



FIRST INTERNATIONAL COFFEE RUST SUMMIT



Summary of major findings and recommendations

- **Emergency short term interventions:**

- **Producer welfare.** PROMECAFE estimates overall coffee production to be down by 20%. The impact of production losses on income was exacerbated by low market prices: coffee farmers lost an estimated \$548 million in coffee revenues compared to 2011/2. Only 23 percent of coffee farmers have access to income sources besides coffee, making them highly vulnerable. In addition, there was a 15-20 percent reduction in income for farmworkers involved in the coffee harvest and roughly 441,000 jobs were lost. Although hunger is not expected to increase dramatically this year, a longer 'lean season' is forecast for Guatemala and could extend to coffee communities in other countries next year. Food production will assume added importance for coffee farmers coping with severe income constraints. **Recommendation:** In order to avoid a situation in which the coffee rust epidemic triggers a humanitarian crisis in Central America, farmers need financial and technical support over the short-term and medium-term. Options should be explored for immediate financial assistance to coffee growers to keep their families on the farm and free from hunger e.g. cash-for-work, food-for-work, direct cash subsidy and food distributions.
- **Producer training and education on use and application of fungicides.** In the near term, the most important weapon a producer has against coffee leaf rust is the treatment of their plantations with a fungicide. The coffee industry is working together with finance and credit organizations to assist farmers in obtaining fungicides. The rust germination process has already started with the onset of the rainy season, and thus rust is emerging. Cost to treat one hectare of coffee with a fungicide for one year is \$250. Treating 50% of Central America's coffee area will cost producers \$125M. This investment can produce a return of \$250M or more if properly applied. If improperly applied, the fungicide can be ineffective causing the producer to lose their investment on the fungicide and the production increase it should have returned. **Recommendations:** 1. Producer training and education programs on the use and application of fungicides should be a priority action that will require significant short term funding to each of the Central American countries through existing government and non-government extension organizations. 2. Recognizing that organic farming is in

many parts of Central America a reflection of a deep cultural commitment to ecological sustainability, and in all parts a source of important advantages in the marketplace, additional research into organic rust control methods is needed, as well as support for organic approaches proven to be effective. In the meantime, organic farmers should consider the use of copper sulfate based fungicides that are currently approved by USDA and to begin a progressive variety replacement program using a diverse mix of resistant material as well as cultural practices that discourage rust development.

- **Coordinated organization and monitoring of coffee data collection in the region.** Very little data is available on coffee production in Central America. As a result, scientists, government programs, NGOs and private industry had incomplete and imprecise information concerning the rust epidemic in 2012 which made response difficult. **Recommendation:** Establish an Information Unit within the Emergency Rust Response Coordinator's office at PROMECAFE that would collate available data from national institutes and organize other basic data collection and studies through targeted field surveys with national, regional and international partner institutions. The Information Unit would be responsible for socio-economic data and analyses that address marginal coffee producer livelihood risk in light of current rust epidemic and future consequences.
- **Mid-term interventions:**
 - **Resistant planting material production and plantation renovation.** A small but significant percent of the plantations in Central America were completely devastated by the coffee leaf rust this past year, the figure could be as high as 5%. In addition to devastated plantations, approximately 40% of the total area is planted to rust susceptible varieties and approximately 70% of all trees are 20 years and older. These figures underline the need for immediate action to renovate plantations with new rust resistant varieties which first requires a major initiative on seedling production since current seedling sources are inadequate. Although seed is available from some coffee institutions for some of the pure line resistant varieties, supply is inadequate and the availability of F1 hybrid resistant seedlings is extremely low or nil. And the volume of planting material needed is huge e.g. to replace only the 5% of Central American's plantations will require 125 million plants. When you consider that the current capacity in the region for F1 coffee plant production is only 1.5 million per year, the true magnitude of the problem is revealed. **Recommendations:** 1. A major initiative should be established to ramp up supplies of planting material for 2014/5. 1a. Retooling and training existing tissue culture labs that are now working in other crops could be part of this initiative. These labs could switch to or add a coffee plant production. 1b. Other coffee planting material operations using other non-lab methods should receive TA support and training in different micro-cutting/grafting technologies, business development, and marketing. These operations could eventually morph into a veritable

commercial coffee seed sector for Central America. 2. A special development project on alleviating the constraints associated with commercial scaling-up of F1 seedling production is strongly recommended to make high performing, resistant F1 hybrids available to all producers. 3. As recommendations 1 and 2 are being initiated, a complete analysis of data available on resistant varieties should be conducted to provide farmers with the best decision tools available before investment. Key 'passport' data must include all multi-location performance data, resistance/susceptibility to other pests and a scientifically sound cup quality evaluation.

- **Special producer assistance to fill a 3-5 year income gap:** As plantation renovation is carried out, it will take several years for replanted coffee to again generate significant revenues. Farmers who choose to rehabilitate and/or renovate their farms will need financial and technical assistance to navigate the three-to-five-year income gap.

Recommendation: Technical Assistance is needed help farmers:

- Increase production of food for household consumption
- Diversify sources of household income beyond coffee, including both agricultural and off-farm sources of income
- Conduct workshop on feasible loan models (e.g. 7 year loans where first two years are 'free' like in Colombia)

- **Coffee Pest Monitoring and Early Warning System.** The final cost of the 2012 coffee leaf rust disease outbreak has been estimated at over one billion dollars (cost of plantation renovation + fungicides) and the loss of over 400,000 jobs.

Recommendations: 1. In order to prevent costly disasters like this one in the future, an early warning system should be established to monitor and analyze specific scientific data related to the prediction of pest threats to coffee production. The system must be capable of sending warnings to producers on the evolution of pest build up and timing for necessary interventions. 2. A concomitant precursor study is urgently needed to seek all available meteorological data to try to define as precisely as possible the climatic conditions before and during the 2012 outbreak to best provide macro-predictive capability.

- **Long term intervention:**

- **Development of better rust resistant varieties.** All current rust resistant varieties possess the same genetic source of resistance to coffee leaf rust. As such, a new strain of coffee leaf rust could devastate Central American arabica production like it did in Sri Lanka in 1875. In addition, most current rust resistant varieties were not selected for high cup quality traits and although acceptable, many have garnered negative reputations in the specialty coffee industry. The need to develop higher quality, more strongly and more broadly resistant coffee varieties is essential to prevent catastrophes

in the future. **Recommendation:** The Central American regional variety development program coordinated by PROMECAFE with support from CATIE, CIRAD and WCR should be strengthened so as to supply the region with a steady supply of varieties for direct use or pre-breeding materials for an emerging coffee seed industry. The program should include a capacity building element to insure that Central America will continue to develop improved varieties and/or pre-competitive breeding material for an emerging seed industry to maintain a pipeline of genetic material ready for current and future constraints.

- **Investigation of bio-control measures:** In addition to breeding new and better genetic material, the development of an effective biological control could provide another tool to control coffee leaf rust which would allow for organic certification and continued use of heirloom varieties. If an appropriate endophyte (bodyguard) that attacks rust could be identified in the short term, then the release of the bio-control measure could be available in less time than a new variety. **Recommendation:** Explore arabica centers of origin for co-evolutionary endophytes on arabica coffee. This can be done in conjunction with the above program on breeding since center of origin species expeditions for the identification of new rust resistant genes require similar actions.
 - **Regional Capacity Building:** Throughout the Summit regional capacity was highlighted as an area in urgent need of attention in the areas of coffee research, extension, economics and policy. **Recommendation:** Conduct comprehensive needs assessment of regional capabilities and institutions with plan for training and filling gaps and the deliberate development of stronger international linkages with centers of excellence.
- **Overarching finding and recommendation:**
 - **Comprehensive analysis of the viability of small holder coffee in Central America.** Global trends in climate change, coffee production, trading and consumption suggest that coffee growing in Central America needs to be re-thought as a major source of small farmer revenue. **Recommendation:** Conduct studies and analyses on the long term feasibility of coffee growing in Central America. The analyses will be based on current information and new studies including risks, costs, rewards and alternatives of various coffee production models, from simple open sun cultivation to various typologies of shaded systems. This will help the industry, in order to build a convincing strategy for the long term role of coffee in the region. The study must pay special attention to lands that are deemed to be no longer able grow coffee sustainably.

