

# BEST IN CLASS BREEDING

Ethiopia is mobilizing investment to build a one-of-a-kind, modern national coffee breeding program—and the industry is behind them

By Hanna Neuschwander | World Coffee Research

Ethiopia—the birthplace of *Coffea arabica* and home to the world’s oldest coffee culture—is bringing forward a plan to make its national coffee breeding program one of the best in the world, and is seeking an \$8.5 million investment from global development donors to make it happen.



Over the last decade, Ethiopia has been a global leader in modernizing national crop breeding programs including for common bean, chickpea, sorghum, wheat and maize. Now, it’s bringing the same high-powered approach to one of its most important agricultural products—coffee. Coffee is critical to Ethiopia’s economy, generating 24% of the nation’s export income, and the country is home to nearly one-fifth of all coffee farms globally.

In coffee, Ethiopia also has a genetic bounty that sets it apart from other countries. As the center of origin for *C. arabica* coffee, the country is able to draw upon its vast genetic resources to provide farmers with

unique, regionally-tailored varieties in a way that no other coffee country can. Over the last five decades, researchers at Ethiopian Institute of Agricultural Research’s (EIAR) Jimma Agricultural Research Center (JARC) have utilized agricultural science to harness the country’s unique natural resources for the benefit of Ethiopian farmers. Now, to enhance the benefit of these unique resources and meet farmer demand for improved varieties, Ethiopia is looking to modernize its approach to breeding new varieties.

“Coffee is a vibrant and critical part of Ethiopia’s economy, and in order to meet the challenges posed by climate change and a shifting global

market, accelerating breeding innovation is a must to ensure coffee’s continued success here,” says Dr. Feto Berriso, Director General of EIAR.

Located in southwestern Ethiopia, JARC is one of 20 federal agricultural research centers in Ethiopia operated by the EIAR, and was established to coordinate, produce, and distribute coffee research to Ethiopian farmers. JARC has become one of Ethiopia’s most important coffee research centers, as it is the central national lab responsible for coordinating all in-country research initiated by the government and other official entities. JARC has released 43 coffee varieties of which 8 were hybrids, for different regions in Ethiopia, and conducts research on quality, diseases and pests, agronomy, soil, tissue culture, and conservation practices, and supplies improved coffee seed to farmers.

Building on a storied past, researchers and leaders at EIAR and JARC are looking to the future, bringing modern scientific tools and training to ensure that Ethiopian farmers are able to thrive in the face of increasing challenges like climate change.

In 2021, EIAR and JARC initiated a partnership with World Coffee



Research (WCR) to explore partnerships to strengthen the country's coffee agricultural research program. With support from the U.S. Government and the global coffee industry, a series of assessments were conducted in 2021 and 2022 to understand the country's research capacity in coffee agricultural R&D, specifically for coffee variety development, sensory/coffee quality evaluation, and planting material distribution in Ethiopia. This included an internationally best-in-class breeding program assessment led by the University of Queensland, following an approach already used in Ethiopia for evaluating and improving its maize, wheat, chickpea, common bean and sorghum breeding programs.

"EIAR, with its partners, have jointly conducted independent assessments of the status, capacity, and infrastructure of the country's breeding program," says Dr. Taye Tadesse, Crop Directorate Director, EIAR. "Using the results of these assessments, we have developed a roadmap for improvement over the next 6 years."



EIAR and WCR are bringing that roadmap forward to international donors, seeking investment of \$8.5 million over six years to enhance and modernize Ethiopia's breeding program. Development donors from the United States, Japan, Australia, Canada, Germany, and the EU participated in a meeting held on June 12 in Addis Ababa to discuss the importance of improving the national approach to coffee breeding and learn more about the roadmap.

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The roadmap identifies both areas of strength and opportunity, including:

- Enhancing training and tools for applying modern breeding approaches to maximize genetic gain, utilizing Ethiopia's unique *C. arabica* genetic diversity.
- Applying demand-led principles, such as creation of targeted product profiles for delivering tailored varieties for each region.
- Upgrading sensory lab equipment, standardizing regional flavor profiles, and creating stronger linkages between breeding and quality assessment/market access programs to ensure that flavor and quality can be prioritized in variety development.
- Enhancing the capacity of the nursery system to rapidly disseminate newly released, improved varieties.

"Coffee faces a global innovation crisis," says WCR CEO Dr. Jennifer "Vern" Long. "WCR has been proud to support the assessment and roadmap development process, but our most important role has been to issue the clarion call to donors on behalf of the coffee industry: We must increase global investment in coffee innovation if we want to continue drinking our favorite beverage—and there is no better place to start than the birthplace of coffee."

Many of WCR's member companies, 88% of which source coffee from Ethiopia, have already jumped into action to support the proposal, calling on their governments to join a multi-donor coalition to help Ethiopia modernize its breeding program.

"Ethiopia is a very important and unique source of coffee for us and for our industry," says Martin Elwert of Coffee Circle, a Germany-based specialty coffee roaster, which joined 11 other companies sending



letters of support for the project to their respective governments. "We are deeply concerned about the challenges facing Ethiopia's smallholder coffee farmers and the natural environment, as our long-term supply depends on both. The global coffee industry, through World Coffee Research, wants to ensure a vibrant Ethiopian economy that protects its natural endowments such as forests, while also ensuring the future of coffee for generations to come."

Ethiopians have been cultivating coffee for at least 500 years, probably much longer. Together, EIAR, JARC, and WCR are betting that by mobilizing greater investment for coffee breeding in Ethiopia, the future of coffee in one of the world's most important origins will be secured for the next 500 years.

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