

# Climate change is making it harder to get a good cup of coffee

April 14 2021

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Ethiopia may produce less specialty coffee and more rather bland tasting varieties in the future. This is the result of a new study by an international team of researchers that looked at the peculiar effects

climate change has on Africa's largest coffee producing nation. Their results are relevant both for the country's millions of smallholder farmers, who earn more on specialty coffee than on ordinary coffee, as well as for baristas and coffee aficionados around the world.

"Climate change has conflicting impacts on coffee production in Ethiopia. The area that is suitable for average quality coffee might actually increase gradually until the 2090s, according to our computer simulations," says lead author Abel Chemura from the Potsdam Institute for Climate Impact Research (PIK). "Yet more is not necessarily better. Because on the flipside, the suitable area for high quality specialty coffee types which are valued for their floral, fruity and spicy notes, will likely shrink if [climate change](#) continues unchecked. This is an issue not just for coffee lovers, but for local agricultural value creation."

## **The suitable areas for specialty coffee are shrinking**

Under various scenarios the researchers looked at how a total of 19 climatic factors will affect the cultivation of five distinct specialty coffee types in the future, including mean temperature, annual rainfall levels, and seasonality. For example, if it gets warmer, the coffee cherry matures faster than the development of the bean, which in turn leads to coffee that is lower in quality. Increased rainfall, on the other hand, favors [coffee production](#) in general but may be not necessarily beneficial for individual specialty coffee types.

Thus, while the researchers project that the area suitable for four out of five specialty coffee types will decline, some are hit harder than others. For example, the renowned Yirgacheffe type, one of the world's oldest and most sought after coffee types cultivated in Ethiopia's southwest, under the [worst case scenario](#), could lose more than 40% of its suitable area by the end of the 21st century.

## A blow to Ethiopia's economy

This would not only affect coffee drinkers worldwide, especially those who grind their own beans or prefer sophisticated blends—it would also have consequences for Ethiopia's economy. "If one or more coffee regions lose their specialty status due to [climate](#) change this has potentially grave ramifications for the [smallholder farmers](#) in the region," says co-author Christoph Gornott from PIK and the University of Kassel, Germany. "If they were forced to switch to growing conventional, less palatable and bitter coffee types, they would all of the sudden compete with industrial production systems elsewhere that are more efficient. For the country, in which coffee exports account for roughly a third of all agricultural exports, this could prove fatal."

However, there may be ways to stop this trend. "As distinct specialty [coffee](#) types are strongly influenced by different local climatic, spatial and soil-related factors, what is needed are adaptation measures that are tailored to each specific region," adds Christoph Gornott. "Our study underscores the importance of localized adaptation planning and responses. We show how climate change has very concrete effects on the availability and taste of one of the world's most beloved beverages and, more importantly, on economic opportunities in local communities of the global South."

**More information:** Abel Chemura et al, Climate change and specialty coffee potential in Ethiopia, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-87647-4](https://doi.org/10.1038/s41598-021-87647-4)

Provided by Potsdam Institute for Climate Impact Research

Citation: Climate change is making it harder to get a good cup of coffee (2021, April 14)  
retrieved 24 April 2024 from  
<https://phys.org/news/2021-04-climate-harder-good-cup-coffee.html>

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