Resilience and Recovery Among Farmers in Puerto Rico’s Mercados Agrícolas After Hurricane María

Introduction

On September 20, 2017, Puerto Rico was hit by the strongest hurricane of the last hundred years. Hurricane María was an unprecedented climatological disaster, which devastated farms across Puerto Rico. The project at hand collected and analyzed primary-source information about the effectiveness and reach of agricultural programs and policies to recover from a climatological disaster (3) build resilience among farmers and (4) enable them to return to markets ecological agriculture in Puerto Rico. The transition from a predominantly agricultural economy to an urbanized country that is heavily dependent on the manufacturing industry began in the 1940s with a set of policies that orchestrated the shift that has since outlined the political and economic transformation. This transformation was drastic, and it resulted in the almost complete abandonment of agriculture in the island.渐进地, Puerto Rico has lost control of its food supply, 80% of which is currently supported. The resulting deterioration of its food security reached its peak when 80% of all agricultural crops were destroyed after the hurricane and food insecurity among residents spread across socio-economic groups.

Climate change exposes communities’ vulnerability to food insecurity and events like Maria are expected to increase in frequency and magnitude. Since the 1970’s a two-prong movement has interacted lasing of political independence and ecological conservation on the island, parallel to similar movements in South America. The agro-ecological movement highlights the use of agricultural practices that apply permaculture to maintain biodiversity and promote soil conservation. Contrary to conventional agriculture, the movement centers its work on social equity, using food as a mechanism of sovereignty. By obtaining primary-source data from a sample of the agro-ecological farming community in Puerto Rico, this project aims to provide a preliminary perspective of the potential impact of agro-ecological practices in food systems resilience in Puerto Rico.

Methodology

Participant Enrollment

This study was conducted in various cities in Puerto Rico. The farmers selected were based on participant enrollment. The recruitment process of the study participants began with a consultation with a key-informant SKO of the agro-ecological farming community of Puerto Rico, who led Puerto Rico’s largest agro-ecological cooperative, Cooperativa Orgánica Madre Tierra. Madre Tierra is owned by growers, producer, and consumers committed to the cultivation, marketing, and consumption of agro-ecological products. The SKO was extremely helpful in identifying members of the community who play a critical role in the agro-ecological farming movement in Puerto Rico. They were able to provide the agro-ecological farmers with experience with the practical experience in Puerto Rico, community engagement, and here contributed greatly to the development of the movement on the island. The farmers varied by age, gender, and location of their farms.

Institutional approval using ethical methods, involving the research participant and participant and informed consent is central to the research. We also participated in a brigade that was organized in Puerto Rico where in-depth interviews were conducted with 32 farmers and 5 leaders and organizations using an interview guide and were audio recorded with the consent of the respondents.

Data Analysis

The information collected during the community observations was recorded through detailed field notes. The analysis of the observations was informal and did not include a personally generated checklist. The recording of the interviews were reviewed and coded using deductive and inductive reasoning. The data was categorized to reflect the themes and patterns that arose from the respondents. The analysis of the data was an iterative process that included discussions and feedback from farmers, policy makers, and key stakeholders, which led to further analysis.

Ethical Standards Statement

Each participant was audio recorded with the oral consent of each respondent and all identifying information was anonymized to preserve the identity of the respondents. This study was conducted as part of a graduate student research fellowship program and funded by the Tufts Institute of the Environment. This study has been reviewed by the Tufts Health Sciences IRB.

Findings

The observations and in-depth interviews demonstrated three central themes: agroecology and resilience, informal networks, and a lack of government support. A total of 37 in-depth interviews were conducted. Observations were collected at the Mercado Agrícola de Santa Elena and the Mercado Agrícola de Plaza las Americas. The interviews were conducted with either retired professionals or new and young farmers. The farms were commonly run by families, often a couple. Almost all of the farmers we interviewed said that farming was their main source of income and how they supported their families. Most of the in-depth interviewees were at the agro-ecological farmers. There are an agro-ecological farmer markets as a place where people can access healthy locally grown foods, share knowledge, and gather as a community. After the hurricane many of the agro-ecological farmers were quick to recover and to rebuild. This study was a feedback spiral and a tool to understand the broader impact on the agricultural community. This included, a diversity of crops, nurturing of soil health, lack of dependence on external inputs, and a strong network.

W e interviewed ecological farmers who said they had received an agro-ecological support if they were not registered, did not qualify for government funding, or that the process was too arduous and confusing. The greatest amount of political, emotional, and financial support came from informal networks, such as local community organizations, volunteers, and fellow farmers. Community organizations, such as Viento Alto, created a fundraising campaign with the help of Farm Aid, called Save our Puerto Rico to reinvigorate the agriculture. Almost every farmer we interviewed this funding and expressed that this assistance was paramount to their recovery. Apart from funding, local organizations supported the creation of a database of agro-ecological farmers and community members that banded together each week to assist the farmer with whatever need they had such as planting, harvesting, or clearing. We were lucky enough to be invited to a brigade, where we assisted the farmers with plant and recruit the labor for a brace planting.

Independent economic foundations to the Boro Puerto Rico Fund and distributed to agro-ecological farmers who were participating in mercados were reported as the principal mechanism of relief for farmers. The quick distribution of funds ($4,000 per farmer over a year) was identified as key factors for keeping the sampled farmers engaged in farming activities and farming.

The interviews captured through this research are stories of success, gratitude, and optimism. The agro-ecological movement in Puerto Rico has regained the momentum it was experiencing prior to hurricane María and some farmers reported having turned to agriculture as a result of the hurricane. The following are observations offered for consideration as to how they might strengthen this progress.

• It is important that the movement among agro-ecological farmers has dis- incentivized their registration with the USDA’s Food Registration, an independent census of agroecological farmers may be a suitable alternative to characterize agro-ecological farmers by operation size, productivity, and changes over time. This information would help establish a historical record, would allow for further research and support resource allocation.

• To build upon the collaborative spirit developed among farmers post Maria, strategies that develop sector-wide organizations and collaboration can help transition the movement from one that is based on shared ideals to one that gains broad recognition and can leverage collective power. Low cost would recognize such collective and would grant power over government resources, if properly organized.

• Consensus among ecological farmers with processing streams can help develop their business and provide added market flexibility. Infrastructural development as well as the promotion of farming activities as opportunities for entrepreneurial innovation could help foster this development. Current processing sites lack human resources to promote outreach or facilitate market for facility transfer of products.

Study Limitations

This study had a diverse group of participants, but it was not representative sample, because of the limited number of participants and the specific focus on the agro-ecological sector of the agricultural system in Puerto Rico. It would be useful to use a wider set of perspectives to understand the broader impact on the agricultural community. The timing of the study was also limiting, we only had three weeks to collect data and it was a busy time in the season for the farmers. Many of the interviews were conducted at the farmers markets, which limited our ability to interact with the participants fully at a time.

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