

# BREWING COFFEE

## What Happens When We Brew Coffee?

There are a few chemical reactions that take place throughout a coffee's journey from being on a plant to being in a cup. After all the reactions taking place during processing is said and done, the major changes we make to this bean's chemical structure occurs during the **roasting** and **brewing** process. As green beans are roasted, the **amino acids** and **sugars** combine and react in a way that creates the properties of coffee that we know and love. This process takes the dozen or so compounds present in green coffee, and transforms them into thousands of varying aromatic compounds, altering the flavor, such as how organic acids created like **citric acid** can effect how we interpret a coffee's **brightness**. The properties of these aromatic compounds are further brought out when the coffee is ground and brewed, and how these compounds are expressed depends on things such as the method you are using to brew, water temperature, or particle size and consistency of the grounds.

## IMMERSION & DRIP

At the most basic level, immersion and drip are the two methods of brewing coffee. Immersion is when coffee and water sit together while brewing, such as cold brew or Turkish coffee, while drip is when water passes through coffee during the brewing process. While espresso falls under the drip categorization, though it differs greatly from other drips method, and can be considered a pressurized drip, in a sense.

In this next section, you will find examples of different brewing methods, as well as how to go about successfully and consistently brewing delicious coffee.



IMMERSION



DRIP

## DOSE, YIELD, & TIME

When brewing coffee, all methods essentially follow the same recipe format: Dose, Yield, and time. **Dose** is the amount of ground coffee that you are using, weighed in grams; **yield**, sometimes expressed in the recipe as the amount of water added, is the end weight of the beverage after water has been added; **time** is the amount of time you are extracting the coffee with the water, or the total brew time of the coffee. The relationship between dose and yield can also be expressed as a ratio. For example, an espresso made with a dose of 19g and a yield of 38g has a ratio of 1:2, a typical “normale” shot.

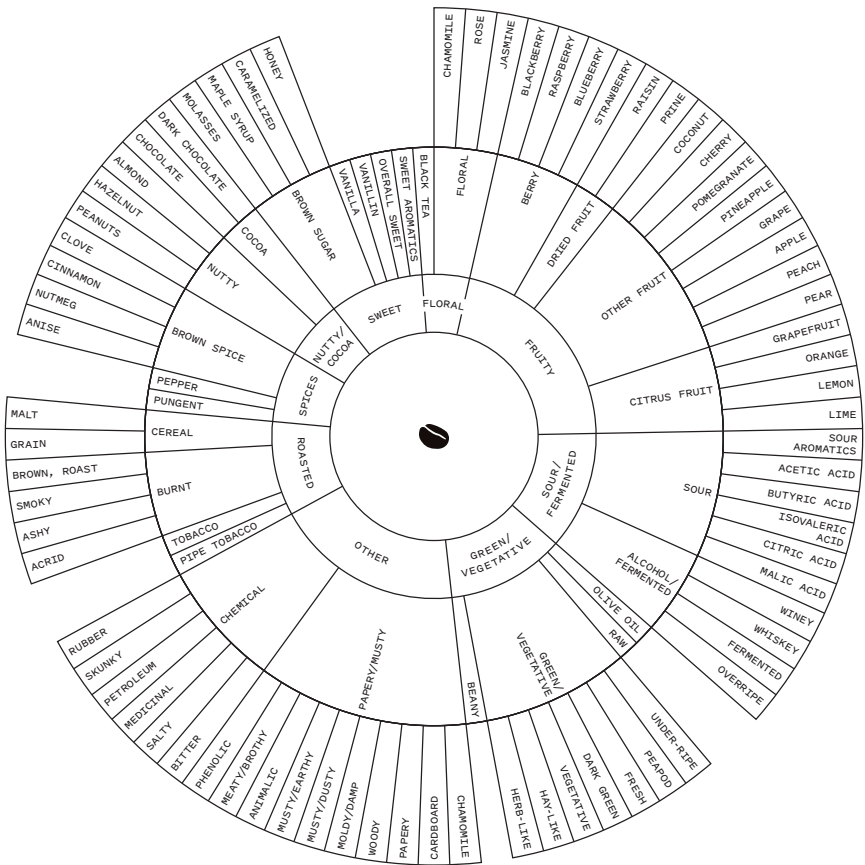
When making changes to any brewing recipe, there is a hierarchy of these variables. The first thing to alter is the time, followed by yield and then finally dose. When changing your dose, you are essentially beginning the recipe from scratch. Change the dose after all other options have been exhausted.

Many things can alter brew time, but when you are not changing the dose and yield, adjusting the grind you are using for your brew is the most conventional way to accomplish this. You can either go finer, which will increase the extraction time; or coarser, which will decrease the extraction time.

It will be important to keep these three variables in mind as we move forward, and begin to think about what's occurring as we are brewing a coffee.

# TASTING COFFEE

How a coffee tastes, as you can imagine, is the most essential aspect of brewing coffee. As a barista, the most important skill you have is your ability to use your palate to discern the dozens of different ways a coffee can express its flavor.



The industry standard for defining coffee flavor is the SCAA Flavor Wheel [Left], provided by the Specialty Coffee Association of America. It is a comprehensive representation of all of the combinations of flavor a coffee can offer, and is something that can be referred to as a barista trains their palate.

At a glance, coffee can produce several basic flavors: sweet, floral, fruity, nutty, roasted, sour/fermented, and vegetal. A coffee's overall flavor is always a combination of a few of these properties.

Use base flavors as a starting point to guide your palate to more detailed notes. If you taste a coffee that it is fruit forward, you have further to go, but you know where to start. The more you taste, you'll notice properties of the flavor that guide you to more detail. Is it the tart sweetness of a berry? The acidity of a citrus? The bright and mellow sweetness of a pitted fruit?

When using the wheel to understand a coffee's flavor and train your palate, it is important to remember that this is not a literal flavor association. A coffee typically does not literally taste like cherry cola, but rather has aspects to its juiciness and brightness that reflect those things.

Overtime, as your palate becomes more developed, you will be able to discern a coffee's flavor profile simply by taste.

# MAKING A DRIP COFFEE

The most common methods for preparing drip coffee are batch brewing, which is using a coffee machine to make large amounts of coffee at a time, and pour-over, which is a method of making drip one cup at a time by hand.

To make a pour-over, you need a few things: a pour-over mug/filter, a kettle, scale, and, of course, a vessel for your coffee to go in. A recipe for drip is a slight alteration of the dose/yield/time method: instead of yield we are going to measure the amount of water we had to the dose of coffee during the process. For this example, we will be making a pour over using 20g of coffee and 300g of water, with a ratio of 1:15, and aiming for a total brew time of three minutes.

The first pour of the water into the bed of coffee grounds is commonly referred to as the bloom, and you are only going to add enough water to, well, wet the bed, so to speak.

For this coffee, we added 60g of water.

As soon as we begin our first pour, we begin timing our brew; waiting 25-45 seconds while the bloom works its magic. While we wait, gases that have been instilled into the coffee during the roasting process begin to release, taking with it some extra acidity that the coffee is better off without. In order to ensure that all of the grounds have been wet, some will use a teaspoon to agitate the bed.

Now we add the rest of the water, steadily increasing the water level until we have reached 300g. It's important to agitate the brewing coffee as you finish adding the last of the water; we want a flat bed at the end of the brewing process. Stirring the brewing coffee, either by hand or spoon can do this, as well as tapping the pour-over mug onto the vessel it is dripping into. After waiting for the rest of the coffee to drip down, it is ready to serve. It is recommended to pour the finished coffee from one vessel to another before consuming, as agitation and oxidation helps enhance the flavor.



## DIALING IN DRIP COFFEE

As the coffee you are making changes over time, whether it be by age, exposure to light, or other variables, you will have to make adjustments to your recipe.

<b>Bean</b>	Colombia Guanacas
<b>Region</b>	Vereda Guanacas, Inza de Cauca
<b>Varietal</b>	Caturra, Variedad Colombia, Tabi
<b>Elevation</b>	1400-2000 masl
<b>Process</b>	Washed
<b>Dose</b>	22g
<b>Grind</b>	3
<b>Yield</b>	380g
<b>Bloom Time</b>	30 seconds
<b>Brew Time</b>	5 minutes & 30 seconds
<b>Flavor</b>	Bitter, sour, intense, gritty mouth feel, burnt chocolate

You may notice from the flavor notes that this coffee did not turn out very well. This is also apparent in the brew time, as typically you do not want to see a pour over brew for that long of a time. So what can be done? We can begin with altering the basic aspects of our pour over recipe: the dose, yield, and time.

Let's go ahead and change the time, which is accomplished by making changes to the consistency of the grind we used for our last brew. As the last coffee we made was ground at 3, we will try to go coarser by increasing the grind to 4.5, and make another cup with the same parameters as last time:

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<b>Elevation</b>	1400-2000 masl
<b>Process</b>	Washed
<b>Dose</b>	22g
<b>Grind</b>	4.5
<b>Yield</b>	380g
<b>Bloom Time</b>	30 seconds
<b>Brew Time</b>	3 minutes & 15 seconds
<b>Flavor</b>	Bright with a smooth, rich finish, grapefruit & cacao

This is much more in line with what we were looking to get from this coffee, some further adjustment may be made overtime, but we are on the right track for an ideal extraction of this pour-over.