

# 2020 Crop Vulnerability Update for Coffee

## Vulnerabilities & Threats

- Lack of access to germplasm collections other than collection at CATIE (Costa Rica)
- Genetic erosion both in *ex situ* and *in situ* collections
- Inadequate knowledge of how climate change will affect coffee production in Hawai'i and Puerto Rico, as well as new growing regions of California and possibly Texas. How can growers prepare?
- Low quality coffees and concomitant low price hinders grower's income and profit; therefore, it is essential to train growers on how to improve quality
- Be prepared for possible spread of coffee leaf rust between islands of Hawai'i and other locations like CA

## NPGS PGR Status & Impacts

### Status:

- Transfer of coffee germplasm collections from HARC to PBARC has been initiated
- Land for duplicating the Hawai'i collection at TARS in Mayagüez, PR has been allocated and prepared
- Molecular program for identification of Arabica and robusta at SPCL, Beltsville, MD
- Cryopreservation facilities at NLGRP, Ft. Collins, CO

### Impacts:

- Coffee growers in Hawai'i, Puerto Rico and CA are prepared to deal with the effects of climate change on coffee production
- Development and use of internationally standardized molecular methods for DNA characterization of major germplasm collections
- Collaboration with international organizations such as World Coffee Research, CATIE, and CNRA (Ivory Coast)

## Genetic Research & Breeding Capacities

- ARS molecular genetics and breeding programs at Beltsville, MD and Hilo, HI
- Collaboration with scientists at WCR, CATIE and CNRA (Ivory Coast)
- *C. arabica* and *C. canephora* genomes have been sequenced

## Priority Issues

- Determine how extensive core coffee genebank collections in Hawai'i and Puerto Rico should be based on current budget
- Initiate breeding program and tool development to accelerate development of varieties adapted to climate change and higher cup quality
- Constantly communicate with coffee producers to make sure researchers and growers share common coffee sustainability goals
- Develop a climate resilience program and education programs for coffee growers and agricultural government officials
- Clean up seed lots to ensure variety purity for nurseries and provide confidence in growers
- Invest in infrastructure and personnel for cryopreservation and other techniques for long-term back-up of collections
- Initiate education and surveillance program for detection of coffee leaf rust in Hawaii and CA
- Develop protocols for safe movement of germplasm in a timely manner