



Campesino Mateo



2017 Coffee Season Report

Cusco – Peru



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Peru Market Overview

According to the International Coffee Organization Peru was the 8th largest coffee producing country in 2016/7, and the world's leading exporter of organic coffee. Virtually 100% of the coffee produced in Peru is of the *Coffea Arabica* species. The average coffee farm in Peru is extremely small at about 2.5 hectares (6 acres). Beginning in 2012 coffee leaf rust (Roya) struck the country hard and reduced production by almost half from a high of 5.1 million bags* in 2011/12 to the recent low of 2.6 million bags in 2014/15. Production has steadily risen since then due to increases from the northern departments of Cajamarca, Amazonas and San Martín which combined to recently surpass the region known as "Selva Central" (Central Jungle) in volume. This year saw a continued rebound with production expected to reach 4.5 million bags as more disease resistant varieties came into full production – most notably various Catimor hybrids which are highly productive and resistant to the devastating coffee leaf rust "Roya" fungal disease. Increasingly farmers have been focusing on higher quality spurred by interest from specialty-oriented buyers.

It is estimated that Peru exports some 90-95% of the 4.5 million bags it produces. The largest and most important market for Peruvian beans is the US (27%) followed closely by Germany (25%) and then Belgium (10%).

*1 bag is 60 kg bags of green coffee

<https://www.coffeeandcocoa.net/2017/05/22/coffee-production-picking-peru/>



Map outlining the zones of coffee production in Peru with the state of Cusco outlined.

Cusco – The Region



Cusco (often spelled Cuzco) is a department in southern Peru. This vast region is home to the Andean Mountains with peaks reaching over 6300 meters (20,000 ft.) above sea level as well as the dense Amazon Jungle just a few dozen miles away. Coffee is produced in four provinces of Cusco in the zones just east of the Andean Mountains sloping into the Amazon Jungle. Locally these coffee regions are known as the “Ceja De Selva” or “Eyebrow of the Jungle”. One of the provinces, “La Convencion”, is the main coffee producing region in the southern part of Peru and is slightly larger than the state of Massachusetts. The many valleys that dot the landscape of this region are extremely rural and isolated – oftentimes farmers lack access to electricity, cell-service, and internet. The coffee farms in the state of Cusco range from 500 to 2450 meters (1640-7875 ft.) above sea level.



The view when descending into the valley of La Convencion.

Cusco - The Climate

The Andean Mountains and Amazon Jungle create a multitude of climates in this region – ranging from somewhat dry-arid to hot and humid. The dry season usually lasts between April and September. Last year the dry season was atypically longer and more intense than normal. During the critical flowering period, showers usually come quite steadily at the end of the harvest season, thus advancing the flowering of the coffee plants. Last year, however, many regions received little to no rain. This uncharacteristic weather resulted in non-uniform flowering of coffee trees. When flowering is uneven and takes places over a longer time than usual, the fruits will ripen over a longer period. This spread-out harvest season increased production costs and lowered quantities in the 2017 harvest.

Cusco - The Market

Most farmers process their coffee cherries on their own farms. They use the washed process and then sell their dried parchment coffee to cooperatives, commercial agents, or local companies. The market for parchment coffee in the region started in March and April with the price of about 275 soles (about \$85) per quintal (100 lbs. parchment coffee). Usually the price at the beginning of the year is a bit lower because beans harvested in March and April are mostly from lower altitudes and thus of generally lesser quality. In addition, exporting companies and cooperatives usually haven't signed contracts with buyers and are thus hesitant to purchase coffee at higher prices. The local commercial price rose to a high of about 360-380 soles (about \$110) in certain valleys during July and August, and a few companies and select cooperatives paid up to 410 soles (about \$125) for physically clean lots. The price then slipped to about 300-320 soles (about \$90) by the end of the harvest season in September and October.



Local commercial buyers in Quillabamba .

This year the minimum I paid was 420 soles (\$130) per quintal of parchment coffee. Almost all of the lots I purchased at either 460 or 500 soles per quintal (\$141-\$154) and some specialty lots I purchased at slightly higher prices. The prices I pay are dependent on both physical and sensorial quality, as well as the relative costs to bring the coffee to Quillabamba for processing. In addition, this year I advanced capital to most of the farmers I knew I was going to purchase from during the season so they could pay their workers. Many farmers in the region feel pressure to sell their coffee to commercial buyers for lack of alternatives even though they may know their coffee is potentially of exceptional quality.

The market for specialty coffee is steadily developing and a handful of other buyers are now purchasing coffee at a premium above the local market prices stated above. The results of many regional and nationwide competitions brought some excellent Peruvian coffee into the spotlight. Most notably, the Cup of Excellence organized their first

competition in Peru and the winner from the north of the country in Cajamarca received upwards of \$100 per pound of coffee! For a number of reasons coffees from Cusco were not too well represented in this national competition. Firstly, the volume produced by farmers here in Cusco is quite small and most did not have enough to fulfill the 13 quintales minimum by the necessary date required – due to the region’s later harvest. Also since most farmers depend on the money received from their harvest, they cannot set aside this quantity of coffee only to receive payment some 4-5 months later.

Cusco – The Varietals

Each year farmers are harvesting more coffee in the Catimor family such as Gran Colombia, Costa Rica 95, T series, and more recently Castillo. On most farms where these have been planted, I noticed a few trees that are both disease resistant and have more genetic similarity with Caturra, Typica, or Bourbon cultivars. Perhaps if these coffee anomalies remain resistant to Roya and show improved quality in flavor and aroma compared to the lesser Catimor varieties, they may become valuable tree stock or seed banks for Peruvian farmers. Some producers who are more quality/specialty conscious are separating out these varieties that display both disease resistance as well as potential for high cup quality as the base for sowing new plantations. Farmers, sometimes aided by the local municipalities or regional, national or international aid organizations, are planting high quality cultivars such as Bourbon, Caturra, Limani, Mundo Novo and most recently Geisha – whose lore has taken those in the specialty world of coffee in Peru by storm. Farmers, cooperatives, municipalities have all heard about the famous Geisha variety and the opportunity it could represent for those interested in producing specialty coffees. Most farmers ask me about varietals and while they have heard of this mysterious variety, they all pronounce it differently!



Left to Right: 1) New Geisha trees planted in 2015, 2) New disease resistant varietals that show promise in the cup.

Large tracts of land are still planted with Typica, Bourbon, and Caturra. Many of the plants are getting older (15+ years) and less productive. Some farmers at higher altitudes between 1800 and 2450 meters have newer plantations of these higher-quality varieties. Recently I have seen Pacamara on farms – although this rare variety can be difficult to distinguish from its genetic cousin, Maragogype, the possibility it offers to produce exceptional cup quality is worth the search. More and more farmers are planting Geisha varieties and some are now beginning to harvest the Geishas they planted in years past. The genetic purity of most of these plants cannot be guaranteed, but through cuppings and physical analysis of the plants quality can be assessed accurately.



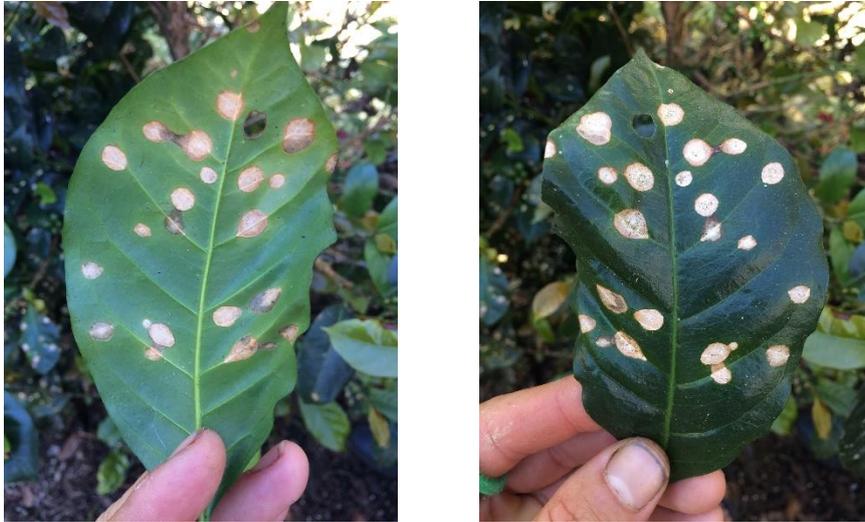
Above: Mateo and farmer Nestor harvesting an old Typica tree of 25 years.

Below Left to Right: 1) Two ripe coffee cherries, one Pacamara, the other Red Caturra. 2) The same two coffee cherries opened up to show the tremendous difference in size of the beans.



Roya and Pests

Roya, also known as coffee leaf rust, is by far the largest concern for coffee production in the state of Cusco. Its advance throughout the past five years has virtually destroyed all the plantations below 1500 meters. Apart from Roya there are other less impactful fungal diseases such as “Rooster’s Eye”, known as “ojo de pollo” locally. This is more easily controlled through improving air circulation and reducing shade.



The Roosters' Eye or "Ojo de Pollo/Gallo" fungal disease affecting coffee leaves.

This year Roya seemed to maintain its same presence as in 2016. What's interesting is that upon my arrival in June, the Roya fungus did not seem to be affecting the coffee trees. Most of the old Typica trees had healthy leaves with even less Roya than last year. After conversing with various farmers and field technicians, however, I found that the plants which had produced fruits were more affected by the Roya. When the coffee plant produces fruit, its energy and immune system defenses are split between the fruits and the leaves – with little or no fruit set the plant is able resist the fungus more effectively, but while producing fruit, the plant's defense mechanism is more compromised. In addition, when the coffee plant produces fruit it generates sugars, from which the Roya bacteria lives – in the absence fruit, the plant produces fewer sugars, meaning the Roya has little sustenance from which it can grow and proliferate.

As was true last year, plants in the shade seemed more resistant to Roya than those growing in full sun. Due to its relatively thicker leaf, the Bourbon variety resisted Roya a bit better than Typica or Caturra. Most farmers in the region have planted Typica over the past 100 years and many at lower altitudes are now either abandoning coffee farming altogether and converting to banana, papaya, cacao, yucca, or other cash crops, or are planting the disease resistant and hardier Catimor varieties.



A leaf severely damaged by the Roya (Coffee Leaf Rust) fungus

With regards to pests, the coffee berry borer, or “broca” as it is known throughout Latin America, represents the biggest issue. This insect enters a growing coffee cherry and starts to consume the fruit – it enters through the sweet mucilage layer into the seed itself and consumes the bean tissue. This damages the bean to the point that it weighs a fraction of what it should; if not removed in the dry mill it can negatively impact the resulting cup. The broca thrives in hot climates and thus previously was virtually nonexistent in coffees originating from farms above 1800 meters. Due to the general rise in temperatures throughout the region, however, the broca, like the Roya fungus, seems to be migrating to higher altitudes. From farms where I found not one bean damaged by broca last year, I am now seeing a handful of affected beans. It is no longer the case that farms above 2000 meters will have zero broca. Farmers have a number of solutions available, both organic and non-organic. First, when farmers realize a proper final harvest, they can ensure that none of the fruits with broca remain on the trees to ripen and fall to the ground – eliminating a perfect breeding ground for larvae to spread during the next year. Next, farmers can also apply various organic biological controls such as bacteria that attack the nervous system of the broca. Still other solutions include using mixes of different compost teas with which to attack and/or ward off the insect. Farmers looking for a simple and quick solution can use chemical pesticides to dispose of the broca somewhat quickly and effectively.



Coffee beans severely damaged by the “Broca” (Coffee Berry Borer) pest.

The Harvest

The 2017 crop was much smaller than 2016, which was considered a ‘bumper crop’ with most farmers realizing their largest harvests in recent memory. A combination of factors led to the smaller harvest this year – inconsistent rains during flowering, the advance of Roya in some regions, and the natural resting of the plants from 2016’s bountiful crop.

Farmers generally harvest their trees about 4-5 times per year. The first harvest, also known as the “chaiyapa” (in the indigenous Quechua* language), is almost always of lesser quality and somewhat uneven. During this early harvest over-ripe, ripe, and under-ripe cherries (also known as “pintones”) are usually picked together. This leads to varying qualities in the cup as the over-ripe fruits sometimes create an unbalanced fermented taste, while too many “pintones” can lead to very vegetal, green, and grassy tastes. After the “chaiyapa”, farmers then move on to their two or three main harvests, known locally as “primera mitad” and “segunda mitad”. The ripening of fruit tends to be more even and farmers are able to harvest more uniformly ripe cherries.

*Language of the Incas that is still spoken among 14 million people in the Andean Mountains between Peru, Ecuador and Bolivia

Farmers will then make a final pass of their fields collecting fruit left-over from the first 3 or 4 harvests. Known as the “ultima chaiyapa” or “raspa”, this pass also tends to be of lower quality as the harvest is not uniform and can include lots of under-ripe green cherries as well as overripe cherries that are drying on the branch. If carried out properly however, this final harvest can lead to some of the best quality coffees due to the extended maturation time which leads to more dense and concentrated beans. Some farmers have begun to harvest the overripe cherries that are drying on the trees to produce a naturally processed coffee – much in the same way as an Ethiopian Harrar.

Harvesting varies considerably from farm to farm. Most farmers in the region harvest without regard to quality in order to save money on labor and because they have very little incentive to take the costlier steps that would result in increased quality.



The vast difference between a conventional harvest on the Left compared to a selective harvest on the Right.

Farmers often talk about how many pickers it takes for them to harvest one “quintal” (100 lbs. dried parchment) of coffee. This largely depends on the terrain (slope), the age, density, coffee variety, uniformity of fruit ripening, skill of the workers, and the quality of the harvest. On flatter farms at lower altitudes planted with the Catimor variety, for example, one or two pickers can harvest one quintal per day. On other farms at higher altitudes with older Typica trees it may require up to 10 harvesters to pick one quintal. The local wage in the coffee fields is about 20-30 soles per day (\$6-\$9). Farmers will have a very tough time turning a profit if it takes more than 6 or 7 harvesters to pick each quintal. At an average local price of 325 soles per quintal, the farmers will end up spending almost 175 soles on labor alone – which doesn’t include the food they will serve the harvesters, the time and work required to wash and dry the coffee, or their expenditures throughout the season to weed, fertilize, prune, and manage their coffee fields. Therefore, farmers generally take steps to reduce harvesting costs. A worker that picks unripe, ripe, and overripe fruit is able to harvest more each day and make fewer passes at each tree during the harvest season (reducing the number of times a tree is harvested from 5 to 3 times per year) which greatly reduces costs as well as quality.



Farmers in the valley of Quellouno farming using the “Ayni” work exchange.

Another way small scale coffee farmers reduce costs during the harvest season is engaging in the traditional communal practice of “ayni”. This Quechua word literally means “community” and is a tradition among small farms throughout the coast, mountains, and jungle zones of Peru. Carried out in a slightly different way depending on the region, it generally means that if you work on my farm for a day, I’ll work on your farm for a day. At times, 15-20 people will come to harvest all the coffee on a 2 to 3 hectare (5-7 acre) farm over a one or two-day span. In the following days, this community harvesting group will head to another farm. This greatly reduces costs during the harvest season – especially important for a cash-strapped farmer who needs to wet-mill, ferment, wash, dry and bag their coffee before they’re able to reap any financial rewards and pay their workers.

Post-Harvest Processing

Virtually all farmers in the region process their cherries on their own farms. They employ the washed process to convert their fruits into parchment coffee. While infrastructure varies greatly from farm to farm, most growers use small hand-crank wet mills to pulp their coffee cherries and separate the fruit from the beans and surrounding mucilage. Some have attached their hand-crank mills to motors and others are now using small disc mills to pulp their coffee cherries. The majority use cement or tile-lined tanks to ferment from anywhere between 10-36 hours depending on various factors (sugar content of fruit, varietal, altitude, weather, etc). Each year more farmers are improving infrastructure and installing tile-lined tanks, flotation tanks to separate empty or overripe beans before milling, and water channels to separate densities when washing the coffee after fermentation. Almost all farmers have access to water and the majority of them are blessed with crystal clear mountain stream water in which to wash their beans. Generally, an emphasis is placed on producing the “whitest” parchment coffee possible, although a look through any given farming valley and you’re likely to find a range of parchment colors from white to off-white to yellow to light orange.



A degrading cement fermentation tank on the Left and a new tile lined fermentation tank on the Right.

Farmers are beginning to experiment with alternative fermentation methods such as submerged fermentations and mixed fermentations. One method gaining popularity is a classic Kenyan style ferment – by which the farmers initially dry-ferment the coffee before washing and submerging the same fermenting beans for a second fermentation. Some farmers are carrying out fermentations of 60 hours changing the water every 12 hours. All these different fermentation styles produce distinct results in the final sensorial analysis of the resulting coffees. Ultimate quality can depend on various factors some of which include the varietal, temperature of the fermentation, amount of mucilage, ambient temperature and climate.

Some farmers dry their coffee on plastic tarps that are laid over grass or compacted soil. Others have cement or stone drying patios on which they either dry their coffee directly or first place a woven plastic tarp below the drying beans. The problems with these methods are numerous:

- 1) Coffee dried on top of, or in close proximity to grass or compacted earth, can absorb off aromas and tastes, often masking what could be intrinsic floral and fruity flavors with dull earthy, woody, or vegetal notes.
- 2) Sporadic rains can occur at any time during the harvest season. Coffee that becomes wet after the drying process has begun will always lose aroma, flavor, and acidity. Additionally, since farmers in the region engage in “ayni”, the work exchange described above, they may be far away from their drying coffee when it rains. This leaves farmers with the often-difficult decision of whether to leave their coffee out to dry or risk a spike in humidity and potential molding by leaving it covered inside due to the risk of rain.
- 3) Drying coffee in a thin layer directly under the sun generally reduces drying time to 3-4 days. This will almost always have a negative impact on the water content of the coffee in addition to the aging of the coffee itself – coffee dried in this manner will start to show signs of aging within 3-6 months, such as duller aromas, whereas coffee dried more slowly (at least 1-2 weeks) and more gently may show no signs of aging for at least 6-12 months.
- 4) When dried directly beneath the sun, especially on top of dark plastic tarps, drying temperature can soar above 45-50 degrees Celcius, 110-120 degrees Farenheit under the midday sun. The parchment layer protecting the bean usually cracks open leaving the green coffee bean exposed to sunlight, odors, and other potential contaminants that may reduce quality.



*Above: Poor coffee drying – on black tarps under the sun, on top of earth, animal/road contamination.
Below: On the left proper drying of coffee leaving parchment sealed – on the right coffee dried quickly under high temperatures crack and open leaving the bean exposed to damage and contamination.*



Some farmers have greenhouses and raised beds on which they dry their coffee. These farmers are the most likely to maintain the quality of their harvest through the drying process and produce fully sealed parchment coffee.



Partner farmer Raul drying his coffee on raised beds under plastic greenhouse.

Ultimately, it's necessary for farmers to have an adequate storage room for their parchment coffee. Ideally farmers will store their coffee in jute or woven polypropylene sacks on small wooden pallets in a dedicated storage room that's dark, dry, and free of odors. Many farmers lack the space or money, however, to build such a room and thus coffee is stored in bedrooms, kitchens, or other spaces shared with foods, clothes, kitchen-smoke or worst of all, fertilizers. Since almost all farmers sell their coffee to buyers who purchase based solely on physical appearance, economic incentives for proper quality storage are virtually nonexistent.

Connecting Farmers to the Market

Specialty coffee is still a new topic in Peru especially in the remote and virtually inaccessible valleys of Cusco. The vast majority of all coffee in the Cusco region either goes "uncupped" (not tested for quality) until it gets mixed and sent to Lima, or is measured for quality without the farmer learning anything about the results. Therefore, very few farmers receive feedback on the quality of their coffee and thus never earn a price premium for taking the steps necessary to produce higher quality. Numerous farmers recounted the same story: they provided the local cooperative with high quality clean parchment coffee only to see it mixed with inferior quality from neighbors who

were paid the same price. This is a strong disincentive for those farmers who work hard during the harvest season to produce quality.

The paradigm is, however, changing. Campesino Mateo is forging a network of local and international buyers working hard to close the loop connecting farmers with roasters in order to improve quality and create a new, more equitable model.



Mateo following partner farmer Eusebio on a walk through the farm.

Learning and Teaching

In 2016 I spent 9 months on the ground in Peru working to import my first micro-lots directly from my new partner farms in Peru. In the end I imported coffee from 9 farmers and sold to 11 specialty roasters on the East Coast. This year 2017 I have been in Peru for 6 months. I am working with coffees from 18 farms and increasing volumes by about 3 times. I am pre-selling coffees and am working on a model in which roasters can more closely connect to the farmers growing their coffees and guarantee access to their top lots year after year. The future for Campesino Mateo and my farming and roasting partners holds access to more lots of coffee, single varietal lots, and perhaps somewhat larger lots from small associations of farmers.



Explaining the importance of a proper harvest with “campesinos” from the La Convencion province.

I was invited to give a lecture as part of the Jacques Pepin Lecture series at the Culinary Arts School at Boston University. In February I gave a 3-hour lecture paired with a coffee and chocolate tasting to an attendance of 80 people. In addition to this lecture, I have also been contracted for educational workshops and business consultations both in the US as well as Peru.



Moments before my lecture at the culinary school at BU

In early 2017 I travelled to Colombia to visit coffee and cacao farms. I visited mostly organic and ecologically diverse farms and was impressed by the size of the farms in comparison to Peru and the general cleanliness and organization of the processing. During my time this year in Peru I have had local Peruvian and US roasters visit to meet the farmers and see the farms. For anyone interested in organizing a visit please reach out and feel free to follow along virtually on Instagram @CampesinoMateo.



Mateo geared up for the coffee harvest in Quellouno, Cusco, Peru.