

How to Measure Moisture in Parchment & Green Coffee Beans

Drying is an important part of coffee processing. If it isn't performed properly, coffee beans can start to ferment or develop mold, which make for bad flavor notes and reduced quality.

So how do you make sure your beans are drying properly? Read on to find out more about the importance of taking regular samples to measure moisture content.

Why Drying Matters

In general, an unprocessed, ripe coffee bean contains [around 45–55% moisture](#) after picking.

The International Coffee Organization [states](#) that dried, processed green coffee beans should have a moisture content of 8–12.5% with the exception of “speciality coffees that traditionally have a high moisture content, e.g. Indian Monsooned coffees.”

The correct moisture content contributes to balanced acidities and a desirable aroma, which in turn help achieve good cupping scores. [There's some debate over the best moisture level](#), but 10–12% is generally accepted.

Coffee beans are dried in different ways depending on which processing method is used. [Natural processing](#) is when ripe cherries are dried with the cherry still attached. Leaving the pulp on during drying results in a sweet, fruity coffee. But there is greater risk of over-fermentation and mold developing because of the high level of moisture involved.

[Washed/wet coffees](#) have had their pulp removed and mucilage is broken down by fermentation before the beans are dried. Since there's no pulp left on the beans, there is less chance of over-fermentation or mold developing. This method of processing allows the flavors of the coffee to shine, whether it's sparkling acidity or a rich, creamy body. [But it depends on slow and consistent drying.](#)

[Honeys and pulped naturals](#) are essentially a middle ground between washed and natural coffees. They are dried with part of the cherry remaining on the bean. The pulp has been removed, reducing the risk of over-fermentation, but some mucilage remains.

In any processing method, inconsistent drying can lead to fermentation, moldy flavors, and a faded cup profile. And that can mean a lower price for the producer, lower cupping scores, and a reduced overall profit.

Sampling Methods

Coffee is usually laid out in thin layers on raised beds or concrete patios to dry. If the layers are too thick, the beans won't dry as quickly and will be at increased risk of mold.

Raised beds allow the wind to circulate more than concrete patios, which can further aid consistent drying. In both methods, the beans are moved around regularly to allow air to circulate.

One way to ensure that the beans are drying consistently and at the right speed is to take regular samples and measure the moisture content.

But it's not enough to simply take some beans at random and check how dry they are. Instead, you should create a sampling plan that focuses on comparing representative samples.

After laying [parchment](#) coffee out in beds, wait a week to start sampling. Then, measure the moisture using a meter. Do this every day in the morning and at the end of the afternoon until it has humidity between 14 and 15%.

How long this takes varies with how the coffee was processed and how the beds are positioned (fully or partially exposed to the sun).

• *The Cone Method*

This technique involves creating a cone-shaped pile of coffee beans not less than 1.5 kg. Randomly take samples from five to eight dispersed sites on the drying bed until you have around 1.5 kg.

Pile them up and flatten the top. Then divide it into two, and then four equal parts. Reject two piles diagonal to one another and mix the remaining two. You should have a pile of at least 300 g of beans. Use a moisture meter to test the level of humidity and record it.

• *Sampling Bagged Coffee*

When parchment coffee beans reach around 12% moisture, they are usually bagged in burlap or [water-resistant bags](#) and stored until [milling](#). During storage, the beans are at risk of taking on more water so it's important to keep them in a dry, cool, and low-light environment and to keep monitoring moisture levels.

Select samples from three different areas of each bag (not all from the top or the bottom), and check that they are representative. That is, consider whether they appear uniform and free from defects. Then use the cone method to check the percentage of moisture. If the parchment measures above 12% humidity, consider drying it further on beds, patios, or in a mechanical dryer.

So far we have only discussed parchment coffee, but green coffee beans (that is, beans with the papery parchment skin removed in hulling) more easily absorb moisture from the air. So there's a greater risk of green coffee taking on moisture during storage. For this reason, it's even more important to keep green coffee beans [in a dry, temperature-controlled location](#).

If green coffee has a humidity greater than 12%, it's an indicator that it wasn't properly dried or stored. You can't simply put green beans back on beds to dry for longer because it can damage the grain. So make sure to set up a sampling schedule and keep green beans in the correct conditions.

Tracking Moisture Levels

Record the humidity level each time you take it to keep track of whether the beans are taking on more moisture over time. This will help you identify whether there are problems in your drying method or storage space.

With bags of parchment coffee, measure the humidity three times a month. With green beans, measure twice a week. This will allow you to quickly move the bags to better storage conditions if you see any increase and try to prevent further spoilage.

Bags of green or parchment coffee should have identification labels and detailed records. For full transparency, record the following for each bag:

- Date that the coffee entered storage
- Temperature of the warehouse or storage space
- Weight
- Lot number
- Processing method used
- Percentage of initial humidity (the humidity measurement when it entered the warehouse)

- Dates of sampling, the quantity sampled, and the measurement of moisture content in each sample
- The name of the person who records the data and who performs the sampling.

Keeping track of this information allows you to recognize if something is out of the ordinary and to track back where moisture was introduced in the case of spoiled beans.

Moisture content can not only affect the development of mold and presence of pests, but can also impact roasting and sensory profile of the final coffee. Even if a bag appears to have the right level of moisture, without using a meter to test a representative sample, you don't really know.

So invest in a moisture meter and schedule regular sampling of both coffee on drying beds and parchment in storage. You may see some noticeable improvement in quality and cupping scores.