< SCAA WHITE PAPER >

# A BLUEPRINT TO END HUNGER

## IN THE COFFEELANDS

**SPECIALTY COFFEE ASSOCIATION OF AMERICA®**

HUNGER has no place in our industry and yet it takes an enormous toll on the world's coffee-growers. Such food insecurity among our coffee-producing partners is inconsistent with our industry's commitment to sustainable livelihoods and strongly contradicts our desire to ensure the long-term success of the specialty coffee industry for future generations. While hunger and lack of food security are highly complicated issues that warrant further research, producer-led feedback, and fundamental structural changes, there are immediate opportunities for all stakeholders in the specialty coffee industry to get involved and take action to help end hunger in the coffeelands.

This paper, developed by the SCAA Sustainability Council, provides an overview of hunger and food insecurity in the specialty coffee industry and outlines recommendations for solving the problem with the participation of all industry partners.

# Hunger and Food Insecurity: A Global Problem

Hunger and food insecurity constitute a complex global development dilemma, as it is estimated that 842 million people suffer from chronic hunger worldwide (FAO, 2013). While food security has numerous definitions, in the context of this paper it can be understood as the dilemma that households face when they experience the inability to access a nutritious diet in terms of both quality and quantity. While it is widely believed that hunger is a result of a globally insufficient food supply, the problem is actually a product of poverty and inequality. As studies have noted, the world produces ample food to feed everyone a sufficient diet (Caswell, 2012; Kremen et al., 2012).

The existing empirical studies that examine hunger and food security specifically among coffee-growers are heavily concentrated in Latin America, although it is undoubtedly an urgent and perhaps more worrisome issue among growers in Africa and Asia where poverty tends to be more extreme and social safety nets are less available. For example, Sub-Saharan

Africa suffers the highest rates of hunger in the world with roughly one quarter of the population being malnourished (FAO, 2013). Studies from Central America have revealed that a significant percentage of farmers experience food insecurity at some point during the harvest production cycle each year. For example, a 6-year study that surveyed 177 smallholders in Nicaragua found that 69% of them were unable to meet their nutritional needs throughout the year (Bacon, 2008). Similarly, a study that
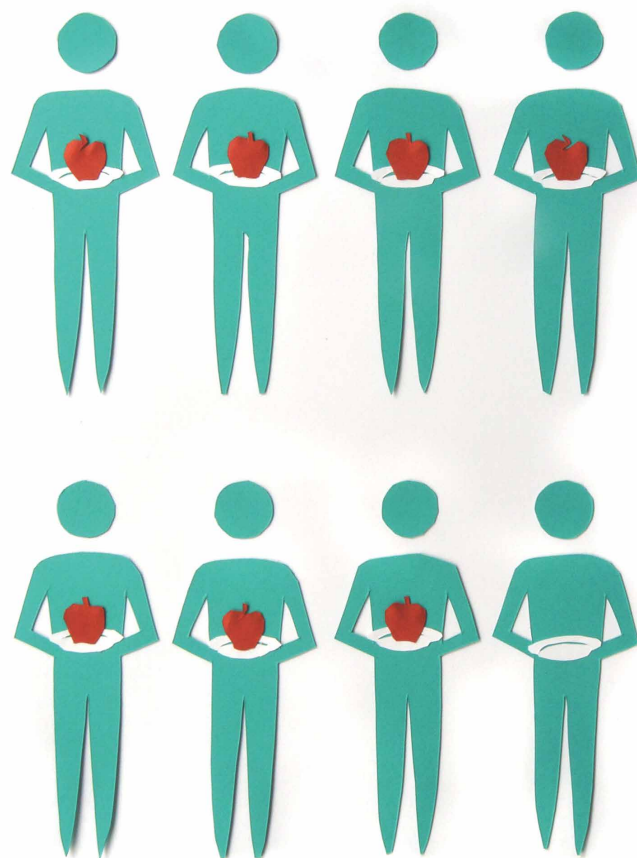


**1/8 OF THE WORLD'S POPULATION SUFFERS FROM CHRONIC HUNGER**

surveyed 469 households in Mexico, Nicaragua, El Salvador, and Guatemala found that 63% of coffee households suffered food insecurity during the year (Méndez, 2010). These figures are troubling, especially in a region that tends to enjoy better food security than its coffee-growing counterparts in Africa and Asia. These findings from Mexico and Central America further reveal the need for comparable research in other coffee growing regions to better assess the global situation.

## PERCENTAGE OF COFFEE GROWING HOUSEHOLDS THAT SUFFER FOOD INSECURITY DURING THE YEAR



90
80
70
60
50
40
30
20
10

GUATEMALA          MEXICO          NICARAGUA
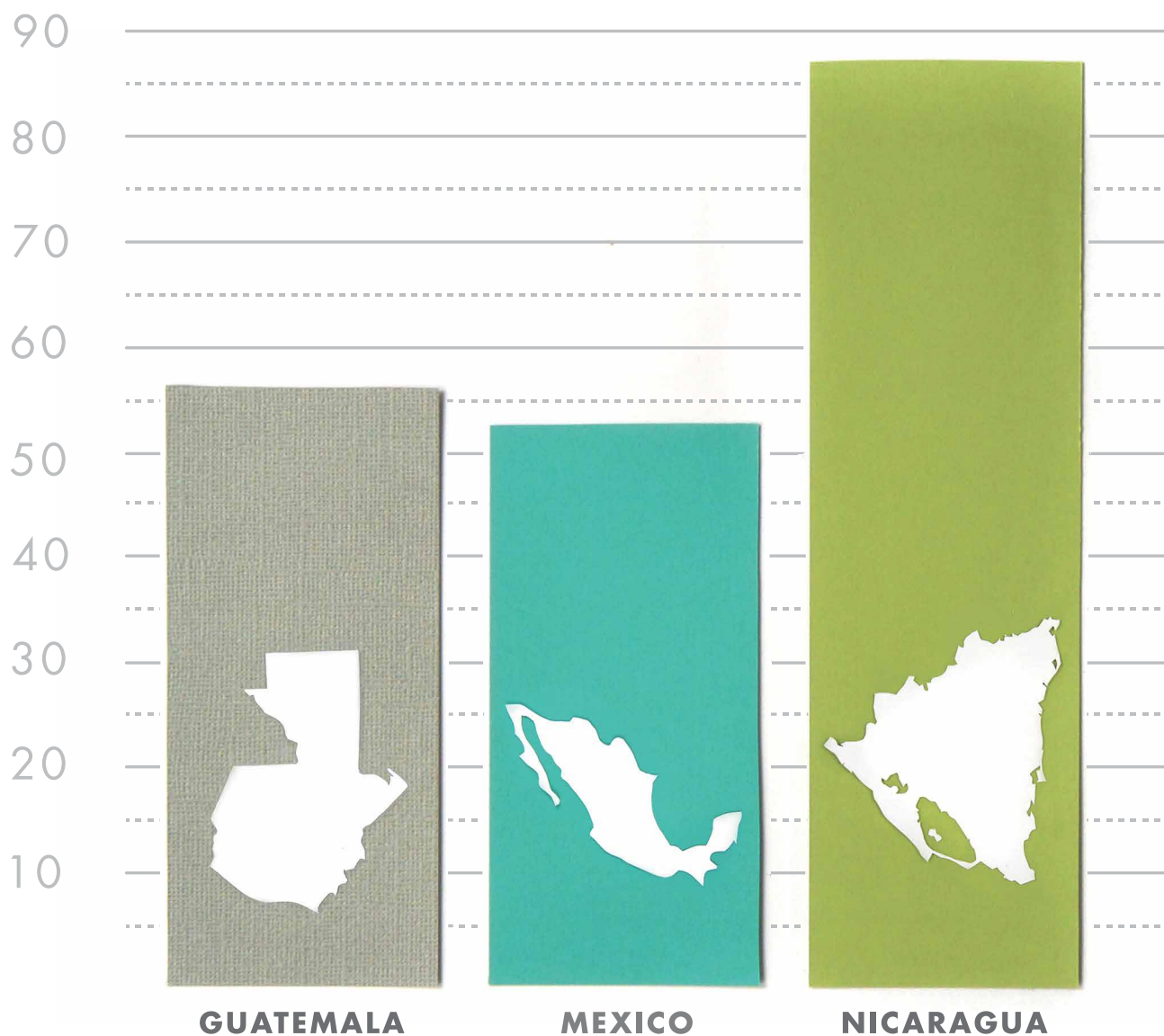
Source: Fujisaka, S. 2007.

# How Coffee-Growing Households Experience Hunger

Hunger and malnutrition in coffee growing regions are seasonal crises that typically occur during the rainy season, the food planting season, or the early months of the harvest season (Caswell, 2012). Since most coffee growing households receive only one annual paycheck for their crop, they face the difficulty of distributing that lump sum throughout the following year to meet all of their household needs until the next harvest. Additionally, the income that farmers earn from coffee is often less than most farmers' annual spending needs. Unfortunately, this is true even among farmers who receive a price premium for fair trade or organic certifications (Bacon, 2008; Méndez, 2010; Beauchelt, 2011; Beauchelt, 2012). Farmers are often pressured to make difficult household purchasing decisions among critical basic needs as they are forced to decide to spend on shelter, food, or the farm investments required for the next year's harvest. They also face debt, education and healthcare expenses. In the face of such income scarcity, spending on food is often compromised, and farmers consistently face a situation where they can no longer afford to feed their families regular, healthy meals. In extreme situations, coffee producing families run out of savings and are forced to choose between food and a roof over their heads. In Latin America, rural dwellers have termed these periods of food scarcity "los meses flacos," which translates to "the thin months."

It is challenging to identify a single cause of hunger among coffee growing communities since farmers suffer from multiple layers of vulnerability that contribute to food insecurity. In addition to surviving with scarce income, coffee farmers live at the mercy of coffee price fluctuations in the global market, and thus feel an immediate and severe impact on their livelihoods when prices plummet. Additionally, farmers face enormous agricultural risks to their coffee harvest, including unfavorable weather conditions, pests, and disease outbreaks.

Given the risks of relying solely on coffee to provide income for the entire household, farmers tend to employ the practice of subsistence agriculture on their land, meaning they grow other crops primarily for household consumption that complement their coffee production. However, the additional food production is often not sufficient to hedge against the risks to the coffee harvest or last the full 12 months of the year, and it is rarely enough to support families through "the thin months," even when coffee yields and prices are favorable (Bacon et al., 2008; Morris et al., 2013).
The vulnerabilities affecting coffee farmers also extend beyond the economic and agricultural

risks outlined above, to ones fundamentally ingrained in the environments where coffee is grown. Virtually all coffee producing countries suffer from "institutional voids," gaps in market ecosystems that prevent businesses from thriving. These voids often include major gaps in infrastructure, weak legislative systems and poor governance, poor access to and/or quality of education, and restricted access to finance, all of which play a fundamental role in preventing rural smallholders from advancing out of poverty.

# THIS PROBLEM IMPACTS THE WHOLE SPECIALTY COFFEE INDUSTRY
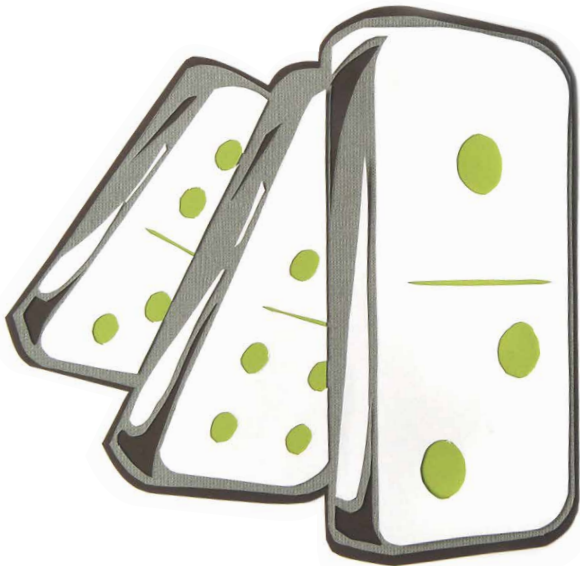
Malnutrition is one of the leading causes of death and disease among children worldwide (Pelletier, 1994) and is responsible for compromising both physical and cognitive development among affected individuals. Achieving adequate nutrition is especially critical during early childhood, as children who do not receive enough calories or sufficient nutrients experi- ence growth stunting, a condition that prevents them from ever reaching their full height potential as adults. Malnourished children also grow up with lowered reasoning ability and perceptual-spatial functioning skills (Whaley, et. al., 2003; Grantham-McGregor, 1995). They also tend to have poorer school grades than their well-nourished peers, are less attentive, and can be unresponsive to play behavior.

The negative impact of malnutrition does not stop with the individual as it also takes a devastating toll on community welfare. High rates of malnutrition translate into educational losses in learning and school performance, lowered work productivity, and higher health costs (The World Bank, 2006). This means that in coffee growing communities, farmers, pickers, and their children miss out on reaching their full education potential, a recipe for entrenching farm families in generational poverty. It also

means that smallholders and laborers regularly suffer nutrition-related illnesses, which leads to lowered productivity in the fields and higher household expenditure on personal healthcare. Given that coffee production is a physically demanding endeavor, it is not difficult to imagine the setbacks that result from a chronically malnourished workforce. In addition, the onset of climate change is expected to disrupt both coffee harvests and subsistence agriculture, which will exacerbate the food insecurity unless industry stakeholders take action.

# FRAMING SOLUTIONS

Food insecurity in coffee-growing regions is a complicated issue that requires integrated multi-stakeholder driven solutions aimed at creating structural change (Caswell et al., 2012). Achieving this change will require additional empirical research to develop an enhanced understanding of the problem, particularly in African and Asian coffee growing communities that have been largely neglected from the research process thus far. The issue of poor food security among coffee farmers has, however, steadily increased in visibility over recent years in Latin America, much of which is thanks to research and awareness-raising efforts spearheaded by Green Mountain Coffee Roasters. In the wake of compelling evidence of widespread food insecurity, multiple organizations have risen to the challenge of fighting hunger by launching projects that not only address various components of the issue, but also provide channels for coffee professionals to get involved in driving positive outcomes. These include CoffeeKids, Catholic Relief Services, Food4Farmers, Pueblo a Pueblo, and StC among others.
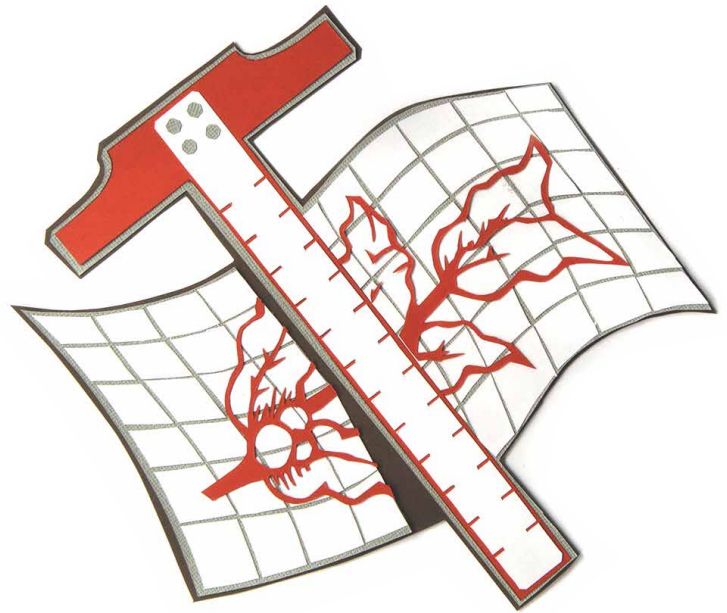
The existing hunger-related research promotes solutions to ending hunger in the coffeelands based on improved trade relationships, increased investment, and creative community development projects (Bacon, 2008). In terms of relationships, fair trade and direct trade models have generated several important benefits and they continue to evolve, however they have not yet proven to be capable of eliminating poverty and hunger from affecting coffee-growers (Bacon, 2008; Méndez, 2010;

Beauchelt, 2011; Beauchelt, 2012). For community development, a wide variety of stakeholders have become engaged in supporting livelihoods diversification projects, which most often include the provision of technical assistance for subsistence cropping and food storage, as well as finding income generating market opportunities for new products. Some of the non-governmental organizations (NGOs) that have launched such food security projects include Coffee Kids, Save the Children, Catholic Relief Services, Food4Farmers, Heifer International, Mercy Corps, CII-ASDENIC, the Community Agroecology Network (CAN),

Pueblo a Pueblo, and the Coffee Trust. While eliminating hunger from coffee regions will require long term work and significant changes, (Caswell, 2012), the following recommendations provide immediate and actionable steps appropriate for all industry stakeholders to get involved in taking a stand against hunger. The recommendations are taken from the publication, "Food Security and Smallholder Coffee Production: Current Issues and Future Directions," which were documented by Caswell, et al., 2012. Each of the following recommendations includes a case example to illustrate its effectiveness on the ground.

# RECOMMENDATION #1:

## Providing Farmers with Adequate Support and Technical Assistance to Maximize Food Production Potential and Attain Balanced Nutrition

Organizations that have launched projects targeting alternative livelihood strategies have focused on helping small-scale farmers diversify their farming to grow additional food for family consumption. In Central America, most coffee farmers already reserve land for subsistence agriculture and produce close to half of the

food consumed in the household (Bacon, 2008). These farmers tend to produce only staple beans and maize, which is not enough to feed the household throughout the year. Two themes are important here. First, technical assistance and access to sustainable inputs is important to reduce the risk of crop loss and increase yields of the substance crops. Second, when farmers plant more fruit trees (Bacon et al., forthcoming) or diversify their subsistence cropping through growing vegetables in addition to beans and corn, they are likely to be less sensitive to the thin months and enjoy a more nutritionally balanced diet throughout the year. (Morris, 2013) In addition to diversifying crops, farming households can significantly benefit from technical improvements in food storage techniques. Post harvest crop loss is a significant challenge and can initially be addressed through modest investment.
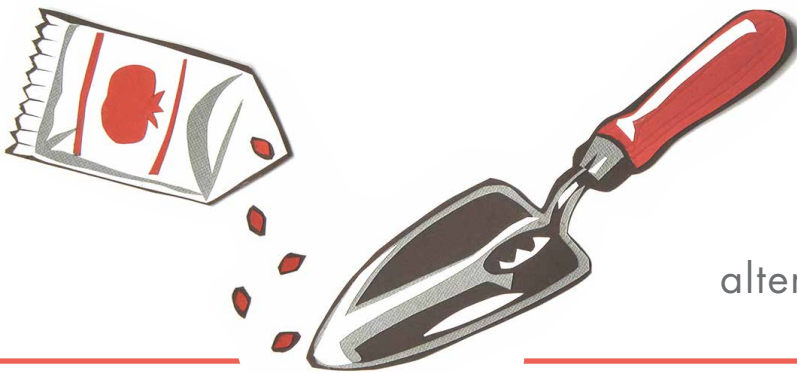
## CONSTRUCT

silos to protect staple grains from spoiling due to moisture or rodents

## PLANT

fruit trees that provide a harvest during the lean months and offer an alternate source of income
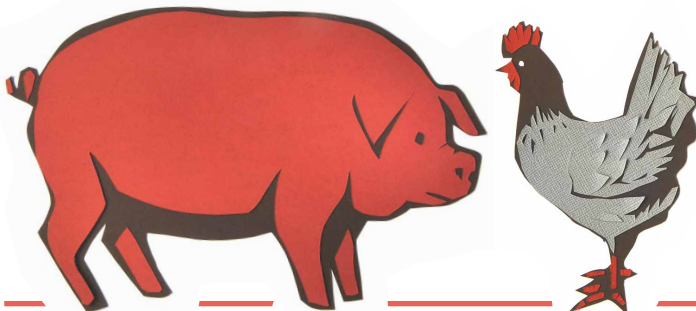
## INTRODUCE

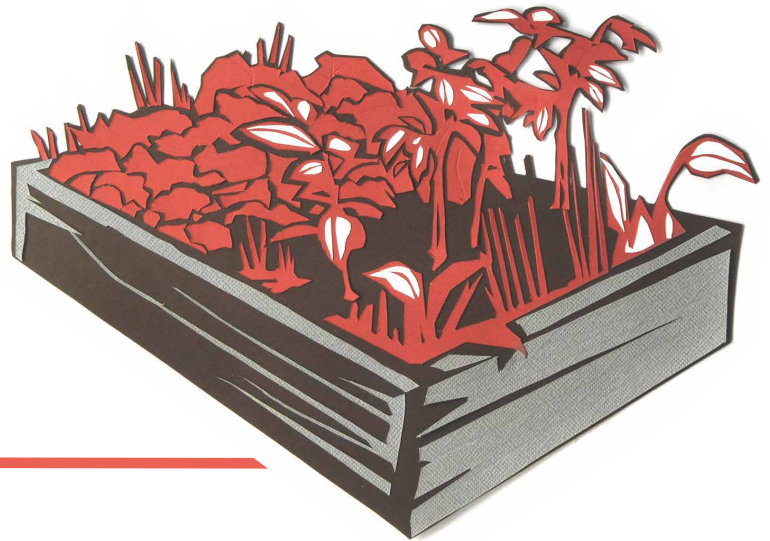new crops to farm plots and train farmers on how to prepare them in meals

## PROVIDE

farmers with animals which provide additional sources of protein, other food products, and manure to enrich compost

# CASE EXAMPLE:

## Pueblo a Pueblo's Organic School Garden Impacts Rural Coffee-Growing Communities in Guatemala



The 2013 SCAA Sustainability Award Winner, Pueblo a Pueblo, is one of many NGOs implementing rural food security solutions within the specialty coffee industry. Pueblo a Pueblo maintains a geographic focus in Latin America, primarily in coffee growing mountain regions of Guatemala.

Three years ago, many of the children who attended schools in rural villages near Santiago Atitlan were surviving on one meal a day. Their parents, many of whom work on coffee farms, had lost the ability to grow their own food. As a response, Green Mountain Coffee Roasters funded Pueblo a Pueblo's first pilot garden in the rural community of Panabaj. After the Cole Family Foundation generously donated a half acre of unused land, Pueblo a Pueblo coordinated clearing the area, hiring a project tecnico, installing irrigation and introducing the first group of students into the garden for a hands–on learning experience.

The organic school garden quickly expanded to multiple schools and became a tool for enriching the curriculum and life of the school community. Parents participated as well by clearing rocks, trees, and brush to place vegetable beds, composting bins and rainwater and trash collection bins in each school. In 2013, students used more than 58 pounds of organically grown produce in their school lunches.

The garden initiative's dedication to creating a healthy school community and sharing knowledge is changing lives. The garden curriculum is fully integrated into the school day and teaches students how their choices about food affect their health, the environment, and their communities. In addition to a vacation garden camp program for students, the Organic School Gardens hosts a teacher training program for educators from municipal schools around the area who want to begin or further develop food security and garden education programs in their schools.

Today, the school gardens are thriving in 6 schools and growing more than 38 varieties of seasonal vegetables, herbs, flowers and fruit

trees. A robust corps of parent volunteers generously supports the project, which has reached more than 1,000 primary school students, who often tell their teachers that what they like most about school is the time they spend in the school gardens.

## RECOMMENDATION #2:

# Supporting Livelihood Diversification So That Coffee Growers Have Multiple Sources of Income and Food Other Than Coffee

not already exist. Livelihoods diversification projects have paid special attention to training coffee–growers in beekeeping and animal husbandry, the products from which farmers can then sell to local markets.

The term livelihoods can be broadly understood as a concept key to our survival that "comprises people, their capabilities, and their means of living, including food, income, and assets" (Chambers and Conway, 1991). Diversifying subsistence food production for household consumption, as highlighted in Recommendation #1, represents one important strategy for supporting coffee livelihoods. Finding alternative sources of income represents another. This typically takes the form of finding market opportunities for new products, for example, selling excess food staples or vegetable produce to local farmers' markets or creating local markets when they do

# CASE EXAMPLE:

## Food 4 Farmers Promotes Beekeeping Among Coffee Communities in Latin America



As an additional income opportunity for coffee-growing families, beekeeping represents a promising alternative livelihoods strategy to survive through "the thin months" of seasonal hunger. The NGO, Food 4 Farmers provides useful information to prospective beekeepers through its community of practice – Cafe y Miel – to directly support coffee co-operatives and other growers' organizations in Latin America with information, connections, resources, and real-time support to help them launch commercial beekeeping operations.

Honeybees tend to thrive in coffee-growing regions, as coffee farms characteristically contain an extensive variety of plants, offering excellent habitat and pollination opportunities. Coffee flowers produce sugary, high quality nectar, and bees actually improve coffee berry ripening, size and uniformity with their cross-pollination. Unlike rearing typical farm animals, beekeeping does not require much land or land ownership, making the trade a more versatile income

opportunity for smallholders or even landless coffee laborers. In addition, beekeeping requires less time and financial investment than most comparable agricultural endeavors. Its products can be sold locally or internationally, and exported alongside coffee.

Beekeeping has strong potential for coffee farmers to hedge against risk, as honey prices tend to be more stable than coffee prices, bees are less susceptible to climate change than is coffee, and the trade in bee-products provides several items that can be marketed as food or health-related articles.

## TO GET INVOLVED, VISIT:

http://food4farmers.org/our-projects/beekeeping-in-latin-america/

## Increasing Awareness and Initiatives to Address Food Insecurity in Coffee Regions Within the Coffee Industry

The problem of food insecurity in the coffee-lands will not advance if the issue remains unknown throughout the industry. Awareness raising efforts have made progress over the last decade, but the momentum must continue. Currently, coffee industry actors have primarily taken initiative through organizing corporate social responsibility projects and investing in suppliers, creating more direct and supportive trade relationships between suppliers and buyers, and funding NGO-partners to implement producer-strengthening projects. The more attention that is paid to these endeavors, the better for all industry stakeholders.

## CASE EXAMPLE:

### After the Harvest Film Draws Industry Attention to "The Thin Months"
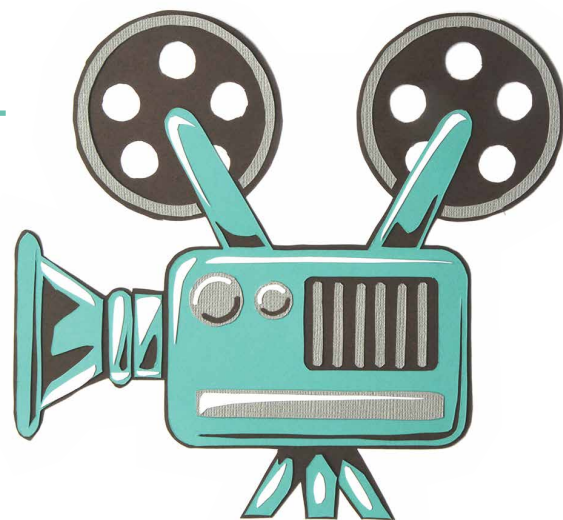
After the Harvest: Fighting Hunger in the Coffeelands is a short film created to educate the coffee industry on the issue of hunger and food security within the coffee supply chain. The film was provoked by a study published by the Center for Tropical Agriculture (CIAT) in 2007, which highlighted the severity of the food security problem during "the thin months." In response, Optic Nerve Productions took up the filmmaking project with funding

help of The Coffee Trust, and traveled from Mexico to Nicaragua interviewing smallholders throughout the journey. The film brings the day-to-day challenges of the thin months to life in the voices of coffee farmers themselves, and shares the successes of creative projects that have been established to eliminate this annual period of food insecurity. After the Harvest premiered in 2011 at the SCAA's annual conference, The Event. The film has proven a fantastic resource to draw global industry attention to the issue.
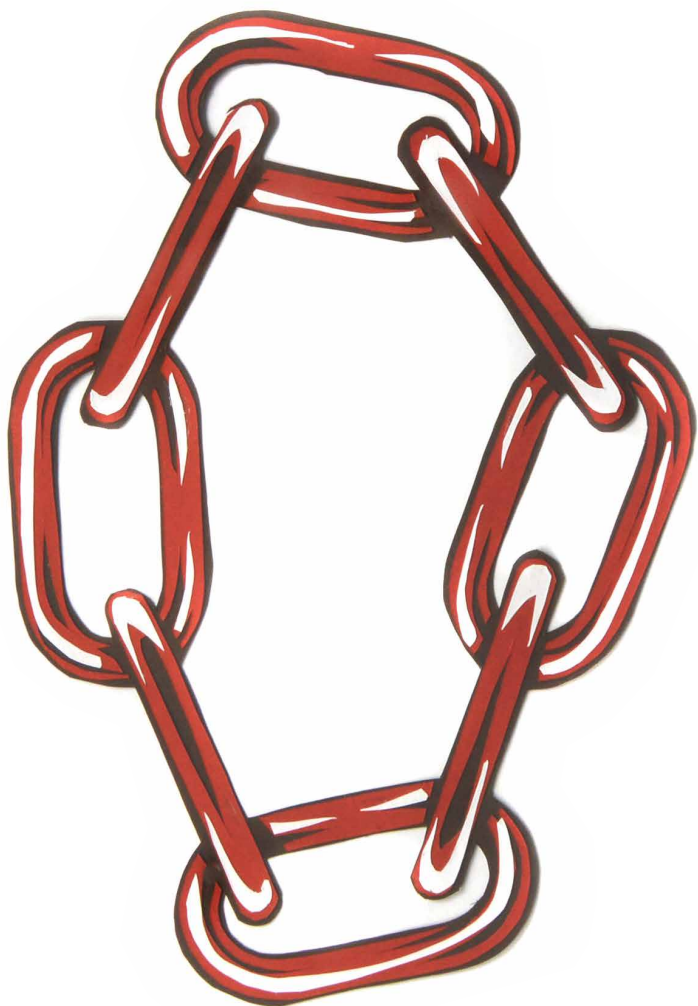
## RECOMMENDATION #4:



# Developing Multi-Stakeholder, Long-Term Initiatives

Creating long-term, sustainable solutions to the food security dilemma will require the buy in of all industry stakeholders. This includes first and foremost, coffee growers, laborers, and producer organizations (cooperative groups). Interventions must also include active participation from coffee actors on the demand side of the supply chain, who can play a very influential role based on their position in the trade relationship. Finally, local, national, and international governments and NGOs, plus other relevant community groups have a critical role in driving positive outcomes.

# CASE EXAMPLE:

The Roya Recovery Project Mobilizes
Multiple Stakeholders to Combat Roya
and Protect Coffee Yields
and Livelihoods

Coffee leaf rust, or *roya*, is a notorious fungus in the coffee industry that has recently had a devastating impact on Central American coffee farms, threatening the livelihoods and food security of smallholders who are most vulnerable to begin with.

In response, Sustainable Harvest Coffee Importers launched a multi-stakeholder disaster relief effort, developing tools and training material to bring best practices to the rural coffee sector to better manage the disease. Sustainable Harvest also built a website, royarecoveryproject.org, providing an integrative platform for educating coffee suppliers and other supply chain actors through pertinent information, tools, and discussion. In addition, Sustainable Harvest hosted two "Let's Talk Roya" events in Central America in 2013, providing active opportunities for discussion, training, and building solutions among multiple stakeholders.

Early donors to the Roya Recovery Project include Café Moto, Café Mystique, Green Mountain Coffee Roasters, and Progreso. The toolkit to assist farmers in combatting

coffee leaf rust includes the input from expert groups including Anacafe, Cenicafe, Comsa, El Valle, IHCAFE and FNC.

**TO LEARN MORE ABOUT** *The Roya Recovery Project* **OR TO GET INVOLVED, VISIT:**

http://www.royarecoveryproject.org/

## Encouraging and Supporting Research That Contributes Timely Empirical Evidence

The availability of robust and reliable data covering the dynamics of hunger among coffee growers is critical to ensuring the effectiveness and credibility of food security interventions. The current research, which completely focuses on smallholders in Mesoamerica, provides a good basis for understanding the problem. However, additional research is needed both to shed light on the problem in other coffee-growing regions, understand changes over time, and also to better expose and interpret the relationship between coffee-growing and food insecurity.

Organizations leading food security projects within coffee communities should develop systems for measuring baseline data (meaning the food security situation prior to intervention), along with the impact of their intervention (meaning quantifying project outputs over time). Independent university research that is eventually published in peer-reviewed journals offers the highest standard. It is especially helpful if these evaluative measures include comparison groups that are unaffected by the intervention. While such research will require significant investment, the pay off from ensuring that the implemented solutions are effective in creating change is worthwhile.

# CASE EXAMPLE:

## Summary of Studies that have Generated Empirical Data on Food Insecurity in Coffee Regions

| REGION STUDIED | # OF HOUSEHOLDS STUDIED | STUDY TYPE/ RESEARCH DATE | % EXPERIENCING FOOD INSECURITY DURING THE YEAR | REFERENCE |
|---|---|---|---|---|
| Nicaragua, Mexico Guatemala, El Salvador | 469 | Stratified survey, 2004-05 | 63% | Méndez, VE et al, 2010 |
| Northern Nicaragua | 177 | Participatory Action Research (focus groups, surveys, and long-term case study), 2006 | 69% | Bacon, CM et al, 2008 |
| Mexico, Nicaragua, Guatemala | 179 | Household level surveys and interviews (unpublished), 2006-07 | Mexico: 31%, Nicaragua: 44%, Guatemala: 61% | Fujisaka, S (CIAT), 2007 |
| Western El Salvador | 29 | Semi-structured interviews, 2008 | 97% | Morris, K, 2013 |
| Northern Nicaragua | 256 | Stratified survey and household interviews, focus groups, anthropometric measures (unpublished), 2009/10 | 82% | Bacon, CM et al; unpublished |
| Northern Nicaragua | 87 | Household surveys and interviews stratified by participation in a food security initiative, 2009 | 100% | Pino, M, unpublished |
| Pico Duarte Region, Dominican Republic | 41 | Participatory Action Research, 2011 | 82.9% | Gross, L., 2011 |

(Caswell, 2012 p. 5)

The aforementioned studies represent the body of research that has been collected to date on food insecurity among coffee growers. These studies have demonstrated that hunger is a pressing issue for a majority of coffee growers in Mesoamerica and have played a key role in informing food security interventions. To learn more, please see the recommended reading and works cited at the end of this document.

# FINAL REMARKS ON ENDING HUNGER

The Specialty Coffee Industry is uniquely placed to take a stance against hunger and food insecurity among coffee-growing households.

## COFFEE IMPORTERS AND EXPORTERS

• Negotiate contracts with farmers that hedge against extreme price fluctuations

• Provide financing for coffee-grower food security projects

• Invest in further research and experimentation to innovate solutions

## COFFEE RETAILERS AND CAFÉ OWNERS

• Convene a deeper conversation about sustainability in the coffeelands, which makes eliminating hunger a priority for consumers

• Host an "After the Harvest" Movie event in Café

• Train baristas on raising awareness about hunger

## COFFEE ROASTERS

• Use 3rd party monitors when engaged in direct trade models

• Provide financing for coffee-grower food security projects

• Invest in further research

## BARISTAS

• Educate consumers about hunger

• Highlight organizations implementing projects to end hunger in coffeelands for consumers

# RECOMMENDED READING:

- Coffee Farmer Welfare in Nicaragua, Mexico, and Guatemala
  Author: S. Fujisaka. Publisher/research sponsor: CIAT. Year: 2007.
  http://www.slideshare.net/AfterTheHarvestorg/ciat-07-final-project-report-7206907

- A Brief Understanding of Hunger and its Resolution
  Author: D. Giovannucci. Publisher: COSA. Year: 2009
  http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1549043

- Will "We" Achieve the Millennium Development Goals with Small-Scale Coffee Growers and Their Cooperatives? A Case Study Evaluating Fair Trade and Organic Coffee Networks in Northern Nicaragua
  Authors: C. Bacon, V. E. Mendez, M. Flores, and M. Brown. Publisher: Center for Agroecology and Sustainable Food Systems. Year: 2008.
  http://escholarship.org/uc/item/5gm1919f;jsessioid=5A6928754BB29BA1C65FDF4098BAB16A #page-1

- Colombia Coffee Sector Study
  Author: D. Giovannucci et al. Publisher/research sponsor: World Bank. Year: 2002
  http://papers.ssrn.com/sol3/papers.cfm?abstract_id=996138

- Effects of Fair Trade and Organic Certifications on Small-scale Coffee Farmer Households in Central America and Mexico
  Authors: V.E. Mendez et al. Publisher: Renewable Agriculture and Food Systems (volume 25, issue 3). Year: 2010.
  http://www.uvm.edu/~agroecol/MendezVEEtAl_EffectsFT&OrganicCoffeeHouseholdsMesoamerica_10.pdf

- Food Security and Smallholder Coffee Production: Current Issues and Future Directions
  Authors: M. Caswell, V.E. Méndez and C. Bacon. Publisher: Agroecology and Rural Livelihoods Group, University of Vermont. Year: 2012.
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Beuchelt, TD, Zeller, M. 2012. The role of cooperative business models for the success of smallholder coffee certification in Nicaragua: A comparison of conventional, organic and Organic-Fairtrade certified cooperatives. Renewable Agriculture and Food Systems 28(3): 195-211.

Campbell, Charlie. East Timorese Sell Their Coffee to Starbucks, Starve at Home. Oct 25 2013. Time Magazine. http://world.time.com/2013/10/25/the-east-timorese-are-selling-tons-of-great-organic-coffee-but-they-still- starve/.

Caswell, Martha, Méndez, VE, Bacon, CM. 2012. Food Security and Smallholder Coffee Production: Current Issues and Future Directions. The University of Vermont. Agroecology & Rural Livelihoods Group Policy Brief # 1: 1-12.

Chambers, R. and G.R. Conway. 1991. Sustainable rural livelihoods: Practical concepts for the twenty-first century. Institute for Development Studies, IDS Discussion Paper 296, December.

Cravioto, Joaquín, Licardie, Elsa R.D. The Effect of Malnutrition on the Individual. (Available at: http://mit-press.mit.edu/sites/default/files/titles/content/9780262520348_sch_0001.pdf) (Accessed on 26 December 2013).

FAO. 2013. The State of Food Security in the World. (Available at: http://www.fao.org/docre-p/018/i3458e/i3458e.pdf) (Accessed on 27 December 2013).

Fujisaka, S. 2007. Coffee farmer welfare in Nicaragua, Mexico, and Guatemala. Final Research Report. International Center for Tropical Agriculture (CIAT) – Green Mountain Coffee Roasters (GMCR).

Grantham-McGregor, S.  A review of studies of the effect of severe malnutrition on mental development.  *The Journal of Nutrition* 1995; 125; 2233S-2238S.

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Kremen, C., A. Iles, and C. Bacon. 2012. Diversified farming systems: an agroecological, systems-based alternative to modern industrial agriculture. *Ecology and Society* 17(4): 44.

Méndez, VE, Bacon, CM, Olson, M, Petchers, S, Herrador, D, Carranza, C, et al. 2010a. Effects of Fair Trade and organic certifications on small-scale coffee farmer households in Central America and Mexico. Renewable Agriculture and Food Systems 25(3): 236-251.

Morris, KS, VE Mendez, & MB Olson. 2013. 'Los meses flacos': seasonal food insecurity in a Salvadoran organic coffee cooperative. Journal of Peasant Studies 40(2): 423-446.

Pelletier DL et al. 1994. A methodology for estimating the contribution of malnutrition to child mortality in developing countries. Journal of Nutrition 124: 2106-2122.

The World Bank.  2006.  Repositioning Nutrition as Central to Development: A Strategy for Large Scale Action, Washington DC: The International Bank for Reconstruction and Development/The World Bank.

Whaley, Shannon E., Marian Sigman, Charlotte Neumann, Nimrod Bwibo, Donald Guthrie, Robert E. Weiss, Susan Alber, and Suzanne P. Murphy.  The Impact of Dietary Intervention on the Cognitive Development of Kenyan School Children. *The Journal of Nutrition* 2003; 133: 3965S-3971S.

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