WORLD COFFEE RESEARCH

# Innovea

Global Coffee Breeding Network

## 11 countries, collaborating to breed better trees, faster.

**The future of coffee agriculture depends on getting better trees to farmers as fast as possible.** Luckily, tremendous gain can be achieved when modern, innovative, and collaborative methods for breeding new trees are brought into coffee. The Innovea network enables coffee-producing countries to work together to pursue the continuous development of better coffee varieties, tailored to the unique needs of their farmers and markets. Using modern breeding tools to speed up genetic gains is essential given the timelines for breeding a tree crop like coffee and the realities of climate change.

**Accelerated innovation is critical for farmer livelihoods and sustained supplies of coffee.** All coffee agriculture relies on research conducted by national coffee institutes worldwide, often working in isolation. Despite decades of dedication, many face limited funding, small teams, and outdated tools. As a result, few new varieties are created. Without innovation, farmers risk losing livelihoods, and the industry and consumers face reduced supply, higher prices, and greater sustainability challenges.

**Arabica and robusta.** The 11 countries in the Innovea network produce >40% of the word's total coffee supply. Some partners focus only on arabica, some on robusta, and some on both.

### What can breeding do?

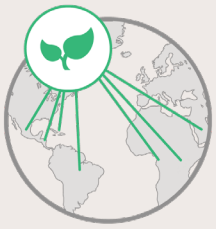
The right variety, adapted for a specific production environment and market demands is the fundamental building block of any high performing agricultural system. This can be achieved through modern plant breeding approaches to bring more durable resistance to key pests and diseases into coffee varieties, reducing the need for pesticides. It can bring higher-quality coffee to lower elevations, expanding the potential for production in tomorrow's hotter temperatures. It can deliver varieties with higher yield across a broader array of environments—critical for climate change adaptation. Agricultural science is critical to secure the global supply of high-quality coffee in the face of the climate crisis.

**An elegantly designed program to achieve transformative change.** The globally coordinated approach enables results that would not be possible for a more traditional program operating within the borders of a single country. This network enables national coffee institutes to adopt modern breeding approaches and work together, sharing data and modern breeding tools. The result is a continuous pipeline of better coffee varieties, tailored to the unique needs of local farmers, responsive to global markets, and resilient to a changing climate:

- For farmers: More productive, climate-smart trees
- For industry: Stable, diversified supplies of coffee
- For consumers: Flavor diversity and sustainability
- For national partners: Accelerated breeding progress

# How does the program work?

## Eleven global partners.



Costa Rica, Ghana, India, Indonesia, Kenya, Mexico, Peru, Rwanda, Uganda, USA, and Vietnam. Together these countries produce >40% of the world's supply of coffee.

## More varieties, faster.

The network's primary focus is on the development of genetically diverse breeding populations, which are distributed to network participants every 6 years to continually replenish national breeding programs with superior breeding material. Participating countries remain in charge of the development and release of finished varieties tailored for local conditions. Shared data and genomic tools help Innovea cut years from breeding timelines.

## Coopetition.

The network's collaborative design lowers the cost for individual countries to access modern breeding tools (cooperation), while countries remain in the driver's seat regarding finished variety selection and variety release to give their farmers a competitive edge (competition). A coopetition approach strengthens both collective progress and national competitiveness.

## Multi-environment testing for climate resilience.

Breeding populations are distributed to sites in many countries with different agroecological environments, exposing them to diverse and sometimes extreme environmental pressures. Aggregated global performance data indicates which plants have stable performance across climates—breaking through historical barriers and enabling unprecedented climate-resilience insight. The most stable plants can be released for farmers and can be used in subsequent breeding to increase climate resilience traits to make even better varieties.

## Demand-led.

Breeding priorities are defined by farmers, roasters, and consumers to ensure new varieties deliver the traits farmers need and markets value: productivity, resilience, and quality.

## Modern, data-driven breeding.

The network uses global performance data to guide crosses as WCR's centralized facilities to create improved populations as fast as possible. Each new population cycle recombines individuals with the highest breeding values across traits. Phenotyping is carried out by partners at globally distributed sites. This allows breeders to use genomic selection to tackle multiple problems simultaneously (such as yield, disease resistance, cup quality, and climate resilience) and to deliver faster, more precise genetic gains than any country could do alone.

## New and unique genetic combinations.

The network's arabica and robusta breeding populations are created from a wide diversity of high-performing varieties from Africa, Asia, and the Americas that have never been brought together before. The crosses have been designed to bring together high-priority traits such as yield, disease resistance, and cup quality.

## Capacity building.

Innovea strengthens national breeding programs with training, shared genotyping services, strategic planning tools, and CGIAR-aligned best practices, enabling faster, data-driven variety improvement and building lasting global breeding capacity.

## Funded by the coffee industry.

The network is funded by the 200+ member companies from 30 countries that make up World Coffee Research. These companies are leaders in the global coffee industry driving science-based agricultural solutions to urgently secure a diverse and sustainable supply of quality coffee today and for generations to come.

## LEARN MORE

Scan the QR code or go to **worldcoffeeresearch.org/innovea** to read more about the program.