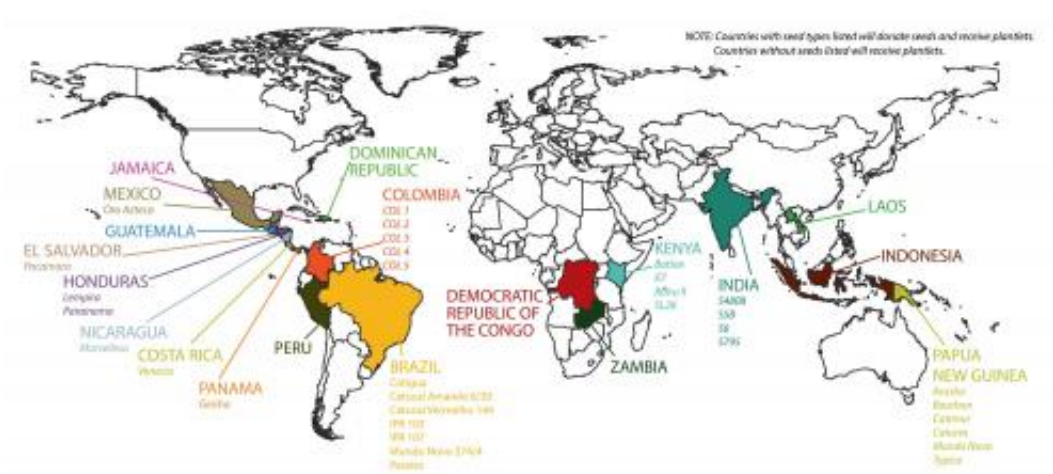


International variety trial will help brew better future for global coffee industry

September 5 2014, by Paul Schattenberg



This map shows the locations in coffee-producing regions of the world which have been identified for the International Multi-Location Variety trial of coffee varieties to be conducted by scientists and others working on conjunction with World Coffee Research. Coffee plantlets for the trial will be going to 19 coffee-producing counties by the end of summer. Credit: World Coffee Research

The first shipment of coffee plantlets from World Coffee Research to test farms in 19 coffee-producing countries will go out before the end of summer, said researchers involved in the new International Multi-Location Variety Trial.

"This extensive trial is designed to aid [coffee farmers](#) by establishing a [decision tool](#) that will give them real information about the best possible

[varieties](#) to grow in their respective locations," said Dr. Tim Schilling, executive director of World Coffee Research.

World Coffee Research is a non-profit, collaborative research and development program established to help grow, protect and enhance supplies of quality coffee, plus improve producers' livelihoods. It is funded and driven by the global coffee industry, guided by producers, implemented by scientists and supported by the Norman Borlaug Institute for International Agriculture, part of the Texas A&M University System.

Schilling said he believes the variety trial will be key to the future success of the global coffee industry.

He said selecting varieties for coffee farming is arguably the most important producer decision coffee producers will make, and they should select varieties using knowledge from all available sources.

"Fortunately, WCR has been able to reach agreements with some of the main coffee-producing [countries](#) that have understood the importance of sharing their coffee germplasm for this ambitious project," he said. "Results from the IMLVT locations will be used to supplement the information already known about these varieties with their field performance and coffee quality in the receiving countries. This information will be an effective resource to allow assessment of varietal traits that are considered important for the varied environments used in coffee farming worldwide."



For the international variety trial, plantlets are grown using an embryo-rescue technique in order to reduce the risk of contamination. Special boxes and procedures have also been adopted for their transport. This photo shows a plantlet with initial root and leaf development. Credit: World Coffee Research

"The methodology for this project comes directly from Norman Borlaug's green revolution," Schilling noted, "Coffee is a slow seed-to-market crop, so the IMLVT will use many locations and altitudes to test multiple varieties of coffee plants all at the same time. There are currently 19 countries ready to receive coffee plantlets on five

continents, which will give researchers a wider range of data than has ever been collected for coffee."

Schilling said the project is designed to allow testing of coffee varieties in countries where they have never been tried. It includes extreme stressing conditions such as high temperatures and long dry periods that mimic the changing climate coffee growers are seeing in coffee-producing countries around the world.

He said the use of several "extreme climate environments" in this global trial will allow the researchers to see how varieties perform under climates predicted for 30 and 50 years into the future.

"This will be the first time we'll be able to see how climate change is really going to affect coffee in the future," Schilling said. "This trial will allow producing countries to evaluate new varieties from other countries on their own land and in various environmental conditions, such as altitude, precipitation and soil type. It will serve as a platform to monitor disease movement and levels, how quality is affected by environmental interactions, and climate trends. We feel the outcome of the trial will have a direct impact on what coffee variety farmers choose."

"Better varieties can be selected, multiplied and distributed to producers to increase supplies of quality coffee for those countries," said Dr. Vincent Petiard, World Coffee Research strategic industry science adviser to the board.

He said one of the problems in preparing for these tests is the risk of spreading coffee diseases to countries where they are not present. To prevent this, researchers used an embryo-rescue technique to develop the plantlets under controlled conditions that greatly reduce disease risk.

The process meant more seeds were successfully germinated and without

contamination issues, he explained. Seedlings developed in the extracted embryo process are generally free of contamination and can be shipped in jars without risk of disease to the receiving countries.

Special shipping boxes and procedures have been developed for the shipments, which are timed to match the best growing period for receiving countries, and shipping live plantlets is possible, said researchers.

"Coffee plants can withstand seven to 10 days without light," said Dr. Hervé Etienne, scientist research director at CIRAD, the French Agricultural Research Center for International Development. Etienne is one of the specialists called on for advice relating to the multi-country variety trial.

Trial participants said so far more than 30 of the best [coffee](#) varieties have been shipped from 11 countries to AgriStarts, a laboratory in Florida where the individual embryo was extracted from each seed. Each embryo was germinated on a nutrient-rich medium that supplies the nutrition the seed would have received from the albumen, which is the natural nutritive matter surrounding the embryo.

Provided by Texas A&M University

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