



## **Coffee and Climate**

My reliance on coffee is so routine I rarely think about it - until I miss my morning cup and the physical withdrawal hits. Like most Americans (two-thirds of us drink it regularly), I've taken its availability for granted. Coffee, after all, has long been part of American life - from a patriotic replacement for British tea in the Revolutionary War, to a staple of Civil War rations and western expansion, to the modern \$100+ billion specialty industry we know today.

Theodore Roosevelt and family played a role in coffee's popularization. He was a prolific drinker of the beverage and was (falsely) credited with inspiring the slogan "good to the last drop," used by Maxwell House to make instant coffee a household product. His sons later opened the Double R Coffee House in New York, which roasted Brazilian arabica beans on-site, used pour-over techniques, and offered a U.S. Constitution for reading - arguably ahead of its time and a prototype for Starbucks. It was also a leader of the transition from easy to produce to more flavorful coffee.

The rise of specialty coffee in the late 20th century shifted the U.S. palate from instant Robusta to Arabica, prized for its smooth, nuanced flavor. Today, 92% of U.S. coffee is Arabica.<sup>1</sup> But Arabica is extremely climate-sensitive, and its growing regions are increasingly threatened.<sup>2</sup>

In Central America, rising temperatures and erratic rainfall enabled the spread of coffee leaf rust, slashing yields by up to 60% in the 2010s. In 2021, Brazil - responsible for over a third of global Arabica - suffered a devastating drought followed by frost, with long-term impacts due to Arabica's 3–5-year harvest cycle. Brazil is again experiencing drought in 2025, with production down another 6%.<sup>3</sup> Farms are shifting upslope into protected areas, but that strategy has limits: 50% of Arabica land could be unsuitable by 2050. Farmers abandoned their land, leading to a mass migration north to American borders.

Coffee prices spiked to record highs this February before the recently announced 50% Brazilian tariff.<sup>4</sup> As one commodities analyst from ED&F Man in London put it: "Just when you think maybe this year we're going to get a big crop and finally get back to a surplus and rebuild our stocks, you get another adverse-weather event in either Brazil or Vietnam, and things get tight again."

Despite efforts by NGOs and companies to develop climate-resilient varietals, coffee's 800+ aromatic compounds make flavor replication through new varietals extraordinarily difficult. This is where International Flavors & Fragrances (IFF) plays a critical role. Best known for its behind-the-scenes work creating and refining taste experiences, IFF has quietly become a central partner to the global beverage industry - coffee included. Through its Beverage Solutions and Flavor Systems division, IFF helps companies respond to climate-driven changes in raw ingredients by preserving, enhancing, or rebuilding flavor profiles using natural and highly technical methods. As bean chemistry changes due to drought or fungal stress, IFF works with manufacturers to re-balance acidity, restore aroma, and smooth bitterness - all without compromising the integrity of the final product.

The company's work is especially important in ready-to-drink (RTD) coffee products, where flavor must survive pasteurization, shelf life, and varied distribution environments. IFF has developed a suite of proprietary technologies - like TRU2NATURE™ for encapsulating delicate aromas and TRU2CLEAR™ for

 $<sup>^1\</sup> https://www.ers.usda.gov/data-products/charts-of-note/chart-detail?chartId=110079\&utm$ 

 $<sup>^2</sup> https://www.sciencedirect.com/science/article/abs/pii/S0048969723063805\#; ``:text=Despite\%20 significant\%20 advances\%20 in \%20 cultivar, Camargo\%20 and \%20 Camargo\%20 cultivar, Camargo\%20 and \%20 Camargo\%20 cultivar, Camargo\%20 cultiva$ 

<sup>3</sup> https://www.reuters.com/markets/commodities/brazils-202526-coffee-output-forecast-decline-by-up-64-2025-04-22/

<sup>&</sup>lt;sup>4</sup> https://www.ft.com/content/f02f2888-2349-47be-b484-22c8bcf38b35

maintaining flavor clarity in transparent beverages - that allow coffee brands to deliver a consistent sensory experience even as the underlying bean supply becomes less predictable. Its RE-IMAGINE DELIVERY® platform ensures that flavor compounds hold up from production line to "last drop."

While IFF does not publicly disclose its clients, its global scale and breadth of technical capabilities suggest deep relationships with many of the world's largest coffee brands, including those now contending with changing flavor profiles and supply disruptions. More broadly, IFF's work underscores a core theme of Redwood Grove's investment approach: not all climate solutions are about mitigation - some are about adaptation. As volatility in agricultural inputs increases, companies that can stabilize flavor, preserve brand identity, and maintain consumer trust will become increasingly vital across the food and beverage supply chain. Coffee may be the case study today, but IFF's technology is being applied just as widely in tea, chocolate, dairy alternatives, and nutritional supplements.

In a world where climate data is becoming more distorted and market signals more difficult to interpret, companies like IFF that are embedded in the supply chain, scientifically grounded, and essential to product performance represent the kind of long-term resilience we seek in our investments.

## **Closing Thoughts**

When we launched Redwood Grove, a common question was: What happens once climate data is fully priced into markets? Our view was that this process would take time - but we believed in a secular trend toward better climate risk integration and stronger clean energy economics. So far, our optimism has proven misplaced. As detailed in our 2025 Impact Report, ESG and Net Zero commitments declined this year for the first time since such metrics were tracked. One striking recent example:

The International Energy Agency (IEA) was created in the 1970s to manage oil shocks. Over the past two decades, it consistently underestimated renewable growth - forecasting in 2010 that global solar capacity would reach 180 GW by 2024 (it was surpassed in 2014). Yet, the current U.S. administration has accused the IEA of being "too green." Secretary Chris Wright recently suggested the U.S. might leave or "reform" the IEA, arguing that its forecasts are now misaligned with American interests.

This is emblematic of what we're seeing across the board: climate data distortion is growing, not fading. Forecasts are increasingly politicized or ended entirely. For us, this reinforces the value of science-based, independent research - and the importance of active management in a world where signals are harder to read.

Thank you for your continued support and trust in us. As always, please don't hesitate to reach out if you'd like to discuss the portfolio or our outlook in more detail.

With gratitude,

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<sup>&</sup>lt;sup>5</sup> https://www.vox.com/2015/10/12/9510879/iea-underestimate-renewables

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