



Innovea Global Coffee Breeding Network

México Arabica Breeding: Current Progress, Challenges, and Goals

I. Report Overview & Objectives

- Project Title: Innovea Global Coffee Breeding Network—Arabica
- Reporting Period: 2024-2025
- Partner Institution & Location:

Universidad Autónoma Chapingo – Centro Académico Regional

Huatusco, Veracruz. Mexico.

- Date of Report: November 07, 2025
- Alignment with Core Objectives: The Innovea program offers an opportunity to develop, in the short term, new coffee varieties in Mexico that are suited to the socio-environmental conditions of coffee-growing regions. It is important to identify, from a holistic perspective, productive materials that are adapted to traditional agroforestry systems, resilient to climate change and phytosanitary problems, and that present high physical quality of the bean and cup quality. The trial was established in Huatusco, Veracruz, one of the regions with the highest coffee production in Mexico.

II. Overall Progress

Year 2024

- ✓ Seed introduction took place on January 31, 2024, receiving 28 materials and a total of 1184 seeds.
- ✓ Seed sowing in greenhouse seedbeds was carried out on February 10, achieving a 67% germination rate. Transplanting to the nursery was done in June.
- ✓ From February to November, seedling growth and development were evaluated, and maintenance was provided.
- ✓ The Research Consortium Participation Agreement between WCR and UACH was signed on April 4.
- ✓ Labeling by UIC IWCR for plant identification was completed in June.



- ✓ First genotyping: nursery phase, September 20-21.
- ✓ Land preparation: layout, staking, digging holes, application of fertilizers and compost. September and October. Area: 1680 m²
- ✓ Altitude 1350 meters above sea level.
- ✓ Various shade and regulation. 30 trees of 8 species (*Ulmus mexicana*, Inga sp., *Grevillea robusta*). Shadow coverage: 46.8%
- ✓ Soil sampling: October 31.
- ✓ Planting of the experiment: November 12–14.
- ✓ Installation of thermal netting: December.



Figure 1. Seed reception, sowing in greenhouse, transplanting to nursery and genotyping of materials.



Figure 2. Site preparation, work team and placement of thermal mesh.



Year 2025

- ✓ Removal of thermal netting, February.
- ✓ Plot management: weeding, nutrient application, January–November.
- ✓ Flowering trials, February.
- ✓ Monthly evaluation of coffee plants, January–December.
- ✓ Second genotyping and labeling of plants, July 24.
- ✓ Shipment of materials to Australia, July 31.
- ✓ First production trials.



Figure 3. Plot management, weeding, fertilization and pests. Monthly evaluation. Flowering and first fruits.

III. Challenges and Limitations

We are very excited to identify exceptionally early-maturing materials; the first fruits will be harvested in this 2025-2026 cycle. The colder months are approaching in the region, and it is important to continue protecting these valuable materials. So far, the genotypes are showing excellent performance, with the exception of a few exhibiting severe rust damage (less than 5%). There has been some mechanical damage to the plants from falling trees and branches. Identifying the best-performing varieties will be a task in the coming years. Some outstanding materials are emerging, such as: a) tall varieties: IWCR 15501, IWCR 14497; b) medium-sized varieties: IWCR



1507, IWCR 15034, IWCR 15019; and c) short varieties: IWCR 15902, IWCR 15605, and IWCR 14776. A joint analysis between WCR and UACH is necessary.

IV. Next Steps and Future Goals

Some early-maturing materials have been identified that are adapting to the agroforestry conditions representative of Mexican coffee farming, characterized by diverse shade. However, it is important to continue the evaluation in the medium and long term, and in a comprehensive manner. Regarding phytosanitary issues, in addition to monitoring for coffee rust, other fungal diseases such as *Mycena citricolor*, *Cercospora coffeicola*, *Phoma costarricensis*, and *Colletotrichum* spp. should be included. The first harvest will take place in the next cycle, 2026-2027, and evaluations of the physical quality of the bean and cup quality will begin. Simultaneously, a genetic improvement project, initiated in 2017, will allow for comparisons between the most outstanding genotypes and expand the inventory of options, considering the diverse socio-environmental conditions of coffee cultivation in Mexico. The support of Innovea and the experiences shared with colleagues in the network will be fundamental in the comprehensive evaluation of the genotypes, identifying elite materials, and achieving the objectives of the Innovea project.

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