



# Coffee Costs the Climate

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Start change with your cup of coffee.

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## The Start



- According to a well-known and passed on legend, coffee was discovered centuries ago by Ethiopian farmer, Kaldi, who observed his goats eating the coffee cherries and exhibiting strange and exuberant behavior. All of a sudden, they were full of energy. After the stimulating effect was discovered, coffee cherries and their beans began being passed across the globe. The beverage spread fairly quickly, gaining loads of popularity. Different regions around the world began growing and cultivating coffee. (NCA)
- In the 1600s, coffee took over as the favored beverage, towering above wine and beer. (Coffee History)
- By the 1970s, the term “specialty” was originated, and an interest in knowing and distinguishing coffee-growing regions began to take place. Coffees with a single-origin became more popular than others. Other coffees blended a variety of regional flavors to create skillfully crafted new flavors.

## Brazil's Part



- As the legend goes, in 1727, Sergeant Major Francisco de Melo Palheta was sent to handle the land dispute between French Guiana and Dutch Guiana. While he was there, Palheta noticed how heavily protected coffee saplings and plants were, but lucky for him, he had come up with a plan to seduce Madame D'Orvilliers in a way to get some of the sacred plants. In the end, he got a large bouquet of flowers that contained more than wonderful scents; he had gotten enough coffee seeds that it could start a billion-dollar industry today. Because of the dispute of land, most of the coffee plants were planted in Northern Brazil throughout the 18th century. (Coffee History)
- In the 1990s, the Brazilian government deregulated many agricultural industries and with coffee, farmers had more freedom to experiment, choose their buyers, and sell however they please.
- The deregulation opened more ways to innovate which led Brazil to become the world leader in coffee research and processing. Brazil produces 30% of the world's coffee supply.
- Brazilian coffee research comes from plant varieties - even hybrid mutants - that are designed to handle certain climate conditions.
- With diverse geography, like grasslands and ranging in elevations, affects the taste of the beans from earthy notes and unpleasant bitterness to more delicate flavors, floral and fruity notes.

- In specialty coffee, the most common arrangement would be earthy, spicy, nitty, sweet, and low acidity which creates a great foundation.
- Many Brazilian beans have a lighter body, thick sweetens, a gentle tang, and a complex profile of lime, white wine, flowers, and spice.

## Are We Facing The End?



Over the years, coffee has been clinically proven over a number of times that it is rather sensitive to climate change. Due to the fact that the life expectancy of coffee plantations is about thirty years, the possible effects from future climates are already spiking concern. Future adaptation is in high demand across the entire supply chain ("A Bitter Cup").



**A rise in climatic concentration of carbon dioxide has been believed to be a reason of climate change's sky-rocketing numbers. It has also been found to enhance the plant growth and crop yields of coffee without deranging the bean quality. It enhances the photosynthesis occurring which ensures that plants impacted are less likely to develop oxidative stress. High temperatures are well-known to disrupt the plant's metabolism, leading extreme conditions to cause physiological stress upon the plant. This has the potential to reduce their ability to perform efficient photosynthesis like before ("How Climate Change Impacts Your Coffee Plants").**

Farmers



- An estimated 100 million people depend on coffee, many of these environments are at risk to predicted further occurrences of climate change.
- As labor is already the leading reason to the costly production, it's placing a heavy load on the coffee producers and the costs just to make their living.
- It is the inevitable that coffee may migrate, and this migration has the ability to put ecosystems in jeopardy.
- "Existing coffee plantations may experience the climate change foreseen by global circulation models. Commercial varieties in current use a narrow genetic base, thus allowing them to narrow climate change" (A Bitter Cup").
- The threat climate change brings may be further extended by the long lead time of adaptation measures such as breeding for stress tolerance, which may take decades to develop ways to manage this.

## Breeds of Coffee



- Along with its financial importance, the farming of espresso manufacturing justifies the analysis of the crop's adaptation to the local weather change.
- "Existing coffee plantations may experience the climate change foreseen by global circulation models" (A Bitter Cup). Business varieties in current use a slim genetic base, allowing them to decrease changes in the weather.
- Robusta coffee makes up about 30% of global coffee production. It is generally more heat tolerant than others, but more susceptible to low temperatures than Arabica coffee (accounting for the remaining 70%). Climate change has already been predicted to reduce the production of Arabica coffee. If Arabica production is limited, there will be a wide shortage around the world.
- Arabica makes up the majority of the coffee crops in South America. Millions of people around the world could lose their jobs. The coffee shops in coffee dominant countries like Brazil will decrease by the year. This will do extreme damage to countries like Africa, Asia, and most Latin America countries (almost all of South America) as they make up 80% of the coffee sold worldwide.

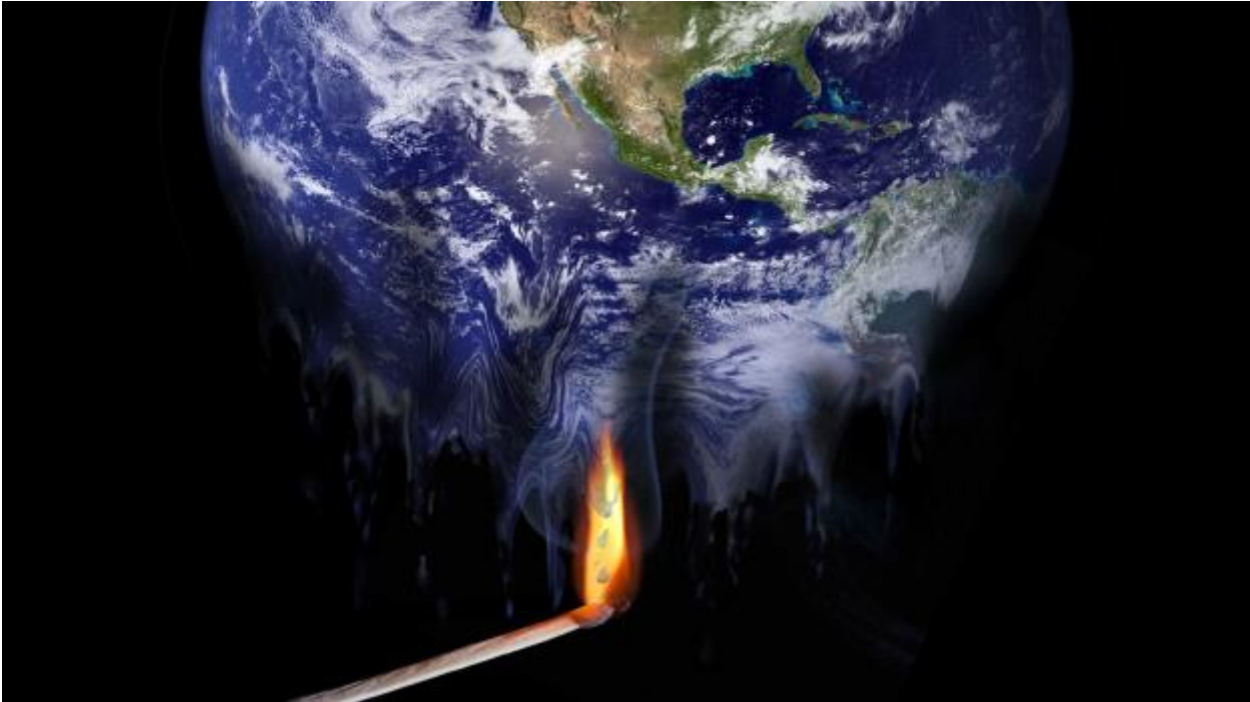


## Little Preparation



- Short-term establishment interferences come out to endanger the plant conservation in the long run. These components and conditions alter the supply of corporations within seeded pastures of tropical dry region.
- The livestock site conditions contribute to the affect on ecosystem service indicators. An escalated amount of burns introduced pasture exploitation and decreased vegetation, while increasing the duration of livestock management.
- Livestock management and pasture burning decreased the production of forage. Forage quality, soil potential, and plant diversity decreased as a result of the burning. The moisture of upper soil regulated the effects of management on ecosystem services. ("Effects of livestock management on the supply of ecosystem services in pastures in a tropical dry region of western Mexico").

Change of Fate







- Studies have assessed the impact of climate change on coffee using primarily three methods: Use of common denominators of climate suitability to map risk areas, the correlation between temporal, or spatial variability of coffee production. These previous studies on the impact of climate change on coffee demonstrate latitudinal and altitudinal migration or complete abandonment of coffee. The results are limited to local levels, leaving global trends are yet to be uncovered.
- In today's society, coffee is one of the world's most highly traded commodities. According to the National Coffee Association, coffee is the most consumed beverage aside from water. For many people from all walks of life, coffee gets the day started, and then continues to get us through the day. (NCA)
- Use all energies and consumptions wisely.
- There is still a way to fight and give back to the Earth, to the plants we devour.
- **Sources MLA Cited:**
- "5 Attempts to Ban Coffee in History." *National Coffee Association Blog*, 7 Aug. 2017, [nationalcoffee.blog/2015/12/15/5-attempts-to-ban-coffee-in-history/](http://nationalcoffee.blog/2015/12/15/5-attempts-to-ban-coffee-in-history/)
- "A Bitter Cup: Climate Change Profile of Global Production of Arabica and Robusta Coffee." *Climatic Change*, Springer Netherlands, 1 Jan. 1970, [link.springer.com/article/10.1007/s10584-014-1306-x#citeas](http://link.springer.com/article/10.1007/s10584-014-1306-x#citeas).
- "A Drink for the Devil: 8 Facts about the History of Coffee." *HistoryExtra*, 26 Nov. 2020, [www.historyextra.com/period/medieval/history-coffee-facts-discovery-use-drink-social-revolution/](http://www.historyextra.com/period/medieval/history-coffee-facts-discovery-use-drink-social-revolution/).
- "Coffee History." *Casa Brasil Coffees*, [www.casabrazilcoffees.com/coffee-history#:~:text=The first coffee plantation was,number had reached 12,896,000 pounds](http://www.casabrazilcoffees.com/coffee-history#:~:text=The first coffee plantation was,number had reached 12,896,000 pounds).
- *Coffee Is Culture*, [www.communitycoffee.com/blog/detail/coffee-is-culture](http://www.communitycoffee.com/blog/detail/coffee-is-culture).
- "National Coffee Association." *NCA*, [www.ncausa.org/about-coffee/history-of-coffee#:~:text=An Ethiopian Legend&text=There, legend says the goat,want to sleep at night](http://www.ncausa.org/about-coffee/history-of-coffee#:~:text=An Ethiopian Legend&text=There, legend says the goat,want to sleep at night).

- Pedrotti, Valentina. "How Climate Change Impacts Your Coffee Plants." *Perfect Daily Grind*, Perfect Daily Grind, 6 Aug. 2020, [perfectdailygrind.com/2020/01/how-climate-change-impacts-your-coffee-plants/](https://perfectdailygrind.com/2020/01/how-climate-change-impacts-your-coffee-plants/).
- Trilleras, Jenny M., et al. "Effects of Livestock Management on the Supply of Ecosystem Services in Pastures in a Tropical Dry Region of Western Mexico." *Agriculture, Ecosystems & Environment*, Elsevier, 18 June 2015, [www.sciencedirect.com/science/article/abs/pii/S0167880915002297](https://www.sciencedirect.com/science/article/abs/pii/S0167880915002297).