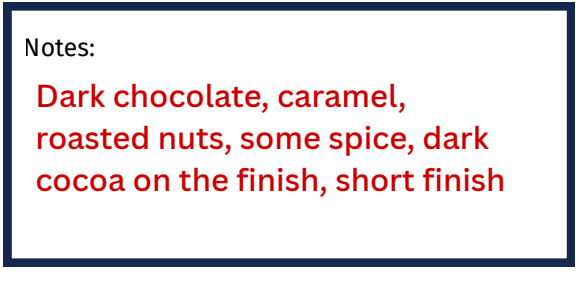
Acidity



Body & Mouthfeel



Flavor & Finish



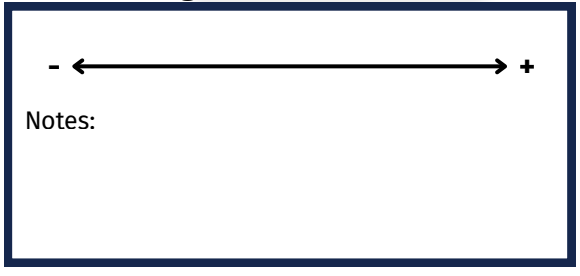
Let’s Taste Some Coffee!

Coffee A
Ethiopia Aricha Adorsi
Grade 1
Washed

Coffee A
Aricha Adorsi Washed - Roast 1

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance



Acidity

Body & Mouthfeel

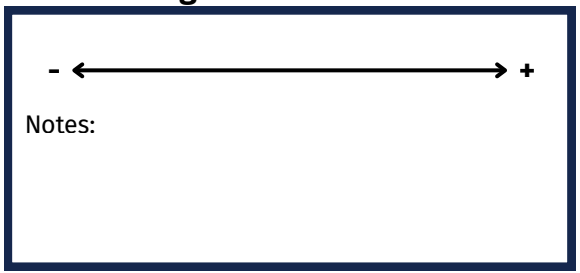
Flavor & Finish

Coffee A

Aricha Adorsi Washed - Roast 2

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance



Acidity

Body & Mouthfeel

Flavor & Finish

Coffee A

Aricha Adorsi Washed - Roast 3

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance

Notes:

Acidity

Notes:

Body & Mouthfeel

Notes:

Flavor & Finish

Notes:

Let’s Taste Some Coffee!

Coffee B
Ethiopia Aricha Adorsi
Grade 1
Black Honey

Coffee B

Aricha Adorsi Black Honey - Roast 1

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance

Notes:

Acidity

Notes:

Body & Mouthfeel

Notes:

Flavor & Finish

Notes:

Coffee B

Aricha Adorsi Black Honey - Roast 2

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance

Notes:

Acidity

Notes:

Body & Mouthfeel

Notes:

Flavor & Finish

Notes:

Coffee B

Aricha Adorsi Black Honey - Roast 3

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance

Notes:

Acidity

Notes:

Body & Mouthfeel

Notes:

Flavor & Finish

Notes:

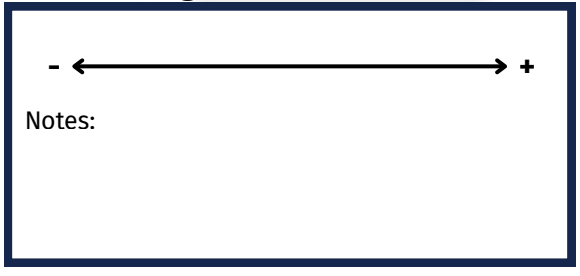
Let’s Taste Some Coffee!

Coffee C
Ethiopia Aricha Adorsi
Grade 1
Natural

Aricha Adorsi Natural - Roast 1

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance



Acidity

Body & Mouthfeel

Flavor & Finish

Aricha Adorsi Natural - Roast 2

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance

Notes:

Acidity

Notes:

Body & Mouthfeel

Notes:

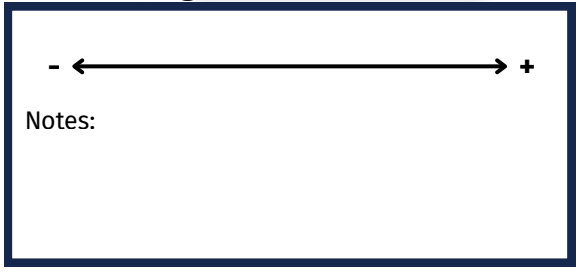
Flavor & Finish

Notes:

Aricha Adorsi Natural - Roast 3

Use the sliding scale to denote the intensity and the notes section for key flavor descriptors

Aroma & Fragrance



Acidity

Body & Mouthfeel

Flavor & Finish

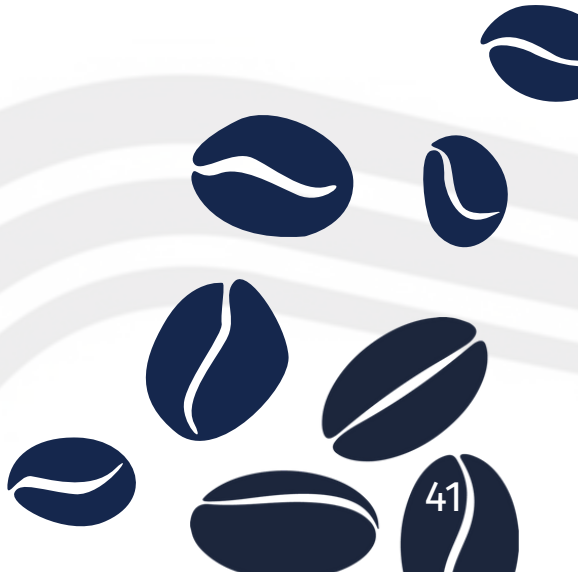
Guided Tasting Ideas

Understanding Acidity

- **Compare roasts 1-3 of each set of coffee, which has the most intense acidity? Which acidity would you describe as having the least intense (muted) acidity?**
- **Compare the time spent in Maillard phase on the most intense acidity coffees with the time spent in Maillard on the least acidic coffees. If short Maillard phase is a result of more intense heat application, how can heat application impact acidity?**

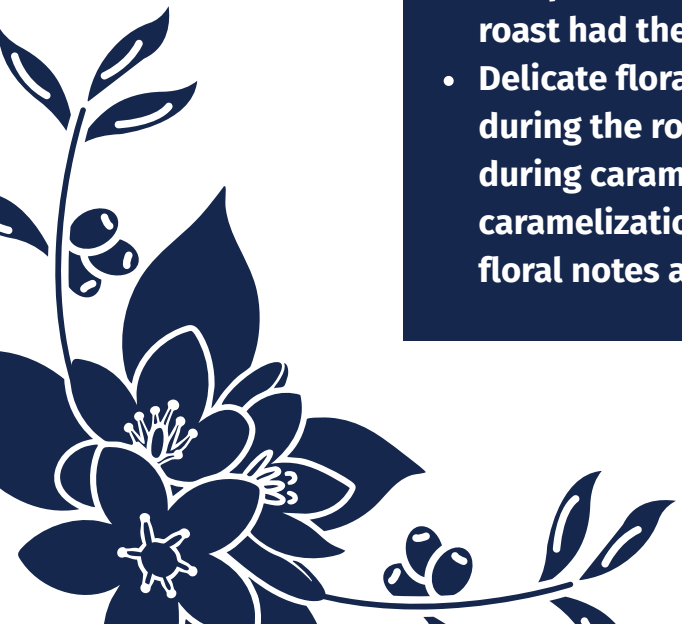
Understanding Caramelization

- **Look at the coffee from roast profile 2 and roast profile 3. How does the sweetness, balance and body of these roasts compare to roast profile 1, which had the shortest time spent in caramelization?**
- **Comparing roast profile 1 to 2, how does extending time spent in caramelization (with the same end temp) impact sweetness?**
- **Comparing roast profile 2 to 3, how does extending post-crack development impact sweetness and body?**
- **Which roast profile would be best suited for espresso? Which would be best suited for drip?**



Finding Florals

- **Compare roasts 1-3 of each set of coffee, which coffee roast had the most pronounced florals notes? Which roast had the least intense florals?**
- **Compare roasts 1-3 of each set of coffee, which coffee roast had the heaviest/biggest body?**
- **Delicate floral notes are some of the first that break down during the roasting process. If florals are broken down during caramelization and melanoidins are formed during caramelization phase, what is the relationship between floral notes and body?**



Resources

Roast Approach Experience

Blank Tasting Cards

Roast Approach Experience Community Event

Roast Approach Blogs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Thank You