

Contents lists available at ScienceDirect

### Global Environmental Change



journal homepage: www.elsevier.com/locate/gloenvcha

## Explaining the 'hungry farmer paradox': Smallholders and fair trade cooperatives navigate seasonality and change in Nicaragua's corn and coffee markets



Christopher M. Bacon<sup>a,\*</sup>, William A. Sundstrom<sup>b,1</sup>, María Eugenia Flores Gómez<sup>c,2</sup>, V. Ernesto Méndez<sup>d,3</sup>, Rica Santos<sup>a</sup>, Barbara Goldoftas<sup>e,4</sup>, Ian Dougherty<sup>a</sup>

<sup>a</sup> Department of Environmental Studies and Sciences, Santa Clara University, 500 El Camino Real, Santa Clara, CA 95050-4901, USA

<sup>b</sup> Department of Economics, Santa Clara University, 500 El Camino Real, Santa Clara, CA 95053, USA

<sup>c</sup> Community Agroecology Network, 595 Franklin Street, Santa Clara, CA 95050, USA

<sup>d</sup> Environmental Program and Plant and Soil Science Department, University of Vermont, The Bittersweet – 153 South Prospect Street, Burlington, VT 05401, USA

<sup>e</sup> International Development, Community, & Environment Department, Clark University, 950 Main Street, Worcester, MA 01610, USA

#### ARTICLE INFO

Article history: Received 31 August 2013 Received in revised form 18 January 2014 Accepted 3 February 2014 Available online 14 March 2014

Keywords: Food systems Institutions Agroecology Central America Participatory action research Vulnerability

#### ABSTRACT

Latin American smallholder coffee farmers linked with fair trade and organic markets are frequently cited as models for sustainable food systems. Yet many experience seasonal hunger, which is a very common, but understudied, form of food insecurity. Northern Nicaragua's highlands include wellorganized cooperatives, high rural poverty rates, and rain dependent farms, offering a compelling study area to understand what factors are associated with seasonal hunger. This participatory mixed methods study combines data from observations, interviews and focus groups with results from a survey of 244 cooperative members. It finds that seasonal hunger is influenced by multiple factors, including: (1) annual cycles of precipitation and rising maize prices during the lean months; (2) inter annual droughts and periodic storms; and (3) the long-term inability of coffee harvests and prices to provide sufficient income. Sampled households experienced an average of about 3 months of seasonal hunger in 2009. A series of five least squares regression models find the expected significant impacts of corn harvest quantity, farm area, improved grain storage, and household incomes, all inversely correlated with lean months. Unanticipated results include the finding that households with more fruit trees reported fewer lean months, while the predominant environmentally friendly farming practices had no discernable impacts. The presence of hunger among producers challenges sustainable coffee marketing claims. We describe one example of a partnership-based response that integrates agroecological farm management with the use of fair trade cooperative institutions to re-localize the corn distribution system. Increased investments and integrated strategies will be needed to reduce threats to food security, livelihoods, and biodiversity associated with the rapid spread of coffee leaf rust and falling commodity prices.

© 2014 Elsevier Ltd. All rights reserved.

#### 1. Introduction

Although the global food system currently produces enough food to feed more than 9 billion people, hunger persists among more than 870 million (FAO, 2012; Godfray et al., 2010). An

\* Corresponding author. Tel.: +1 408 551 3082.

*E-mail addresses:* cbacon@scu.edu (C.M. Bacon), wsundstrom@scu.edu (W.A. Sundstrom), emendez@uvm.edu (V. Ernesto Méndez), ricaksantos@gmail.com (R. Santos), bgoldoftas@clarku.edu (B. Goldoftas),

ibreendougherty@gmail.com (I. Dougherty). <sup>1</sup> Tel.: +1 408 554 6892.

<sup>2</sup> Tel.: +1 831 419 9936.

http://dx.doi.org/10.1016/j.gloenvcha.2014.02.005 0959-3780/© 2014 Elsevier Ltd. All rights reserved. estimated 2.5 billion worldwide depend upon harvests from about 500 million smallholder farms (FAO, 2013; IFAD-UNEP, 2013, p. 8). Approximately 80% of those facing food insecurity live in rural areas, and half are small-scale farmers, often managing marginal lands (FAO, 2012; Sanchez and Swaminathan, 2005). This "hungry farmer paradox" illustrates the vast inequalities in a global food system that also generates damage to the environment and human health (Gottlieb and Joshi, 2010).

Intense environmental and food policy debates persist about production- versus distribution-oriented approaches to improving food security and about the degree to which solutions should contribute to broader environmental and social goals (IAASTD, 2009; Wittman, 2011; Maxwell and Slater, 2003). Sustainable intensification and diversification are both potentially effective

<sup>&</sup>lt;sup>2</sup> Iel.: +1 831 419 9936.

<sup>&</sup>lt;sup>3</sup> Tel.: +1 802 656 2539; fax: +1 802 656 8015.

<sup>&</sup>lt;sup>4</sup> Tel.: +1 508 421 3824.

strategies (Ellis, 2000; Pretty et al., 2011), but remain productionoriented and fail to consider questions about uneven food distribution (Horlings and Marsden, 2011). Government sponsored food assistance strategies are often effective and could develop more innovative approaches (Lentz et al., 2013), but they historically have focused on immediate needs, typically addressing neither structural causes of hunger nor broader sustainability goals. A fourth strategy is the creation of sustainable agrifood systems, which can address production as well as distribution, consumption, and environmental, socio-economic and cultural factors (Goodman et al., 2011). Although this strategy holds significant potential, few studies have assessed links between "sustainable" global food systems and farmer food security.

This article analyzes seasonal hunger as an understudied aspect of food security in certified sustainable commodity chains, interrogating the case of fair trade/organic coffee farmers in northern Nicaragua. It documents the extent of seasonal hunger and key contributing factors among smallholder coffee producers. It also describes household, cooperative, and NGO responses to food insecurity and analyzes the relationship between sustainable agricultural practices and seasonal hunger. We integrate qualitative field research with the existing studies on rural food security, agroecology, certified sustainable coffee, and rural institutions to develop the following research questions and hypotheses:

(1) What factors are associated with seasonal hunger among smallholder coffee producers?

Based on a large theoretical and empirical literature as well as interviews and focus groups with farmers, we predict that households with higher incomes, access to more favorable terms of exchange in markets, and larger agricultural harvests will tend to report shorter periods of seasonal hunger, other things equal. On the other hand, the occurrence and intensity of natural hazards—such as droughts or storms—and economic shocks—such as falling coffee prices—will adversely impact household food security.

(2) Do coffee smallholders selling to fair trade markets and using more environmentally friendly farming practices experience shorter periods of seasonal hunger?

The literature studying the impact of environmentally friendly farming and certified organic production on agricultural yields, income, and poverty among smallholder farmers is mixed. Certification is associated with favorable market access, prices and farming practices, such as the elimination of toxic chemicals and resource conservation, which may enhance incomes and mitigate risk. However, short-term yields may fall and production costs rise, offsetting these gains. We posit that many of the same tradeoffs will affect the impact of certification on exposure to seasonal hunger.

(3) How have coffee smallholders, cooperatives, and other stakeholders responded to the challenge of seasonal hunger? Through decades of navigating predictable seasonal dynamics related to the timing of rain, agricultural harvests, the availability of off-farm employment, and periods of food scarcity, smallholders and local communities have developed various coping strategies, at times augmented by mainstream food assistance programs, while stakeholders in the coffee value chain (sometimes including cooperatives) have historically ignored rural hunger. Based on survey evidence, interviews and participant observation, we identify and describe these household and community responses in the Nicaraguan context.

This article also describes a partnership launched by several of the coauthors linking a sustainable agriculture NGO to cooperatives through a community-based participatory action research initiative that holds the potential to develop more effective strategies to reduce seasonal hunger, while empowering farmers, and conserving agricultural biodiversity.

# 1.1. Smallholder food security, seasonal hunger and livelihood vulnerability

Seasonal hunger, a predictable and cyclical pattern of reduced food availability and access, is the most common form of food insecurity that smallholders face. Influenced by annual cycles of work, weather, and changing markets, seasonal hunger is often exacerbated by natural hazards and political economic trends and shocks (Chambers, 1982; Vaitla et al., 2009; Barrett, 2010). It also correlates with fluctuations in climate, cropping patterns, and human disease (Vaitla et al., 2009). Smallholders often do not produce enough food to last their household the full year and/or sell a portion of their subsistence crops after the harvest, when market prices are low and cash demands are pressing, and then cannot afford to buy food during the subsequent lean months when crop prices are typically higher (Devereux et al., 2008). The timing of income from off-farm employment, remittances, and cash crops can further affect the duration and intensity of the lean months.

An emphasis on how households access food, rather than on aggregate food availability, is a hallmark of Amartya Sen's entitlement approach to poverty and famines (Sen, 1981; Scoones, 2009; Adger, 2006). In this spirit, the World Food Summit of 1996 moved analytic focus away from narrow measurements of food availability to questions about food access, initiating greater official consideration of food distribution and socioeconomic inequality (Sen, 1981; Devereux et al., 2008; Pinstrup-Andersen, 2009): "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

Access to natural resources, markets, and support networks gradually became a central theme for studying rural development and change (Ribot and Peluso, 2003). Questions about food access through time suggest consideration of household livelihood vulnerabilities, which encompass exposure and sensitivity to annual climate variability, natural hazards, such as droughts and storms, and economic trends, such as rising input costs and changing commodity prices (Adger, 2006, p. 268; Eakin and Luers, 2006, p. 366; Scoones, 1998). Thus, hunger is causally linked to vulnerability, poverty and ultimately powerlessness as manifested in the inability of households to access sufficient food through production, exchange, or other means (Watts and Bohle, 1993).

From this perspective, seasonal hunger arises not only from chronic shortfalls in production, but also from annual and trend fluctuations in the terms of trade between food and nonfood commodities, limited access to self-insurance (such as storage and precautionary savings), and inadequate collective (institutional) mechanisms for pooling risk, providing access to short-term credit, etc. Accordingly, strategies that use this theory to address rural hunger seek to change the institutions (i.e., laws, informal norms, local associations, market channels, agricultural ministries, etc.) that shape the terms of exchange (Ostrom, 2005; Sen and Drèze, 1989).

## 1.2. Environmentally friendly farming practices, agroecology, and smallholder food security

An open scientific and agricultural development policy question concerns the extent to which environmentally friendly farming practices can meet the challenge of improving smallholder food security while reducing negative environmental impacts, and the extent to which this issue can—or should—be linked to broader Download English Version:

# https://daneshyari.com/en/article/7470572

Download Persian Version:

https://daneshyari.com/article/7470572

Daneshyari.com