

LEARNING REPORT: THE COFFEE FARMER RESILIENCE INITIATIVE

Financing Farm Renovation: How to Build Resilience Using a Blend of Capital EXECUTIVE SUMMARY



Root Capital

Root Capital is pioneering finance for high-impact agricultural businesses in Africa, Asia and Latin America. We lend capital, deliver financial training, and strengthen market connections so that businesses that serve hundreds, and often thousands, of smallholder farmers can grow rural prosperity. Since our founding in 1999, Root Capital has disbursed more than \$900 million in loans to 580 businesses and has improved incomes for more than 1.2 million farm households.

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From food security and nutrition to environmental sustainability and economic growth, investment in agriculture—perhaps more than any other sector—has the potential to bring about unprecedented change today and into the future.

The Canary in the Coal Mine

For the past three years, a debilitating crop disease known as coffee leaf rust has spread throughout Latin America. Called *la roya* in Spanish, this naturally occurring fungal disease attacks coffee plants and kills them over time. It has dramatically reduced crop yields and caused significant economic losses for smallholder farmers and rural communities from Mexico to Peru.

Leaf rust has revealed the consequences of underinvestment in the coffee sector and highlighted the vulnerability of participants throughout the entire supply chain, especially smallholder farmers. It also underscores broader challenges faced by smallholder farmers — from depleted soil and aging plant stock to limited agronomic knowledge and insufficient access to inputs and finance.

Although the full financial impact of leaf rust has yet to be quantified, during the height of the outbreak in early 2013, analysts estimated that over 50 percent of the total coffee-growing area in Central America had been affected, costing producers approximately \$500 million in lost revenue and eliminating an estimated 375,000 jobs.¹ The outbreak has had a severely negative ripple effect on the region's economies, prompting governments to declare national states of emergency as global traders and roasters searched for ways to support producers and avoid potential supply disruptions. When large-scale crop failures began, public and private sector actors alike were reacting in real time, but they had limited visibility into the magnitude of the challenge. And few, if any, organizations could offer interventions capable of meeting the urgency and scale of what has now become the most serious leaf rust outbreak since the disease first appeared in the region three decades ago.

Leaf rust is not a short-term problem, and there are no quick fixes for overcoming the epidemic. Output from coffee plants affected by the fungus is significantly reduced, which means that farm incomes are depressed precisely when farmers need cash to control and combat the disease. Plus, without active and ongoing management, the combination of aging plants and poor farming practices creates an environment that is even more susceptible to pest and disease attacks. These factors, in turn, start a downward cycle of low productivity, reduced income, and underinvestment that often leads to migration, deforestation, and other desperate measures.

1 International Coffee Organization (ICO), "Report on the Outbreak of Coffee Leaf Rust in Central America and Action Plan to Combat the Pest," May 13, 2013.

At the same time, climate change is becoming a source of additional risks, taxing already overstretched resources. Climate scientists predict that the area available to grow quality Arabica coffee, a crop that thrives in cooler conditions, will shrink as temperatures rise in lower-altitude production zones. While some coffee farmers may be able to shift to higher, cooler altitudes, others have no place to go. In that sense, the leaf rust outbreak is a symptom of much larger, chronic problem facing farming communities globally. It is the proverbial "canary in the coal mine," signaling the impact of climate change on agricultural production.

Building More Resilient Agricultural Supply Chains with Blended Finance

As the effects of the leaf rust outbreak became apparent in early 2013, Root Capital hurried to develop a response. To address both the urgent financing needs of smallholder coffee farmers fighting leaf rust and longstanding barriers to on-farm investment, we leveraged existing relationships with public, private, and nonprofit partners to launch the Coffee Farmer Resilience Initiative (CFRI).

Working through local enterprises, such as farmer cooperatives and private coffee mills, that aggregate smallholders, the multi-pronged approach channels short- and long-term financing as well as technical assistance to coffee farmers. A core component of the initiative is providing credit to help producers finance the upfront cost of renovating and rehabilitating diseased, aging, or otherwise unproductive coffee plants.²

Perennial tree crops like coffee and cocoa are valuable assets that depreciate over time. In order to maintain healthy and productive yields, these assets require continual maintenance and periodic renewal.

For many commercial and semi-commercial farmers who cultivate tree crops, renovation and rehabilitation (R&R) is simply business as usual. It is a standard maintenance practice that is conducted on an ongoing, rotational basis each year. And it's backed by reliable financial models and consistent growth assumptions as well as an established network of service providers like nurseries and input distributors.

It's an entirely different situation for smallholder farmers. In addition to agronomic knowledge and the ability to make significant upfront investments in R&R — average renovation costs in Latin America range from \$3,000 to \$5,000 per hectare — these farmers must have

alternative sources of income to bridge the period of time between when diseased trees are uprooted and when new trees become productive. For households that rely on coffee farming as their primary livelihood, income is severely reduced during this two- to three-year "valley of death." And it's one of the many reasons why producers are reluctant to place a bet on renovation or rehabilitation.

A recent analysis by Dalberg finds the global need for coffee-sector R&R to be roughly five million hectares, which carries an approximate cost of \$6 billion within the first year and \$35 billion over the course of 25 years. The same report identifies similar financing needs in the smallholder cocoa, palm oil, and tea sectors, totaling an additional \$14 billion today and \$74 billion over the next 25 years.³

Even if this large pool of capital was available for R&R activity ---which it is not — there is the added complexity of being able to deploy it efficiently so that it actually reaches individual producers. Today, farmer cooperatives, processors, and other organizations within agricultural value chains play an important role in bringing together hundreds, often thousands, of smallholders and serving as a centralized hub. These aggregators have also been essential in promoting financial inclusion for their local communities, making the disbursement, monitoring, and collection of credit in small amounts more feasible and usually more cost-effective for rural borrowers. As we explore ways to scale R&R, these are key channels through which to deliver R&R financing. Still, there are only so many of these well-functioning aggregators, and most of the world's smallholders are, in fact, not affiliated with them. Additionally, a majority of existing aggregators lack the capacity to absorb long-term loans, design an internal credit fund, and originate R&R loans with individuals. It's new territory for most and requires sophisticated accounting systems and internal controls. For this reason, technical assistance is crucial.

With aging trees and declining yields, Latin America's coffee-growing regions required large-scale investments in R&R well before the outbreak of leaf rust. The sudden spread of the disease and the subsequent drop in output did prompt a broader recognition of the urgent need to make long-term investments in sustainable production. In practice, however, many actors throughout the value chain remain reluctant when it comes to allocating capital and assuming the risk that typically comes with multiyear R&R investments. With the notable exception of Colombia's recent coffee renovation efforts, there are few successful models for how to design and conduct large-scale R&R programs in agricultural value chains dominated by smallholder famers.

Defining Renovation & Rehabilitation (R&R)

Renovation: Entirely replacing diseased, aging, or otherwise unproductive trees with new seedlings

Rehabilitation: Grafting, stumping, or pruning to rejuvenate diseased, aging, or otherwise underproductive trees

² CFRI countries include Guatemala, Honduras, Mexico, Nicaragua, and Peru.

³ Dalberg. "Smallholder Tree Crop Renovation and Rehabilitation: A Review of the State of the Emerging R&R Market and Opportunities to Scale Investment," October 2015.

Blended finance refers to the deliberate use of funds from capital providers that operate with a range of financial and impact return expectations, from philanthropic capital with a negative rate of return to those seeking capital preservation and below-market to market-rate returns. Generally, blended finance approaches are used to attract capital for investments addressing market failures and delivering substantial social and/or environmental impact in emerging and frontier markets.



COFFEE FARMER RESILIENCE INITIATIVE ACTIVITIES

FINANCE

- Short-term lending to facilitate market access, cover ongoing operating expenses, and stabilize cash flows so that producers can continue to generate income from coffee trees that have not been crippled by leaf rust
- Long-term lending to finance the rehabilitation and renovation of aging and diseased trees

ADVISORY SERVICES

- Financial training so enterprises can qualify for and effectively manage credit
- Agronomic assistance to promote climate-smart farming practices
- Income diversification training at both the enterprise and producer levels
- Mobile technology services to help producer organizations digitize processes and modernize their operations

IMPACT & LEARNING

- Impact assessment to understand the role that Root Capital lending and training have on agricultural enterprises and the impact that these enterprises, in turn, have on individual producers
- Knowledge sharing to document and capture challenges, progress, and learning to contribute to scalable models
- Market engagement to demonstrate practical models for investing in sustainable supply chains

SUMMARY OF RECOMMENDATIONS

2

Leverage Blended Finance

(1)

Identify Scalable Distribution Channels

Expand Risk Management Solutions

2.

3

Bundle Credit with Capacity Building

4

Strengthen Enabling Environment for Farm Renewal

5

What We're Learning

In an effort to contribute to the dialogue around blended finance approaches to R&R specifically, and investing in smallholder agricultural more broadly, this report shares details of the public-private partnership model Root Capital has developed, what we've done over the first two years of the initiative, and what we're learning. Drawing from existing literature and on-the-ground observations from Root Capital loan officers, financial trainers, and agronomic advisors, as well as our partners in the initiative, the report offers five practical recommendations for conducting R&R at scale. These are explored in more detail in the full report.

1. Leverage blended finance structures and incorporate targeted subsidies to finance R&R. While there is now unprecedented interest in agricultural investing, private markets have generally failed to deliver financing for smallholder R&R, and for smallholder agriculture more broadly. Given the risks inherent in agriculture, coupled with the limited availability of adequate insurance and hedging products in these markets, the cost of commercial capital to fund R&R over a seven-plus-year time horizon would exceed what most smallholder farmers can afford. It is therefore unrealistic to expect that smallholder R&R can be financed on purely commercial terms and deliver risk-adjusted returns to investors.

For R&R to happen at scale with smallholder farmers — whether in coffee or other value chains like cocoa — what is required is a blend of capital with different risk/return expectations and impact objectives, as well as targeted subsidies for accompanying technical assistance. When designed and implemented in ways that align incentives, mechanisms such as partial loan guarantees, risk-sharing facilities, reserves for first-loss capital, and technical assistance funds can mitigate risk and expand impact. These types of blended financing structures, if further scaled, can also help lower barriers to entry for other lenders and mobilize capital from a range of sources. Identify and strengthen scalable aggregation points for channeling capital to smallholders. The vast majority of the world's smallholder farmers — estimates suggest up to 90 percent — do not participate in tightly organized value chains.⁴ Rather, they are unorganized and lack strong, consistent relationships with buyers, as well as access to finance, farm inputs, agronomic training, and other support services that often accompany those relationships. Even within the coffee sector, which is generally considered to be among the most wellorganized and transparent agricultural value chains, a majority of the world's 25 million producers are not aggregated into formal enterprises. And in the context of leaf rust, smallholders who are not affiliated with an aggregator may be the most strongly affected and have the greatest need.

New channels are needed to efficiently deploy capital to smallholders beyond those connected to well-organized producer organizations and private enterprises. For instance, opportunities exist to channel capital through local microfinance institutions, savings and loan cooperatives, and commercial banks. While these financial institutions typically have strong internal lending systems, their slow and uneven expansion into rural areas means that they may lack an understanding of agricultural finance, such as seasonal cash flows. Therefore, supply-side technical assistance is needed to help these institutions adapt their urban and peri-urban models of short-term lending to meet the financial needs of smallholders.

Additionally, there is a need to develop and mainstream innovative risk-sharing mechanisms in which aggregators assume part but not all of the risk on the performance of the loans they deploy and manage. Doing so could further increase the addressable demand by an order of magnitude. We believe this approach offers a promising avenue for future product development and innovation.

4 Dalberg, "Catalyzing Smallholder Agricultural Finance", September 2012.

3. Expand risk management solutions to benefit individual

producers. As coffee growers recover from leaf rust and are confronted with a decision as to whether and how much to invest in R&R, they do so amid an increasingly volatile coffee market. After surging 50 percent to \$2.20 per pound in 2014, the benchmark price of Arabica retreated throughout 2015. In early 2016, the most actively traded futures contract price declined to \$1.11 per pound — a two-year low and only slightly above Central America's estimated average cost of production. At the same time, exceptionally strong El Niño conditions are provoking further uncertainty, with potential disruptions to the timing and volume of rainfall in several coffee-producing countries.

This is the context in which smallholder coffee producers are deciding whether or not to make 10–plus–year investments in their farms; what may appear to be a smart, rational decision to invest one year may prove otherwise the next. And despite the extent to which both public and private sector actors have embraced the concepts of resilience and sustainability, it is the producers who still take on a disproportionate share of the risks. They remain most vulnerable to and least able to cope with shocks and stresses and the boom-and-bust price cycles that often follow.

Therefore, in addition to focusing on increasing production through R&R, policymakers and practitioners should devote equal attention to designing and deploying effective risk management solutions that are both accessible and applicable to farmers and farmer enterprises. This can include early warning systems and crop insurance schemes to protect farmers from downside risk, especially in times of natural disasters and widespread crop failure. In addition, specialty buyers whose business is linked to specific flavor profiles and origins can offer incentives and rewards for quality with price premiums and long-term contracts that partly insulate farmers against market volatility.

4. Bundle financial and non-financial support to increase the absorptive capacity of enterprises and individual farmers to gualify for and manage credit. The opportunity for

individual farmers to invest in R&R will largely be determined by the strength and capacity of the institution administering R&R financing on a local level. While more commercial banks and microfinance institutions may provide financial products and services for R&R in the future, aggregators — producer cooperatives and private exporters, in Root Capital's experience — continue to play this role. Today, these organizations are the conduit through which most financing reaches individual producers. Yet more often than not, lack of capacity, limited technical knowledge, and weak internal controls at the aggregator level become the biggest bottleneck to scaling renovation financing. Similarly, because many rust-affected farmers are reluctant to take on multiyear financial commitments in the current context of extreme market volatility and unpredictable growing conditions, more advanced decision-support tools are needed to remove the guess-work and help producers objectively evaluate potential financial returns. This includes robust cost-benefit analyses to determine the financial viability of renovation, as well as detailed yield projections that are informed by climate scenarios mapped at various altitudes and with different production systems.

For smallholder farmers and the enterprises that aggregate them, it is rarely the case that both capital and technical assistance are available (and often neither is available). Bringing the two together is essential for expanding the addressable demand for R&R finance and, for that matter, other types of working capital and capital expenditure finance as well.

5. Strengthen the overall enabling environment by ensuring consistent access to high-quality planting material and information about coffee varieties. The decisions farmers make about which varieties to plant could likely impact their livelihoods for the next 20 years or more. However, decision-making is often incidental rather than strategic, and coffee farmers rarely have enough information to make informed choices based on what is optimal for their local conditions.⁵ For example, limited information and a lack of consensus on varieties presents one of the most formidable challenges to successful renovation; the ongoing debate over the relative merits of rust-resistant and non-rust-resistant varieties leaves many farmers with mixed messages.

Alongside variety research, R&R initiatives must place a strong focus on technical training, capacity building, and transparent reporting related to nursery management and seedling production, as quality control at the seedling production phase has been inadequate. Seemingly small and easily overlooked details, such as the origin and quality of coffee tree seedlings, make a significant difference in the success of a renovation program. In some cases in Peru, we have found up to one-third of seedling mortality after transplantation to the field, mostly due to root problems originating at the nursery stage. Well-managed nurseries typically experience seedling mortality rates of less than 5 percent. In other cases, nurseries mistakenly mixed seedling varieties. These and related quality-control issues not only increase the cost of renovation but also reduce productivity and depress farmer incomes, thereby jeopardizing loan repayments.

5 Neuschwander, Hanna, "The Importance of Research and Investing in the Future," Specialty Coffee Chronicle, October 30, 2015.



Looking Ahead

It is likely that leaf rust and other crop diseases will affect farmers not just in the Latin American coffee sector but across all crops and regions globally for years to come. The unpredictable weather conditions that come with climate change will further jeopardize farmers' ability to cope with pests and pathogens. Indeed, leaf rust is just one crop disease threatening producers in one value chain in one region.

While there are no simple solutions to these challenges, we are seeing some encouraging signs of progress — from well-managed renovation plans to innovative income diversification projects — across our lending portfolio of 115 coffee enterprises representing approximately 100,000 farmers in Latin America. At the same time, we are also seeing many cases of farmers simply waiting to see what happens to their coffee trees, or abandoning their land in desperation and migrating to work elsewhere.

This document shares our learning — progress and challenges alike — from the first two years of the Coffee Farmer Resilience Initiative. Although it is modest in scale relative to the overall need, we hope that the initiative can provide insights to inform emerging models for building farmer resilience and prosperity in the coffee sector as well as other agricultural sectors in which smallholder farmers play a crucial role (e.g., cashew, cocoa, maize, palm oil, tea). The report is divided into four sections.

- Latin America's Coffee Crisis: The report begins by providing brief context on the global coffee market and the rise of leaf rust disease.
- A Collaborative Approach to Building Smallholder Resilience: This section explores the design and funding sources of this multi-stakeholder initiative. It discusses the range of interventions used to promote resilience and highlights implications for aligning diverse actors to work on a larger scale.
- Financing Coffee Renovation: This section delves into how Root Capital structures long-term loans for R&R, outlining the due diligence and monitoring required. It also breaks down the estimated cost of renovation and discusses the critical role of internal credit funds in channeling finance through aggregators to individual farmers.
- Leveraging Private Sector Investment for Technical Assistance: The report concludes by exploring the complementary role that technical assistance plays alongside the provision of credit in expanding addressable demand and mitigating risk for R&R investments. It does this by highlighting the mechanism within CFRI through which private sector roasters and traders have channeled investments into their own supply chains to support agronomic training, mobile technology adoption, and a range of income diversification activities.

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