

# Sustainable Coffee Farming

Improving Income and Social Conditions  
Protecting Water, Soil and Forests

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## INTRODUCTION

A few years ago, we visited some Rainforest Alliance Certified™ farms in Santander, a beautiful, heavily forested rural area in Colombia. Farmers there had begun working with the Rainforest Alliance as a result of the demand that had been generated by companies, like Caribou, that had made commitments to sourcing sustainable coffee. The Colombian Coffee Federation took us to see the results of its work with farmers to meet Rainforest Alliance certification requirements.

What farmers reported during that visit has been borne out by in-depth research studies, as you will see later in this chapter. They told us that they had learned to identify and protect migratory bird species. That they were no longer dumping waste into their streams. And that their net income had grown substantially due to increases in yield and market premiums. One farmer in his early twenties said that while most of his friends had left the countryside for more exciting jobs in the city, he proudly saw himself as an entrepreneur, a provider of jobs and a steward of the world's patrimony.



The well-being of the farmer is one of the Rainforest Alliance's central concerns. Around the world, farmers are leaving their fields—done in by low prices, increasingly unpredictable weather patterns, labor volatility, and a lack of respect for what they do, among other factors. Sustainable farming, however, has the potential to improve the lives of farmers and the future prospects of their communities.

Sustainable methods can also buffer farmers against crisis, as we saw during our recent visit to Guatemala, where coffee farmers have been experiencing massive harvest loss due to the dreaded roya disease. Jorge Bolañas, manager for Finca Medina, is outsmarting the disease through a combination of natural treatments such as gypsum and lime and a single fungicide spraying. In contrast to his neighbors, who have experienced harvest losses

of more than 25 percent despite spraying fungicides five or more times per year, Jorge and the dozens of smallholders who have applied his method reported a mere 5-10 percent reduction in harvest. Jorge has also instituted excellent crop-management practices, including pheromone boxes to control pests, the composting of coffee waste (which supplies more than 30 percent of the nutrients for his fields) and the reforestation of hillsides (creating potential habitat for pollinators). He also reports that his net income is higher than that of many of his neighbors.

It is always fascinating to meet the farmers we work with. They are renaissance men and women—they have to manage funds, market and sell, manage people, do hard physical labor, understand complex ecological and agronomic processes, deal with weather events outside their control, and handle various technologies and machines. And many of them do this with very little education or training. Since 1987, the Rainforest Alliance has been working with farmers on the ground to conserve biodiversity and provide sustainable livelihoods; today, we work with more than one million farmers around the world in a variety of tropical crops.

Coffee, the world's most widely traded tropical agricultural commodity, is cultivated in approximately 70 countries.<sup>1</sup> Originally, it was grown under the shade of Ethiopia's rainforests until its cultivation spread around the world. Globally, more than 25 million people are employed in the crop's production<sup>2</sup>, and when you factor in all of the jobs that relate to coffee processing, trading, transportation and marketing, that number jumps to hundreds of millions of people worldwide.<sup>3</sup>

Until the 1970s, most coffee was grown under the forest canopy. In the 1970s, however, as agronomists aimed for higher yields, large numbers of farmers turned to technified, sun-grown coffee varieties. The spread of full-sun cultivation led to deforestation, soil erosion, loss of wildlife habitat, increased need for chemicals, soil depletion, and water pollution. This environmental destruction, in turn, hurt farmers dependent on coffee for their livelihoods, as well as the well-being of surrounding communities.

In the past few decades, third-party certification of coffee farms has emerged as a tool for promoting various changes, at both the farm and landscape levels. One of the world's leading certification standards was developed by the Sustainable Agriculture Network (SAN), a coalition of NGOs based primarily in Latin America (the Rainforest Alliance is a founding member and uses the SAN standard as the basis for certification). As of January 31, 2014, more than 170,000 coffee farms in 26 countries have earned Rainforest Alliance certification, covering more than 1 million acres (427,000 hectares). These farms produced over 450,000 metric tons of Rainforest Alliance Certified coffee in 2013, which was an increase of 20% over 2012 and represents 5.2 percent of total global coffee production.

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The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behavior.  
[www.rainforest-alliance.org](http://www.rainforest-alliance.org)

1. [http://www.ico.org/trade\\_e.asp](http://www.ico.org/trade_e.asp)
2. [http://www.ico.org/trade\\_e.asp](http://www.ico.org/trade_e.asp)
3. [http://www.ico.org/coffee\\_story.asp?section=About\\_Coffee](http://www.ico.org/coffee_story.asp?section=About_Coffee)

Rainforest Alliance agricultural certification is considered by many to be the most comprehensive of all the certification systems; it is founded on a holistic “triple bottom line” approach that simultaneously fosters environmental conservation, social responsibility and economic viability. Although the SAN standard was first created as a tool to conserve ecosystems and wildlife, safeguard local communities and protect the rights of farm workers and their families, the members of the SAN also understood that financial stability was as vital to the long-term success of certification as environmental protection and social justice.

## ECONOMIC RESULTS

### Higher Yields Drive Increased Profitability

To evaluate the economic outcomes and impacts of Rainforest Alliance certification on coffee farms, researchers have looked at a range of variables, including price premiums, crop quality, farm productivity and the net income of farmers. On the question of whether or not certified farmers receive price premiums, many of the studies have generated conflicting or unreliable responses, but the research has clearly and consistently shown a benefit to farmers when it comes to the larger issue of overall profitability.

In an examination (Takahashi & Todo 2013) of 555 Rainforest Alliance Certified coffee-producing farms in Ethiopia, researchers found that in 2007 certified farms obtained prices that were 15 to 20 percent higher than those earned by conventional farms, though other studies have found more modest premiums of seven percent in Peru (Barham & Weber 2012), two percent in Colombia (Rueda & Lambin 2013), or none at all (Hughell and Newsom 2013). But while many certified producers around the world have reported higher prices for their beans, the more striking economic impact of certification seems to be increased profitability. Studies have shown that it is larger yields—rather than price premiums—that have driven this increase. And research by Rueda & Lambin (2013) found that, while the possibility of price premiums motivated coffee farmers to join the Rainforest Alliance certification program, once in the program farmers valued other gains much more. Namely, farmers reported staying in the program because of the benefits they observed in household organization (comprising upgrading kitchens, bathrooms and bedrooms, dedicating a specific place for storage of tools and pesticides, and excluding animals from the house), followed by environmental benefits, such as watershed protection, trash collection, recycling and correct handling of pesticides.

The SAN standard encourages coffee farmers to take steps such as systematically pruning plants, using healthy seedlings for new plantings, composting, and applying the proper mix of nutrients at optimal times; these practices appear to be increasing productivity. A 2012 study in Mexico and Peru (Barham & Weber 2012) linked increased productivity on

Rainforest Alliance Certified farms to the implementation of practices prescribed by the SAN standard. Researchers compared conventional farms with Rainforest Alliance Certified farms in Peru’s Junin Department—specifically ten Peruvian communities where the Rainforest Alliance has provided farmers with certification services and technical assistance. The study involved an evaluation of sales records over a four-year period as well as a survey of study participants.



Compost is an important part of this Certified coffee farm in Santander, Colombia

To compare results among farms, researchers examined “net cash return,” which captures the contribution of price, productivity and costs—such as paid labor and the purchase of fertilizers—to generating liquidity for household expenditures and investments.<sup>4</sup> Although the study found that Fair Trade, Organic and Rainforest Alliance Certified farms received comparable price premiums, Rainforest Alliance Certified farms demonstrated yield increases that overshadowed the added value these farmers derived from higher prices.

When the Peruvian cooperative was first formed in 2005, its yields were in line with regional averages: 833 lbs. (378 kg.) per hectare for the cooperative, and 900 lbs. (408 kg.) for all farms in the region. During the study period, members of this Rainforest Alliance Certified cooperative produced 326 lbs. (148 kg.) more coffee per hectare than noncertified growers. When multiplied by the additional price premium (\$.86 USD per lb.), Rainforest Alliance Certified farms earned an additional \$280/hectare in net revenue. For a typical-sized farm of four hectares, the potential gain in net revenue associated with improved yields was \$1,120 per farmer, which

4. This calculation does not adjust for unpaid family labor or depreciation of investments, nor does it capture social benefits such as greater access to schooling for farmers’ children or improved water quality in areas downstream from farms.

was considerably larger than both the median gain (\$106 USD) and mean gain (\$187 USD) provided by premiums alone.

Growers and extension agents in Peru associated the increased productivity of Rainforest Alliance Certified farms with farmers' participation in cooperative-led activities aimed at better management. The two practices that were singled out as most responsible for increased yields were systematic pruning and appropriate fertilizing (especially when done after pruning). And a study in Colombia found that certified farmers adopted strategies to control leaf rust and berry borer infestations in significantly greater numbers than noncertified farmers ones (Rueda and Lambin 2013), adopting rust-resistant coffee varieties and collecting ripe and over-ripe fruits from the trees and floor to control the berry borer. Interviews with certified farmers revealed that rates of these practices increased significantly after certification.

Additional studies support these findings. A recent comparison (Hughell & Newsom 2013) of Rainforest Alliance Certified and noncertified coffee farms in Colombia found productivity to be higher on certified farms in one of the two geographic areas examined, while the other region showed no significant difference. Researchers visited 72 certified and 72 noncertified farms in both the Santander and Cundinamarca regions an average of eight times each, recording data on farm demographics, the rate at which best management practices (BMPs) were being applied, and costs and benefits relating to certification.

In Santander, the study found that productivity was twice as high and net revenue was 2.5 times greater on Rainforest Alliance Certified farms than on non-certified farms. Researchers calculated net revenue by subtracting each farmer's expenses (including certification costs) from the income he/she derived from coffee production. Certified farms had an average net revenue of \$2,029 USD per hectare while noncertified farms averaged just \$813 USD per hectare, even though there was no significant difference in the prices each type of farm received. These results suggest that the increased profitability was due to higher yields. In Cundinamarca, no significant difference in net revenue was observed between certified and noncertified farms.

A separate study (Tuinstra 2011) looked at Rainforest Alliance Certified coffee farms in Brazil, Colombia, Guatemala, El Salvador and Peru, conducting a cost-benefit analysis on the implementation of BMPs, with the aim of discovering any bottlenecks to growth among certified producers. When researchers asked 197 farmers to compare results before and after certification, they found the following:

- 40 percent of respondents reported productivity increases as a “noteworthy economic benefit” of certification.

- 75 percent pointed to greater efficiency and profitability due to the improved administration of their farms.
- 69 percent mentioned better markets to which they could sell their beans.
- 73 percent of respondents cited better prices (however, price premium data was variable and often difficult to gather).

Overall, these results were particularly striking, considering that the participating farms had been certified for three years or less when the survey was conducted—a short period of time in which to produce such positive outcomes.



A high yield at harvest time for coffee farmers at the Terranova Estate in Zambia

Studies of Nicaraguan coffee farms also found that Rainforest Alliance certification generated productivity benefits. In northern Nicaragua (Ruben & Zuniga 2011), researchers compared Rainforest Alliance Certified coffee farms with a control group of conventional farms, as well as with producers certified under the Fair Trade and C.A.F.E. Practices<sup>5</sup> schemes. Rainforest Alliance Certified and C.A.F.E. Practices farms outperformed their Fair Trade and noncertified peers in a variety of ways, achieving greater than average yields and better crop quality, which translated into higher average prices. Although Fair Trade Certified farmers had a higher total family income, Rainforest Alliance Certified and C.A.F.E. Practices producers maintained a more diversified income composition and were less dependent on coffee sales than Fair Trade farmers. The Peñas Blancas area of Nicaragua features a mix of large- and small-scale shaded coffee farms. A 2012 study of this region (Hagggar et al. 2012) compared 11 large (greater than 25 hectares) Rainforest Alliance Certified coffee farms with a control group

5. C.A.F.E. (Coffee and Farmer Equity) Practices is a coffee-buying program developed by Starbucks and Conservation International.2013.

of similarly sized noncertified farms. Once again, researchers found that the certified farms generated higher yields, producing 3,153 lbs. (1,430 kg.) of coffee per hectare versus the 1,922 lbs. (872 kg.) per hectare produced by their conventional peers. Due to the study's small sample size and high variability, these results are not statistically significant, but they suggest a trend that would be worth further examination.

To the northwest of Peñas Blancas, in Nicaragua's San Juan del Río Coco municipality, Rainforest Alliance Certified farms have generated comparable gains. This community is home to the first coffee cooperative in Central America to earn Rainforest Alliance certification under group standards. In a qualitative survey (Znajda 2009) of 57 farmers—via two focus groups composed of farmers and cooperative staff, as well as in-depth ethnographic interviews with a smaller subset of farmers—participants were asked about their lives before certification, their current activities (in 2007, when the interviews were carried out) and any changes they perceived in their quality of life and well-being. In the economic realm, farmers cited the construction of permanent processing facilities as well as higher prices, improved bean quality and increased yields.



The implementation of BMPs has clearly led to improved productivity and overall profitability for farmers. And as we've seen, farmer profitability is determined by a suite of issues including yields, production costs and access to markets. One area that is discussed less frequently but that also can play a major role in determining a farmer's livelihood is crop quality. The Rainforest Alliance has recognized the role of coffee quality in determining crop price and market access. For 11 years, we have hosted cupping competitions for Rainforest Alliance Certified coffee producers, where expert panels cup each coffee, score each sample and provide valuable feedback to farmers about the quality of their products. These cupping events have demonstrated our organization's commitment to coffee quality, but

more importantly they have provided a critical feedback loop to farmers that can point out any defects in their methods and allow them to improve their coffee quality by adjusting their management practices during production, harvest or processing.

## ENVIRONMENTAL RESULTS

Rainforest Alliance certification places an emphasis on conserving the integrity of standing forests and maintaining and/or restoring forest cover and connectivity. The SAN standard precludes the clearing of forests to establish a farm and mandates that farmers mitigate any purposeful forest destruction that occurred on their land between 1999 and 2005. Farms that have destroyed high-value ecosystems after 2005 are ineligible for certification. Additionally, the SAN criteria also promote a minimum of 40 percent shade cover on farms that cultivate agroforestry crops, and farms that are located in areas where the original natural vegetation is not forest must dedicate at least 30 percent of their area to the conservation or recovery of their region's typical ecosystems.

In terms of promoting the health of natural ecosystems on and around surrounding coffee farms, three recent studies shed light on the value of certification. A recent comparison of 43 Rainforest Alliance certified and 43 non-certified coffee farms in Colombia shows that 32 percent of certified farmers planted trees outside of coffee plots, compared to 20 percent of non-certified, a statistically significant difference (Rueda and Lambin 2013). Follow up questions showed that only ten percent of certified farmers had planted trees prior to certification. A separate study by Takahashi and Todo (2013) that compared deforestation rates on forests surrounding coffee farms found that "the [Rainforest Alliance] certification program has had a large effect on forest protection, decreasing the probability of deforestation by 1.7 percentage points.

A recent study by Rueda et al. (2014) shows that increase in tree cover also occur on Rainforest Alliance certified coffee farms, not just around them. In this study, researchers used satellite imagery to compare changes in tree cover on 237 matched pairs of certified and non-certified Colombian coffee farms between 2003 and 2009. They found that, on average, certified farmers increased the area of on-farm tree cover by six hectares, compared to no change in tree cover on non-certified farms.

In a survey of coffee farmers in Brazil, Colombia, Guatemala, El Salvador and Peru (Tuinstra 2011), researchers asked about environmental characteristics, practices and farmer attitudes before and after receiving Rainforest Alliance certification. On the topic of certification's environmental benefits, 95 percent of the farmers said that they were committed to taking care of environment; 77 percent said there were more trees and that created climate and landscape benefits; and 72 percent mentioned that animals had returned to the farm. Again, it is worth

A view from a Certified coffee farm in Nicaragua  
Photo: Rob Goodier

noting that these results were reported just three years after these farms first became certified.

In the Peñas Blancas region of Nicaragua, a study comparing two coffee producer organizations with a control group (Haggar et al. 2012) found that Rainforest Alliance Certified producers had more trees per acre, more native species and more tree layers than large conventional farms. Although these differences were not statistically significant, we see them as potentially important trends that warrant further research.



On the question of animals returning to these landscapes, another study (Komar 2012) confirms that certified farms are indeed serving as links between forest fragments, creating wildlife corridors that provide vital habitat for migratory species. This study—conducted in El Salvador’s Sierra de Apaneca biological corridor, in the southwestern part of the country—involved capturing 5,652 birds in mist nets over a period of 24 months at 50 sites that were evenly distributed among five habitat types.

With respect to the survival of bird species that reside in the Sierra de Apaneca area year-round, Rainforest Alliance Certified coffee farms were not found to be different from randomly selected, noncertified, “technified” (full-sun plants) coffee plantations. However, when it came to migratory species (those passing through during their regular seasonal movements), birds that were captured on certified farms demonstrated higher rates of survivorship and fidelity to the sites they visited than birds found on noncertified farms. The research also found that forest fragments that have been retained on certified coffee farms are important for forest-specialist bird species. Migratory birds that required particular forest environments demonstrated higher fitness on certified farms than birds captured on noncertified, technified coffee plantations. The results of this study suggest that when it comes to the conservation of migratory birds, the shade cover and forest set-aside requirement for Rainforest Alliance Certified farms might be the most important environmental aspect of our coffee standard.

## Water and Soil Conservation

The SAN standard for Rainforest Alliance certification is based on ten underlying principles, three of which are devoted to water conservation, integrated crop management, and soil management and conservation. Given that these principles make up such a sizeable percentage of the program’s environmental requirements, it’s important to determine whether or not the implementation of their related criteria are having the desired impacts on certified coffee farms.

When coffee farmers in Brazil, Colombia, Guatemala, El Salvador and Peru were surveyed about changes on their farms before and three years after receiving Rainforest Alliance certification (Tuinstra 2011), 68 percent cited the improved protection of soils. The vast majority of respondents in Colombia and Peru said that water on their farms and in their community was now less contaminated. Rueda and Lambin’s (2013) comparison of Rainforest Alliance certified and non-certified coffee farms in Colombia found that certified farmers implemented the following practices at a statistically higher rate than non-certified farmers: protected water sources through fencing and reforestation (27 percent versus 18 percent), used water-saving techniques for depulping (32 percent versus 17 percent), and used grease traps in the kitchen to prevent stream contamination (42 percent versus 11 percent). As above, the implementation rates of these practices significantly increased after farmers joined the certification program. The study authors also report “spillover effects” in which adjacent, non-certified farms learn about these practices through their certified neighbors and begin to implement them as well.



An extensive study of coffee farms in Colombia (Hughell & Newsom 2013) revealed a clear difference between Rainforest Alliance Certified and noncertified coffee farms on several fronts related to water conservation. Overall, the study found that certified farms implemented BMPs related to water quality, agrochemicals, solid waste and training at a significantly higher rate than noncertified farms.

The Rufous Sabrewing, one of the forest bird species found on Certified farms in the Apaneca Biological Corridor in El Salvador  
Photo: Knut Eisermann

Ivan Vega, a coffee farmer in Colombia, sitting next to the protected stream on his land  
Photo: David Dudenhoefer

To evaluate water-quality changes, researchers measured indicators of stream quality for streams that originated on 27 Rainforest Alliance Certified farms and 27 noncertified farms. Streams were sampled once during the harvest season and once in the off-season, at the point of origin and again at spots where streams leave the farm, and diverse water quality indicators were measured. These included structural indicators such as erosion and stream-side vegetation; biological indicators such as the number of pollution-sensitive macro-invertebrate taxa; and chemical indicators such as dissolved oxygen and pH levels.



In both regions where research was conducted, the results show that certified farms had significantly healthier streams than noncertified farms, as measured by the Streamside Visual Assessment Protocol (SVAP), a scoring system that takes into account the condition of the stream channel, vegetation and woody debris, and water clarity, among other indicators. On certified farms, the percentage of the stream bank covered in vegetation was also significantly higher.

In Cundinamarca, one of the two study regions, streams on certified farms contained significantly more pollution-sensitive macroinvertebrate species than those on noncertified farms, indicating higher water quality. In Santander, the other geographic area of focus, no difference in water quality was observed, but experts pointed to the severe drought that took place during the study period as a factor that may have affected results.

Because the organic matter in untreated coffee

processing effluent can deplete the levels of oxygen available to aquatic animals, researchers measure biological and chemical oxygen demand to assess this type of pollution.<sup>7</sup> Streams on certified farms in Cundinamarca had significantly higher dissolved oxygen and lower biological oxygen demand than those on noncertified farms, while in Santander, chemical oxygen demand was significantly lower on certified farms than noncertified. These results indicate higher water quality on certified farms.

On the matter of soil health, this same report compared the soil characteristics of 52 Rainforest Alliance Certified farms and 52 noncertified farms in Colombia. During visits to the farms, researchers collected 20 samples of litter and 20 samples of soil. Arthropods found in the samples were classified to the family level and then grouped into morphospecies. A total of 36,288 soil arthropod specimens were collected in both regions, representing 1,147 morphospecies and 26 higher taxonomic groups. Arthropod richness, an indicator of soil health, was significantly higher on certified farms than on noncertified farms in both regions. No significant differences were found in measures of soil arthropod abundance, arthropod diversity or soil chemistry.

### Improved Management of Agrochemicals

In a study comparing two certified coffee producer groups in Nicaragua with a control group in that same country (Haggard et al. 2012), certified farms were strongly associated with the reduced use of agrochemicals, the proper management of wastewater and the implementation of water conservation measures, while comparably sized noncertified farms were associated with erosion around water sources. Also in Nicaragua, farmers belonging to a Rainforest Alliance Certified cooperative reported that certification had led to improved water quality and a decrease in agrochemical use (Znajda 2009).

Similarly, a 2008 study of coffee farms in the Brazilian state of Minas Gerais (De Lima et al. 2008) found improvements in various environmental indicators. Researchers surveyed coffee farms located in the Cerrado (a savanna-like ecosystem where there is large-scale coffee cultivation, machine harvesting and irrigation) as well as those in the Atlantic Forest biome in the southern part of the state (a natural coffee-growing area that features mountainous terrain). They examined a total of eight Rainforest Alliance Certified and eight random noncertified coffee farms (five of both types in the Cerrado, and three of both types in the south), and data was collected using interviews, satellite imagery and surveys. The study showed that certified farmers in one or both regions did a better job than their noncertified peers with regard to:

- Reforesting with native species
- Maintaining protected areas
- Reducing the use of toxic agrochemicals

A wastewater treatment system on Ivan Vega's Colombian coffee farm  
Photo: David Dudenhoefer

6. The "biochemical oxygen demand" (BOD) is the oxygen that bacteria consume while decomposing organic matter while the "chemical oxygen demand" (COD) is the total oxygen required to decompose all organic material. Higher values of BOD and COD indicate lower water quality.

- Properly disposing of the water used to wash coffee beans
- Safely disposing of domestic garbage and sewage.

## SOCIAL RESULTS

The third leg of the SAN standard's triple bottom line—its focus on social well-being—is no less vital than the other two, though perhaps a bit harder to quantify given the sometimes subjective nature of the impacts. Still, researchers have used a variety of approaches to determine whether or not Rainforest Alliance certification is improving the lives of the people who live and work on or near certified coffee farms.

A qualitative survey of 57 farmers who belong to a Rainforest Alliance Certified cooperative in



Nicaragua's San Juan del Río Coco municipality (Znajda 2009) revealed that certification has brought with it social and organizational improvements across the board. Farmers reported better access to medical services, greater knowledge about their work, improved conditions for workers (such as on-site shower facilities), increased involvement of women and general feelings of solidarity and group cohesion.

Similarly, a separate study of coffee farms in Northern Nicaragua (Ruben & Zuniga 2011) found that Rainforest Alliance Certified farms outperformed their Fair Trade Certified and conventional peers with regard to rates of female involvement in production and household decision-making. Rueda and Lambin's (2013) comparison of certified and non-certified coffee farms in Peru found that the children of certified farmers had significantly higher levels of education than those of noncertified ones, with the median educational achievement of children of certified farmers being two years higher than for noncertified farmers.

And when coffee farmers in Brazil, Colombia, Guatemala, El Salvador and Peru were asked to compare their farms before and three years after receiving Rainforest Alliance certification (Tuinstra 2011), they mentioned the following social and administrative improvements:

- 87 percent said their farms and homes were now better organized.
- 85 percent cited greater access to education, capacity building and technical assistance opportunities.
- 55 percent said that their families and employees now have better health.
- 71 percent pointed to the return of seasonal workers, which they saw as an indicator of good working conditions.
- 74 percent said they feel "recognized" for their work as producers.

Finally, when researchers compared Rainforest Alliance Certified coffee farms with noncertified coffee farms in two regions of Brazil (De Lima et al. 2008), certified farms bested their noncertified peers in one or both geographic regions, outperforming them in several social and organizational variables. The study found that on certified farms workers had greater knowledge of agrochemical safety and a higher use of personal protective equipment in the application of these substances; agrochemical storage and warehouse conditions were better; the treatment of water for human consumption was improved; and there were greater opportunities for training and capacity building.

## LOOKING FORWARD

Despite these good results, we face many challenges on our continued journey toward sustainability in the coffee sector, and in agriculture in general.

First of all, producers generally have very little information about their own performance. They do not have good records on their costs, yields, bean quality and net income. Often, their only management tool is price, and even that is a variable over which they have very little control. As of this writing, coffee prices are extremely low, and coffee rust disease is devastating farms throughout Central America. Buyers are paying low prices, often below the cost of production (which is another area for which there is little data). As a result, many farmers are likely to go out of business. The Rainforest Alliance must do more to communicate to producers the benefits of adopting sustainable practices and provide them with information-management tools that could help them to better assess their income and increase it. We are currently experimenting with various possibilities, including the use of cellphones and tablets equipped with a host of management tools. The end goal is to link farmers with each other, with us, and—eventually—to businesses and consumers.

Secondly, buyers have been shifting away from more rigorous forms of sustainable farming and certification in favor of “tick the box” approaches that allow them to make sustainability claims with less of an investment—but these approaches do not necessarily result in significant improvements for farmers. The proliferation of certification standards is also confusing and difficult for farmers. The Rainforest Alliance must also do more to communicate evidence of the impacts of our work to farmers and the environment, especially because these impacts make a strong enough case for staying the course. The studies cited here are the beginning of our efforts to do a better job of understanding and communicating these impacts.



Thirdly, farmers need loans to carry out the long-term renovation of their farms and improve their yields and crop quality, but obtaining financing has been nearly impossible for them. Smallholders in particular are seen by lenders as high-risk and too much trouble. And due to their lack of recordkeeping, the farmers themselves are often unable to make a solid case or determine whether or not they can afford a loan. In addition to good organizations such as Root Capital that are already working to address this problem, the Rainforest Alliance has begun to explore additional ways to help farmers, but the need is huge and current activities remain small in scale.

Fourth, while consumer marketing efforts have been successful in reaching the 10 to 15 percent of the public that cares about sustainability and actively seeks out sustainable products, these efforts have yet to persuade the additional 35 percent of consumers who, studies show, could be interested in sustainability. Nor have we effectively reached consumers in the emerging economies of Brazil, Mexico, India and China, among others. Global trends, tracked by analysts such as Young and Rubicam through their Brand Asset Valuator, point to far greater interest in the concept of well-being—not just the well-being of consumers themselves but also of their communities and the larger world. The Rainforest Alliance and others need to develop better messaging and make more skillful use of social media to serve as catalysts of consumer change. We have begun to convene experts in consumer insight and messaging to explore these areas.

Finally, there are several worrisome environmental trends—namely extreme weather, changing climatic conditions and water shortages—that scientists believe will have short- and long-term consequences for farmers. Coffee production may no longer be viable in certain parts of the world as average temperatures change and water sources recede.

## SUMMARY

According to the International Institute for Sustainable Development’s 2014 study “The State of Sustainability Initiatives,” close to 40 percent of the world’s coffee has been certified under some program. While the various programs differ in their level of rigor, the argument could be made that the coffee sector has recognized the need for sustainability interventions. Rainforest Alliance certification currently represents 5.2 percent of total global coffee production.

As discussed earlier, studies comparing Rainforest Alliance Certified farms with their noncertified peers found many positive benefits, such as increased productivity, that typically led to greater profitability for farmers. The main areas of environmental impact were water protection and the protection of forest fragments for wildlife habitat. On the social side, the research showed improved access to knowledge, worker provisions and capacity building, as well as better organization on farms. Though the work that is being done by the Rainforest Alliance and others is relatively new, the growth in the number of certified farms over the last five years has been dramatic.

Looking ahead, we need to expand our scope so that we can deal with the macro-challenges discussed earlier, as well as some of the weaknesses we uncovered through the impact studies. Overall, however, the data are telling us to stay the course. It’s time to double-down on our innovative redesign of traditional management practices and continue to take a triple bottom line approach to create a better future for coffee farmers and our planet. Let’s raise a cup of coffee to that!

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