



# CARE-Cargill: Nourishing the Future

Final

Report





# FINAL REPORT

## Introduction

### Program Background

This is the final report for the CARE-Cargill global program with funding support from Cargill, Inc. For more than fifty years, Cargill and CARE have shared a commitment to promote opportunity and create lasting change for families living in extreme poverty. After a successful five-year phase of programming from 2008 until 2013, Cargill provided \$7,550,000, funding seven country projects globally: Ghana, Cote d'Ivoire, Egypt, Guatemala, Honduras, Nicaragua, and India. The newest phase of this global partnership, implemented from September 1, 2013 until August 31, 2016, built on many of the achievements from the first phase of programming while establishing new initiatives to meet our program goal: *prosperous and resilient communities*. The program has four main components based on the following intermediate outcomes:

- ◇ **Increased quantity and quality of production**
- ◇ Key intervention: Building the production capacity of smallholder farmers in the supply chain
- ◇ **Increased access to equitable markets**
- ◇ Key intervention: Connecting producers to equitable markets
- ◇ **Increased food security and nutrition**
- ◇ Key intervention: Promoting food and nutrition security within communities
- ◇ **Well-governed and thriving communities**
- ◇ Key intervention: Addressing issues of governance, hazardous child labor, and education

The following report will evaluate the impact of *Nourishing the Future* in Guatemala, Honduras, and Nicaragua.

# Program Summary

## Rationale and Justification

**Central America** has recently experienced economic growth but has struggled to reduce poverty rates and food insecurity. Thirteen percent of the population in Central America is malnourished and the proportion of people living below the \$1.25/day is a staggering 48%. Food insecurity and poverty in this region are rural phenomena, concentrated within two population groups: small rural producers and indigenous peoples or Afro-descendants. Nearly three of every five people in rural areas live in poverty, and three out of 10 live in extreme poverty.

Underlying causes of poverty:

- ◇ High vulnerability to climate change related stresses and shocks
- ◇ Lack of financial capital, specifically for indigenous and poor communities in rural and urban areas
- ◇ Limited awareness regarding healthy nutrition practices
- ◇ Limited economic opportunity
- ◇ Inequitable participation in decision-making processes between men and women

According to the World Bank, **Nourishing the Future** regions across Nicaragua, Guatemala, and Honduras are characterized by similar figures, with poverty rates of 29.6, 59.29, and 62.8 percent respectively. Rural poverty is considerably higher, with rural poverty rates of 50.1, 76.1, and 65 percent respectively. Nearly 15 percent the population in all three countries is undernourished.

## Nourishing the Future

### Project Goals, Implementation Strategies, and Results Highlights

Nourishing the Future (NTF) is a regional project implemented in three countries across Central America. The project aims to foster more prosperous and resilient farming communities across some of the most marginalized communities in Guatemala, Honduras, and Nicaragua. Through an integrated, community-based approach, NTF implemented a three-year project using the following strategies:

- ◇ **Improving Agricultural Production Capacities:** extension service delivery, training in good agronomic practices (across seven value chains including yellow and white maize, red beans, sorghum, green beans, blackberries, peas and soy), facilitating access to inputs for farmers, strengthening farmer collective performance
- ◇ **Connecting Micro-entrepreneurs and Farmers to Markets:** linking farmers to formal private-sector business supply and distribution chains (Cargill), training in organization and business management skills for farmer and micro-entrepreneur collectives, and bridging the gap between collective groups and formal/informal markets
- ◇ **Improving Knowledge, Skills and Practices Regarding Nutrition:** social and behavior change communication in primary schools, cooking demonstrations, developing cookbooks, community, homestead, and school Gardening, and training in healthy nutrition practices for school children, teachers, and community leaders
- ◇ **Fostering Well-governed Communities:** training for community and municipal leaders on food and nutrition security, advocacy for incorporating NTF best practices into community and municipal agendas, and gender training within collective groups



The Nourishing the Future project was able to successfully reach the following results during the life of the project, from September 1, 2013 until August 31, 2016:

- ◇ **Increased income:** Households in Guatemala and Honduras *more than doubled their income*, with income increasing by 22.5% in Nicaragua.
- ◇ **Greater access to credit:** In Guatemala and Honduras, the proportion of farmers who improved their access to credit increased by 2.3% and 14% respectively. In Honduras, access to credit increased by 37.2% among women micro entrepreneurs.
- ◇ **Improved production:** In Guatemala, there was a 13.8% increase in green bean yield, a 2.9% increase in black berry yield, and a 3.6% increase in pea yield. *In Honduras yellow maize yield increased more than five-fold*, with white maize yield increasing by 16% and red bean yield by 23%. Sorghum production in Nicaragua increased by 32.5%.
- ◇ **Healthier diets:** Dietary diversity increased by 16.6% in Guatemala, 45% in Honduras, and 20.1% in Nicaragua. In Nicaragua, 90% of households were eating the minimum threshold of 7 food groups.
- ◇ **More food secure households:** Household *food insecurity was halved in Guatemala*, decreasing from an average of 5 months of food insecurity to 2 months at end line. In Honduras and Nicaragua food insecurity was reduced by 19% and 13.69% respectively.

Contributing factors to these successes include:

- ◇ **Stronger linkages to markets:** Connecting sorghum and yellow maize to Cargill's supply chain resulted in the sale of 100% of Nicaragua's sorghum production and 89.3% of Honduras's yellow maize production.

In Guatemala, farmers ***sold 12 times more green beans, 4 times more blackberries, and 8 times more peas to local markets*** compared to baseline. Farmers in Honduras sold 4 times more white maize and 4.2% more red beans by the end of the project.

- ◇ **Created broader access to inputs:** Farmers in Guatemala, Honduras, and Nicaragua increased their access to inputs by 27.8%, 25.7%, and 34.8% respectively.
- ◇ **Better agricultural practices:** The number of farmers using agricultural techniques that will help them improve their production ***doubled*** in Honduras and Nicaragua. There was 26.1% increase in Guatemala, with 95% of the farmers applying improved practices.
- ◇ **Involving children and schools:** The project used 63 schools as a platform for nutrition promotion, training teachers and students on optimal nutrition practices and providing opportunities for broader community engagement. Communities were given access to 61 school vegetable gardens, a mechanism the project used to disseminate information regarding the importance of fruit and vegetable consumption.

With these findings as supporting evidence, the project made significant progress toward the goal of prosperous and resilient communities. Despite long periods of drought, families were able to avoid farm related losses. Farmers and micro entrepreneurs also cited investing more money in their homes and their businesses. In Guatemala and Honduras almost all farmers have established a new business, 95% and 88% respectively. Families across all three countries have demonstrated their ability to manage climate-related stresses, generating both more income and higher quantities of agricultural production. They have access to more assets, capacities, financial capital, and services that will continue to provide them with a safety net in the event of unforeseen shocks and stresses.

## Stakeholders

### CARE, Government, Local Institutions, and Private Partners

#### Government of Guatemala, Honduras, and Nicaragua

The Government of Guatemala, specifically the Secretariat for Food and Nutrition Security, Ministry of Agriculture, Livestock, and Food, Ministry of Economy, Ministry of Public Health and Social Assistance, and Ministry of Education were main partners in the project. The Government of Honduras, specifically the Secretariat of Agriculture and Livestock and the Secretariat of Education on national and municipal levels were main partners of the project. The Government of Nicaragua, specifically the Nicaraguan Institute of Agricultural and Livestock Technology, Institute for the Protection and Health of Agriculture and Livestock Farming, Ministry of the Family, Community, Cooperative, and Associative Economy, and Ministry of Education were main partners in the project. The National Autonomous University of Nicaragua was also a main partner in facilitating the development of nutrition promotion materials and curricula for beneficiary schools.

#### CARE Guatemala, Honduras, and Nicaragua

CARE Guatemala, CARE Honduras, and CARE Nicaragua were the lead implementing organizations for the project in Central America. The country offices were responsible for the following:

- ◇ Coordinated project activities with its government counterpart at national and district levels;
- ◇ Provided technical support and training to project partners and community groups;
- ◇ Developed annual work plans, compiled reports for monitoring budget and project progress;
- ◇ Monitored risks associated with the delivery of the program and their impact on the project activities.

#### Cargill Central America:

Cargill Central America played an important role in the success of the project in the following ways:

- ◇ Leveraging their connections with governments and business partners;
- ◇ Encouraging Cargill employees to actively volunteer in all phases of the project;
- ◇ Connecting farmers to the Cargill supply chain;
- ◇ Supporting public relations and communications efforts through media outreach.

**CARE USA**

CARE USA held legal responsibility for the project, abiding by all contract terms and conditions. This included:

- ◇ Maintaining contact with Cargill and other donors, project management, administration, implementation and quality assurance
- ◇ Provided support to country office teams to implement the project’s strategies and achieve overall goals
- ◇ Provided oversight of project monitoring, reporting on results and lessons learned
- ◇ Facilitated knowledge sharing across projects
- ◇ Provided technical support on agriculture, nutrition, gender equality, and project monitoring and evaluation

**Beneficiaries**

The project in Central America was implemented in three countries (Guatemala, Honduras and Nicaragua), in 66 impoverished rural communities in twelve municipalities throughout the region including: Masaya, Nindiri, Tipitapa, Ticuantepe, Chinandega, El Viejo, San Martin Jilotepeque, San Juan Colapa, Zona 3 Ciudad Guatemala, Villa Nueva, Santa Cruz de Yojoa, and Siguatepeque. NTF worked with the follow groups:

- ◇ **children and their families**
- ◇ **women micro-entrepreneurs**
- ◇ **men and women farmers**

COUNTRY	FARMERS	WOMEN MICRO-ENTREPRENEURS	SCHOOL CHILDREN	TOTAL NO. DIRECT BENEFICIARIES	TOTAL NO. INDIRECT BENEFICIARIES
Guatemala	755	0	5,688	6,443	153,613
Honduras	475	306	6,390	7,171	32,889
Nicaragua	315	158	5,454	5,927	33,205
<b>Total</b>				<b>19,541</b>	<b>219,707</b>

**Governance Structure**

General support and oversight of the projects was provided by CARE USA, with project delivery and decision-making jointly shared between CARE USA, CARE Guatemala, CARE Honduras, and CARE Nicaragua. All full-time staff associated with the projects, with the exception of a global Monitoring and Evaluation Officer, were based in Guatemala, Honduras, and Nicaragua and were recruited locally. They were based in either CARE’s country office headquarters or field offices in the respective regions of the interventions, and worked closely with strategic public and private-sector partners at the regional, district, and local level. **NTF** was supported in its operational, technical and financial management efforts by CARE Guatemala, Honduras, and Nicaragua’s Country Director and Assistant Country Director. The project was led by a Project Manager in each country, and implemented by seven food and nutrition security specialists, seven agriculture technical specialists, three M&E Officers, one communications officer, two entrepreneurial specialists, one administrative staff, one program officer, and two municipal liaisons in close coordination with their government counterparts at all levels.

## Evaluation Design

### Sampling

To assess the change in key outcome and impact areas as well as critical change levers, a mixed-methods approach was adopted. The end line evaluation employed a combination of quantitative and qualitative methods to assess project achievements as well as to gain an in-depth understanding of the underlying factors contributing to any observed changes. The methodology used thus facilitated the assessment of the magnitude of project performance as well as insights into why the project interventions produced the observed changes. A mix of probability and non-probability sampling techniques were employed. Under these methods, a representative sample of farmers was reached with a quantitative survey while focus group discussions and key informant interviews were held with farmers and other stakeholders to validate key findings in the quantitative survey results and gauge the extent of contribution of the project inventions on the observed impact. To ensure that the sample size was representative and generalizable to the target population, we undertook the stratified simple random sampling approach, proportionate to the size of the population. The sample was based on a 90% precision, 80% power, 2% expected non-response rate and 5% lost in follow-up. The sample was a stratified multi-stage sample. The surveys were “beneficiary-based” drawn randomly from sample frames composed of all households with farmer collective members, women entrepreneurs, or children in beneficiary schools. The three operational countries: Guatemala, Honduras, and Nicaragua are represented in the strata of the study. The stratification allowed a comparison of project impact between and within countries. The sample size for each impact group by country is described below.

COUNTRY	IMPACT GROUP(S)			TOTAL NO. SAMPLED
	Farmers	Women Micro-entrepreneurs	Households with school children	
Guatemala	203	-	364	567
Honduras	133	59	551	743
Nicaragua	120	76	404	600
Total				1,910



## Performance Assessment

### Project Implementation

#### Output 1.1: Field schools and demonstration plots organized with farmers

The project aimed to increase the knowledge of 1,102 farmers across 7 value chains through trainings in good agricultural practices. Field schools and demonstration plots were used to promote a core set of agricultural practices including pest management, minimum tillage, soil health management, organic fertilizer application, crop rotation, and utilization of improve seed varieties.

Indicator	Country	Disaggregates	Total Project
# of m/f farmers trained in good agricultural practice through field school and demonstration pots	Guatemala	409 m, 358 f	767
	Honduras	143 m, 20 f	163
	Nicaragua	103 m, 69 f	172
	<b>Total</b>		<b>1,102</b>

### Output 1.2: Farmers reached with extension services regarding good agronomic practices

The project contributed to 1,077 farmers accessing technical assistance, high-yielding seed varieties, and new technology. Farmers learned about several key topics including best planting practices, fertilizer application, and how to use new farming technology.

Indicator	Country	Disaggregates	Total Project
# of m/f farmers reached with extension services	Guatemala	399 m, 356 f	755
	Honduras	143 m, 20 f	163
	Nicaragua	103 m, 56 f	159
	<b>Total</b>		<b>1,077</b>

### Output 1.3: Agricultural inputs provided to farmers

Improved seed varieties, organic fertilizer, herbicides, pesticides, and mechanization services were provided to farmers across Guatemala, Honduras, and Nicaragua reaching 954 farmers. The project also supported farmer collectives in creating and maintain a revolving fund so that farmers could have greater access to inputs.

Indicator	Total Project
# of m/f farmers provided with agricultural inputs	954

### Output 1.4: Farmer collectives trained on effective business management, financial management, and good governance

CARE worked with farmer collectives to improve internal operations and strengthen their governance structures. The project trained the collectives on how to manage accounting within the group and comply with laws and guidelines of larger regulating bodies as they relate to agriculture. Collectives were also educated on the importance of maintaining a democratic election system of board directors as well as including women in both leadership and membership in the collectives themselves.

Indicator	Country	Total Project
# of farmer collectives trained on effective business management, financial management, and good governance	Guatemala	5
	Honduras	4
	Nicaragua	7
	<b>Total</b>	<b>16</b>

**Output 2.1: Farmers and women micro-entrepreneurs trained on business, financial management and market linkages**

From 2013 until 2016, 1,519 farmers and women micro-entrepreneurs were educated in market access and financial services. Specifically, the project build the capacity of producers to more effectively negotiate contracts and to comply with quality standards for sale to CARGILL and local markets. CARE also worked with producers to increase their knowledge regarding what financial services are available, how to access loans, and how to manage repayment of loans to promote access to credit among small-holder rural producers and micro-entrepreneurs, who have no access to formal banking. Additionally, Nourishing the Future supported producer collectives in developing linkages with financial institutions. Across the region, 839 managers of associative organizations, farmers and micro entrepreneurs participated in trainings regarding how to access formal and informal financial services.

Indicator	Country	Disaggregates	Total Project
<b># of m/f farmers and women micro-entrepreneurs trained in access to markets, business, and financial management</b>	Guatemala	429 m, 392 f	821
	Honduras	125 m, 332 f	457
	Nicaragua	29 m, 212 f	241
	<b>Total</b>		<b>1,519</b>

**Output 3.1: Community members educated on optimal nutrition practices and ways to address food insecurity**

Through a primary school intervention model, students, teachers, parents, and community leaders across 63 schools and 66 communities were educated on optimal nutrition practices and ways to address food insecurity through trainings on healthy eating habits, the importance of nutritious foods, food hygiene, clean water, nutritional recipes and causes and prevention of malnutrition. The project engaged 25,823 people in all 3 countries with nutrition education activities including food demonstrations, nutrition games, community theatre events, as well as establishing school and community gardens

Indicator	Country	Disaggregates	Total Project
<b># of m/f community members educated on optimal nutrition practices and ways to address food insecurity</b>	Guatemala	3,384 m, 5,387 f	8,771
	Honduras	1,633 m, 1,523 f	3,156
	Nicaragua	6,458 m, 7,438 f	13,896
	<b>Total</b>		<b>25,823</b>

**Output 3.2: School gardens established and food demonstrations organized with primary schools and farming communities**

With the participation of 4,867 parents of children from schools, farmers, micro-entrepreneurs, and community leaders the project implemented trainings and demonstration workshops on good nutrition practices. Key topics included the importance of animal protein, fruit, and vegetable consumption as well as safe food preparation through foods demonstrations and school gardens. Communities were educated on best gardening practices and how applying that knowledge in practice relates to and improves nutrition.

Indicator	Country	Disaggregates	Total Project
<b>Total # of m/f children, farmers, micro entrepreneurs, and community leaders participating in food demonstrations in school gardens</b>	Guatemala	369 m, 2,472 f	2,841
	Honduras	550 m, 184 f	734
	Nicaragua	98 m, 1,194 f	1,292
	<b>Total</b>		<b>4,867</b>
Indicator	Total Project		
<b># of school gardens established</b>	<b>61</b>		

### Output 3.3: Teachers trained on core nutrition practices and nutrition curricula

The project trained 575 teachers and directors of 63 schools in the 3 countries, in core nutrition practices, food and hygiene habits, and participatory teaching methodologies for children including nutrition learning games. With the Ministries of Education, the project published guides to facilitate the integration of nutrition and food security promotion into broader academic curricula. The teachers, integrating the food security and nutrition education into their curricula, educated 14,061 students on good nutrition practices and food security issues within the community.

Indicator	Country	Disaggregates	Total Project
<b># of m/f teachers trained in nutrition and food security</b>	Guatemala	114 m, 128 f	242
	Honduras	22 m, 78 f	100
	Nicaragua	28 m, 205 f	233
	<b>Total</b>		<b>575</b>
<b># of m/f students trained in nutrition and food security</b>	Guatemala	2,901 m, 2,787 f	5,688
	Honduras	1,423 m, 2,919 f	2,919
	Nicaragua	2,837 m, 2,617 f	5,454
	<b>Total</b>		<b>14,061</b>

### Output 4.1: Community leaders and collective group members educated on gender inequality and food insecurity issues

A variety of capacity building trainings were performed with 4,272 people, including leaders from community and municipal groups to bring awareness to existing gender inequality and food and nutrition security issues in the region. The trainings focused on highlighting the importance of incorporating food and nutrition security and gender sensitive plans into local agendas. Round tables were coordinated with representatives of municipal governments to address issues of gender inequality and to develop municipal gender policies. The project also facilitated gender trainings with 5,065 people across farmer and micro-entrepreneur collectives and community groups to promote the inclusion of women in leader positions, organize gender committees within communities, and develop behavior change plans with leaders of community organizations and municipal governments. Key topics included food and nutrition security, women's rights, gender roles and participation and involvement of women in the community. (See table on next page)

Indicator	Total Project
# people trained on food and nutrition security and gender	4,272
# community group leaders and members trained on women's inclusion	5,065

## Program Outcomes

### Objective 1: Increased quantity and quality of production

#### IO 1.1 Increased application of good agronomic practices and new technologies

Indicator		Baseline	End line	Target	% Difference
% of farmers who have applied new technologies and/or management practices promoted by the program in the last 12 months	Guatemala	69.0%	95.10%	86.25%	+(26.1%)
	Honduras	47.3%	99.6%	55%	+(52.3%)
	Nicaragua	13.4%	25.7%	47.3	+(12.3%)

NTF sought to improve the knowledge of farmers and promote the uptake of improved technologies and practices through agricultural production capacity building, in an effort to increase agricultural productivity. Some of the promoted agricultural practices and technologies include crop rotation, mulching, application of organic fertilizer or compost, minimum tillage, erosion control, use of improved irrigation technology, strip cropping, planting cover crops, and utilization of improved seed varieties. Overall, the end line evaluation shows an increase in application of promoted agronomic practices and technologies across all three countries. In Honduras and Nicaragua, adoption of promoted agricultural practices nearly doubled, increasing by 52.3% and 12.3% respectively. Across both countries, uptake of organic fertilizer application and composting increased by more than 2.5 times. In Honduras we observed a dramatic increase in the proportion of farmers using new irrigation technologies and 100% of farmers in Nicaragua reporting utilization of improved seed varieties as end line. Similarly in Guatemala, there was a 26.1% increase in application of new technologies and optimal agricultural management practices, with 95.1% of farmers having adopted at least one project promoted practice by the end of the project. More farmers reported using improved seed varieties as well as new irrigation technologies. Across all three countries, farmers reporting crop rotation as an agricultural activity increased between 12-32.3%.

Agronomic Practices	Guatemala		Honduras		Nicaragua	
	Baseline	End line	Baseline	End line	Baseline	End line
Minimal tillage	38.8%	70.1%	78.1%	27.5%	75%	46%
Mulching	26.2%	47.8%	20.1%	2.2%	26.8%	0%
Crop rotation	17.5%	49.8%	38.5%	50.5%	52.7%	85%
Cover crops	5.5%	25.4%	16%	13.2%	16%	14.8%
Application of Organic Fertilizer & Composting	45.7%	38.8%	15.4%	53.8%	27.7%	70.5%
Strip cropping	56%	25.9%	24.9%	0%	25.9%	0%
Improved seed utilization	14.7%	35.8%	16%	1%	30.4%	100%
Irrigation technologies	14.1%	45.3%	1.8%	67%	11.6%	0%
Soil erosion control	9.3%	22.9%	29%	44%	15.2%	0%



### IO 1.3 Increased access to agricultural input

Indicator	Country	Baseline	End line	Target	% Difference
% of farmers who improved their access to agricultural inputs	Guatemala	68.8%	96.6%	85.38%	+(27.8%)
	Honduras	71.3%	97%	80%	+(25.7%)
	Nicaragua	58.9%	93.7%	80.0%	+(34.8%)

NTF also provided support to farmers through increasing access to different types of agricultural inputs, such as land, seed, agricultural tools, machinery, fertilizer, and insecticide to improve their agricultural productivity. On average, farmers in Honduras, Guatemala, and Nicaragua improved their access to inputs by 25.7%, 27.8%, and 34.8% respectively. This is calculated based on having access to inputs and how the inputs were accessed (rents, borrowed or owned). Farmers reported having greatest access to land, seeds, and tools, however, low rates of access to machinery and other inputs such as herbicides, insecticides and pesticides still limit farmers across the region. Individuals are also more frequently reporting ownership of inputs, as opposed to renting or borrowing. In contrast, there is evidence of access disparities between men and women farmers across Guatemala and Nicaragua. Women in **Guatemala**, for example, were half as likely to report having access to seeds and tools when compared to male respondents. Disparities in access to land were also prevalent between men and women, with 15.5% less women reporting access to land. In **Nicaragua**, of the farmers who reported not accessing inputs in the last 12 months, 74.8% of them were women. Access disparities between men and women in Honduras was unexpected, with women reporting greater access to land, tools, and machinery. That being said, the sample of women producers with access to inputs was extremely small in relation to the sample size of men, 28 women compared to 110 men, and may have skewed these results.

Country	Access to:				
	Land	Seeds	Tools	Machinery	Other Inputs
Guatemala	75.1%	59.6%	54.9%	3.8%	24.4%
Honduras	25.4%	72.5%	36.2%	10.1%	10.9%
Nicaragua	36%	35%	22.5%	12.5%	1.5%
Gender					
Guatemala (m)	81.8%	75.2%	70.2%	3.3%	20.7%
Guatemala (f)	66.3%	39.1%	34.8%	4.3%	29.3%
Honduras (m)	18.2%	73.6%	30.9%	8.2%	13.6%
Honduras (f)	53.6%	67.9%	57.1%	17.9%	0%
Nicaragua (m)	67.7%	63.1%	46.2%	32.3%	4.6%
Nicaragua (f)	20.7%	21.5%	11.1%	3%	0%

Despite these remaining access inequities, farmers were particularly motivated by the provision of improved seeds and access to agricultural machinery.

**Improved seeds:**

◇ “We tried with improved seeds, it rendered well and it was marvelous to see such great quantity [yellow maize]”

**Access to machinery:**

◇ “We used a machine to prepare the soil for planting and it has been a blessing because CARE has helped the group.”



## Ultimate Outcome 1: Increased Quantity and Quality of Production

Indicator	Country	Value Chain	Baseline	End line	Target	% Change
Yield per unit of land (tons/ha)	Guatemala	Green Beans	7.3	8.31	8.03	+(13.8%)
		Blackberries	16	16.46	17.6	+(2.9%)
		Peas	7.7	7.98	8.47	+(3.6%)
	Honduras	Yellow Maize	.7	4.12	2.72	+(488.6%)
		White Maize	1.56	1.81	1.80	+(16%)
		Red Beans	.65	.80	.65	+(23%)
Total quantity in tons of agricultural production by farmers supported by the program	Nicaragua	Sorghum	2	2.65	3.24	+(32.5%)
		Green Beans	298	503.99	327.8	+(69.1%)
	Guatemala	Blackberries	384	597.58	422.4	+(55.6%)
		Peas	40	112.16	44	+(180.4%)
Honduras	Yellow Maize	4.6	384.9	171.4	+(8267.4%)	
	White Maize	111.9	892.9	171.4	+(697.9%)	
	Red Beans	31.9	178	45.1	+(458.0%)	
Nicaragua	Sorghum	61.16	212	777.8	+(246.6%)	

Despite erratic rainfall patterns, climate variability, and devastating drought, all NTF farmers reported increases in average yield per hectare as well as the total quantity in tons produced by all project supported farmers. Some value chains observed greater increases than others, specifically yellow and white maize. Although Nicaragua did not achieve its target production in both yield per unit of land and total quantity of agricultural production, NTF sorghum production was 45% higher than the national average (1.82 tons/ha). Farmers attributed minimal gains in yield to El Niño related drought.

In order to achieve increased agricultural production, the project promoted the use of improved seeds, increased access to inputs and services, and invested in capacity building around key agronomic practices and new technologies. These approaches, combined with climate change adaptation and gender programming, are critical in achieving these levels of productivity across all seven value chains. The intervention package built farmers' capacity to improve their agricultural productive despite unfavorable environmental conditions— a demonstration of resilience across the project farmers. NTF provided small-scale farmers with the knowledge, services, and tools necessary to thrive in situations that would otherwise position them to fail. These results demonstrate that farmers can excel in variable environmental and economic conditions when they can access the capacities and productive assets to manage unforeseen stresses like El Niño.

**“..in relation to the production of corn, I’ve been able to produce more...now it is double because of the techniques that we applied to corn and the variety of corn.**

## IO 2.1 Improved financial management knowledge regarding saving and borrowing among farmers and micro entrepreneurs

Indicator	Country	Baseline		End line		Target		% Difference	
		F	M	F	M	F	M	F	M
Average financial literacy score of farmers (F) and micro entrepreneurs (M)	Guatemala	29% (F)		64.5% (F)		40.5% (F)		+(35.50%) (F)	
	Honduras	37%	28.5%	49%	67%	38%	31.5%	+(12%)	+(39%)
	Nicaragua	60%	59.5%	51.5%	73.5%	75%	75%	-(9%)	+(14%)
Average business literacy score of farmers (F) and micro entrepreneurs (M)	Guatemala	14.85% (F)		33% (F)		53.85% (F)		+(18.15%)	
	Honduras	26.4%	29.9%	76.8%	86.5%	35%	35%	+(50.40%)	+(56.6%)
	Nicaragua	-	41.1%	-	100%	-	60%	-	+(58.9%)

**Financial literacy:** This indicator is based on two criteria: i) objectives for saving and ii) knowledge regarding how to access credit. The data shows significant differences between all three countries. Average financial literacy scores increased by 39% and 14% among micro entrepreneurs in **Honduras** and **Nicaragua**, respectively. This indicates that knowledge regarding savings and borrowing mechanisms increased among women micro entrepreneurs in the two project countries working directly with this impact group. Women micro entrepreneurs are more aware of how to access credit and the benefits of doing so. Similar results were observed among project farmers, with a two-fold increase in average financial literacy scores in **Guatemala** and a 12% increase in **Honduras**. In **Nicaragua**, however, there was a 9% decrease among farmers.

Farmers and micro entrepreneurs reflected positively on the financial knowledge and skills promoted by the project, specifically regarding record keeping.

**“I have learned that you take in to account what you spend and through that I learned to fund what I sow...before you planted beans differently and now you plant according to [certain] techniques and how to finance beans and to keep track of what you gain and what you loose”**

**Business literacy:** This indicator measures the knowledge that women and men producers and micro-entrepreneurs have regarding how to expand, start, and maintain a business. It assesses knowledge of certain skills, specifically regarding calculating profit and setting the appropriate price of the product or service. There was a significant increase in relation to the baseline across all project countries among farmers and women micro entrepreneurs.

In **Guatemala**, there was an 18.15% increase in average business literacy scores among farmers and **Honduras**, average business literacy scores were 2.9 times higher than at baseline across both impact groups. In **Nicaragua**, scores were 2.4 times higher than at baseline among micro entrepreneurs, with no data available for farmers. These results present substantial increases in the level of understanding regarding key business and marketing practices in agricultural and entrepreneurship.



**“I feel more lively because now I know how to take control of my account, of my business earnings and over everything, how to administrate everything and be able to use it.”**

## IO 2.2 Increasing access to savings, loans, and other sources of credit

Indicator	Country	Baseline		End line		Target		% Difference	
		F M	F M	F M	F M	F M	F M	F M	
% of farmers and micro entrepreneurs with access to at least one form of financial service	<b>Guatemala</b>	38.4% (F)		39.9% (F)		42.2% (F)		+(1.5%) (F)	
	<b>Honduras</b>	55.5%	53.8%	71%	91%	65%	60%	+(15.5%)	+(37.2%)
	<b>Nicaragua</b>	78%	85%	58.3%	75%	-	-	-(19.7%)	-(10%)

Smallholder farmers require timely access to short-term finance for fundamental inputs including seeds, agrochemicals, machine services, transport, labor, and fuel in order to maximize their productivity. High input costs are often incurred before harvesting, a barrier that leads farmers to take loans to cover the pre-harvest costs. Due to the financial risks, this type of finance is often unavailable to farmers and can limit the productivity and quality of their production, not to mention their capacity to adopt better technologies and expand their businesses. The project has focused on improving knowledge of financial management and available financial resources while increasing access to financial services among small scale farmers. The strategies employed were mainly financial and business management training and linking producers to formal and informal financial services including local banks and *Cajas Rurales*, cooperatives in Honduras with an incorporated savings component. Overall, the proportion of farmers who reported accessing at least one form of financial service in the last 12 months was variable across the region.

In **Honduras**, access to financial services increased among farmers as well as women micro entrepreneurs, the latter exhibiting the most significant change with 37.2% more women entrepreneurs reporting access to financial services. Conversely, **Nicaragua** reported significant decreases in access to financial services among both farmers and micro entrepreneurs. The disparity in access in Nicaragua has been attributed to several factors including poor business management and legal issues across cooperatives in Nicaragua. While **Guatemala** reported an increase, the 1.5% change was minimal and less than expected. Focus group discussions highlighted fear of debt as a barrier to accessing financial services. Guatemalans prefer investing in their farms rather than taking loans and further indebting themselves.

Savings Mechanisms	Guatemala		Honduras		Nicaragua	
	Baseline	End line	Baseline	End line	Baseline	End line
<b>Bank</b>	22.2%	40%	28.2%	36.8%	23.5%	38.3%
<b>Microfinance institution</b>	0%	0%	1.7%	0%	2.9%	0%
<b>Savings cooperative</b>	0%	0%	11.6%	3.5%	11.8%	9.9%
<b>At home</b>	44.4%	57.8%	2.2%	5.3%	61.7%	48.2%
<b>With friends and family</b>	33.3%	2.2%	0%	1.8%	0%	1.2%
<b>Local “comerciantes”</b>	0%	0%	0%	0.9%	0%	0%
<b>Cajas rurales</b>	0%	0%	56.4%	51.8%	0%	1.2%

In all three countries savings through formal banks increased between 8.6%-17.8%, from 22.2% to 40% at end line in Guatemala, from 28.2% to 36.8% in Honduras, and from 23.5% to 38.3% in Nicaragua. Farmers described revolving funds within collective groups and *Cajas Rurales* as a valuable service provided by the project, providing opportunities to more

broadly access informal financial services.

**“A fund was created and we’re using it like a revolving fund...We’re not going to fall into the hands anymore of those who sell agricultural chemicals or loan sharks. Nor the banks or the financiers...”**

Access to financial capital and financial management education has transformed how NTF beneficiaries are thinking about the future, with savings objectives changing dramatically from the beginning of the project. For example, the proportion of farmers saving for emergencies increased nearly two-fold in **Nicaragua**, from 44% to 82.7% at end line, and by 11.8% in **Honduras**. There was also a 5.9% increase in the percentage of farmers saving for business in Honduras and a 2% increase in **Guatemala**. Another interesting observation is the increase in savings towards health needs, from 0% at baseline to 32% at end line in **Guatemala**. In summary, the majority of respondents across the region reported saving for emergencies and health needs.

Objectives for Saving	Guatemala		Honduras		Nicaragua	
	Baseline	End line	Baseline	End line	Baseline	End line
<b>Saving for business</b>	11%	13%	0%	5.9%	36.8%	23.5%
<b>Planning for retirement</b>	0%	1%	0%	1.2%	3%	0%
<b>Child education</b>	11%	14%	9.2%	8.2%	13.2%	7.4%
<b>To avoid wasting money</b>	0%	6%	2.6%	4.7%	7%	2.5%
<b>Emergency fund</b>	56%	29%	44.7%	56.5%	44%	82.7%
<b>Health needs</b>	0%	32%	43.4%	23.5%	16%	19.8%

## Ultimate Outcome 2: Increased Access to Equitable Markets

Indicator	Country	Value Chain	Baseline	End line	Target	% Difference
<b>% of total agricultural production sold</b>	<b>Guatemala</b>	Green Beans	7.9%	98.8%	8.9%	+(90.9%)
		Blackberries	19.1%	90.9%	21.7%	+(71.8%)
		Peas	11.6%	98.4%	13.2%	+(86.8%)
	<b>Honduras</b>	Yellow Maize	71.7%	89.3%	89.9%	+(17.6%)
		White Maize	14.2%	64.0%	18.9%	+(49.8%)
		Red Beans	49.5%	53.7%	43.9%	+(4.2%)
	<b>Nicaragua</b>	Sorghum	100%	100%	100%	+(0%)

In all three countries, NTF worked with farmers across seven value chains. With Cargill’s support, yellow maize and

sorghum producers were immediately linked to a formal market, selling their production to Cargill’s business supply chain directly. The percentage of the total agricultural production sold in these two value chains was 89.3% and 100% respectively. The project worked to link farmers producing white maize, red beans, green beans, blackberries, and peas to both formal and informal markets. Farmers in Guatemala were able to commercialize nearly all of their production, with 90.9 - 98.8% of their total agricultural production sold to various markets. White maize and red beans in Honduras were also sold a high rates, with 64% of total white maize production sold and 53.7% of red beans sold. The increase in percentage sold across the value chains shows a dramatic improvement in the proportion of yield farmers were able to turn into profit. Green bean and pea commercialization was highest regarding the percentage of total agricultural production sold, increasing by 90.9% and 86.8% respectively.

Indicator	Country	Baseline		End line		Target		% Difference	
		F M	F M	F M	F M	F M	F M	F M	
% of farmers and micro entrepreneurs who have expanded their business	Guatemala	74%		100%		80%		+(26%)	
	Honduras	46.2%	50.7%	66%	68%	55%	52%	+(19.8%)	+(17.3%)
	Nicaragua	68.6%	90%	5%	7.8%	80%	95%	-(63.6%)	-(82.2%)
% of farmers and micro entrepreneurs who have created a new business	Guatemala	81.6%		95.08%		90%		+(16.5%)	
	Honduras	78%	71.3%	88.4%	80.1%	80%	72%	+(10.4%)	+(8.8%)
	Nicaragua	36.2%	-	-	21%	-	71.3%	-	-

Not only were farmers able to sell more of their agricultural production, the majority in **Honduras** and **Guatemala** were able to expand their businesses. In **Honduras** micro entrepreneurs and producers both reported increased in the proportion who have expanded their business, by 17.3% and 19.8% respectively. In **Guatemala**, 100% of producers reported expansion of their business, a 26% increase from baseline. While **Nicaragua** reported decreases among both farmers and micro entrepreneur, focus group discussions in both **Nicaragua** and **Honduras** again revealed climate-related challenges. Drought and rising temperature affected production and commerce in both countries, limiting their acquisition power that would enable them to expand their businesses.

### The Importance of Livelihood Diversification

◇ “But with this we have had the opportunity to understand that we need to diversify our production, because the producer can’t live with only one thing given the conditions of climate change and that is what is giving us the opportunity to understand that we need to produce different things to be sustainable, one thing is not enough to be sustainable.

Farmers and micro entrepreneurs were also in a better position to create new businesses, further diversifying their income streams. In **Guatemala**, 95.08% of male and female farmers reporting having created a new businesses this year, a 16.5% increase from baseline. This was also observed in **Honduras**, with 88.4% of farmers starting a new business. In the case of women micro-entrepreneurs in **Honduras** 80% began a new business, an 8.8% increase from baseline and in **Nicaragua** 21% affirmed having begun a new business during the last year.

The project has contributed to improvements in both knowledge of and access to financial services among farmers and women micro entrepreneurs. People are not only more knowledgeable about how to access and manage their finances, but they are actively applying their knowledge to save and invest in their farms, their businesses their families, and their

households. Farmers, specifically, are taking what they have learned to manage their businesses better and have demonstrated improved linkages to both formal and informal markets. They are producing in greater quantities and selling greater proportions of their agricultural production to both Cargill as well as local markets. Both farmers and micro entrepreneurs also have a better understanding of the important of livelihood diversification and are working to expand their existing businesses and create new streams of income.

### Objective 3: Improved Food and Nutrition Security

#### IO 3.1 Increased awareness in nutrition and food security

At baseline, the project cited inadequate consumption of fruits, vegetables, and animal protein in Guatemala, Honduras, and Nicaragua. The regions also exhibited unhealthy sugar consumption. In an effort to address dietary inadequacies, NTF focused on fruit, vegetable, and animal protein consumption messaging in its nutrition programming. Likewise, there was a strong focus on reduced sugar consumption in NTF's social and behavior change communication. Children, teachers and community leaders were then trained on optimal nutrition practices, the importance of nutritious foods, food hygiene, clean water, nutritional recipes and causes and prevention of malnutrition, with the assumption that knowledge would permeate through various social networks, specifically to the families and communities surrounding the intervention schools.

Throughout the life of the project, 63 schools in 66 communities were involved in trainings on best nutrition practices. The project engaged 25,823 people in all 3 countries with nutrition education activities including food demonstrations, nutrition games, community theatre events, as well as establishing school and community gardens. School gardens were a key strategy used to demonstrate how and what types of food to access and use when preparing meals for the family. Overall, 61 school vegetable gardens were established for demonstrations within the school and to promote consumption of micro-nutrient rich fruits and vegetables.

In focus groups discussions, parents of school children stressed the importance of the nutrition messages promoted by the project and how that has affected their behavior regarding food preparation, incorporating more nutritious and diverse food in their diets. Participants cited community, school, and family vegetable gardens as influential in improving their awareness of health nutrition practices. Early evaluation shows that the most significant learnings and behavior changes among the parents were the reduction in consuming marketed sugar drinks and the addition of more fruits and vegetables to their daily meals.

#### Incorporating more diverse foods:

- ◇ "...I have added chicken, for example, [and] vegetables, natural juices...we used to eat just rice, green bananas or tortillas, a solid food but we needed variety, for example this lunch has salad, beans, chicken, solid but more varied."
- ◇ "...before I consumed more sodas, but now they came and taught us how to prepare juices, so now one is different, one feels more natural and better without sodas, so this has been a change for my family, its something new we have learned. "
- ◇ "...how to combine certain fruits and certain vegetable so that the children will eat them because mostly the children don't want to consume greens and vegetables so how to incorporate them so they will eat them, having a balanced

**"I've learned a lot because in the house, we didn't eat vegetables, and now we do because our body needs enough protein, iron, [and] fruits."**

### Ultimate Outcome 3: Improved Food and Nutrition Security

Indicator	Country	Baseline	End line	Target	% Change
Average household dietary diversity score	Guatemala	6.46	7.53	7.11	+(16.6%)
	Honduras	6.0	8.7	7.0	+(45%)
	Nicaragua	7.01	8.42	8.0	+(20.1%)
Average number of months of household food insecurity	Guatemala	5	2	3.5	-(60%)
	Honduras	2.1	1.7	1.7	-(19%)
	Nicaragua	2.72	2.35	2	-(13.6%)

To measure changes in food consumption among beneficiary households, average household dietary diversity scores were calculated across all three countries. The indicator measures consumption of 12 different food groups consumed by any household member over a 24-hour period, with a higher score demonstrating greater access to diverse food groups. At end line, average dietary diversity scores across the entire region were greater than the globally recommended target of 7.

Food Groups	Guatemala			Honduras			Nicaragua		
	Baseline	End line	% Difference	Baseline	End line	% Difference	Baseline	End line	% Difference
Grains	69.9%	78.9%	+(9.1%)	88.5%	94.3%	5.8%	99%	97%	-(2%)
Tubers	22.8%	55.6%	+(32.7%)	40.4%	48.6%	8.2%	29%	22%	-(7%)
Vegetables	46.2%	80.1%	+(33.9%)	53.8%	69.2%	15.4%	59%	87%	+(28%)
Fruits	32.2%	75.8%	+(43.6%)	57.7%	63.2%	5.5%	48%	65%	+(17%)
Meat	13.9%	51.5%	+(37.5%)	37.9%	55.5%	17.6%	46%	62%	+(16%)
Eggs	46%	46.9%	+(0.98%)	49.0%	86.6%	37.6%	43%	64%	+(21%)
Fish	1.4%	3.1%	+(1.8%)	10.1%	14.6%	4.5%	77%	6%	-(71%)
Lentils, Beans, & Pulses	78.2%	86.4%	+(8.2%)	71.6%	97.2%	25.6%	83%	96%	+(13%)
Dairy Products	18.1%	37.2%	+(19.2%)	36.1%	74.5%	38.4%	53%	74%	+(21%)
Oils & Fat	56.6%	67.6%	+(11.1%)	47.1%	78.1%	31%	76%	97%	+(21%)
Sugars	81.6%	98.6%	+(17.0%)	62.5%	89.1%	26.6%	87%	98%	+(11%)
Condiments	74.3%	72.3%	-(1.9%)	48.6%	94.7%	46.1%	70%	75%	+(5%)

In **Guatemala**, there was a 16.6% increase in the average household dietary diversity score. Among the 12 food groups, there was a significant increase in reported consumption of fruits, vegetables, tubers, meat, and dairy.

In **Honduras**, there was a 45% increase in the average household dietary diversity score. A greater proportion of households

in Honduras reported consumption of all 12 food groups. Families made the most significant dietary changes regarding consumption of animal sourced protein, specifically eggs and dairy products with reported household consumption increasing two-fold. Meat and vegetable consumption also increased substantially, by 17.6% and 15.4% respectively.

In Nicaragua, there was a 20.1% increase in the average household dietary diversity score. 90% of the families consumed 7 or more food groups in the past 24 hours, meeting the daily recommended threshold. The impact population showing greater diversity of food consumption were the families of women entrepreneurs and families with children in the schools. Interestingly, the group with the least diverse diets were the families of NTF supported farmers. There were also vast improvements in consumption of key food groups promoted within the program's nutrition messages, including green-leafy vegetables (from 59% to 87%), dairy (53% to 74%), and eggs (43% to 64%).

In combination with positive changes in food consumption patterns, Nourishing the Future contributed to reductions in household food insecurity, with the average number of months of household food insecurity decreasing by 13.6%, 19%, and 60% across Nicaragua, Honduras, and Guatemala respectively.



#### Objective 4: Well-governed and Thriving Communities

Indicator	Country	Baseline	End line	Target	% Change
% of school children who are aware of child labor and food security issues in the community	Guatemala	25%	82%	75%	+(57%)
	Honduras	-	95%	60%	-
	Nicaragua	-	74.3%	75%	-
% of teachers who are aware of child labor and food security issues in the community	Guatemala	70%	72%	75%	+(2%)
	Honduras	-	100%	60%	-
	Nicaragua	-	71.4%	75%	-
% of farmer collectives that are effectively governed	Guatemala	-	60%	75%	-
	Honduras	-	75%	50%	-
	Nicaragua	-	77%	75%	-

To sensitize NTF communities on food security issues and child labor, the project supported teachers and students building their capacity to be aware of and recognize various forms of child labor and food insecurity. There was a 2% increase in awareness among students and a 57% increase among teachers in **Guatemala**. While there was no baseline data for comparison in **Honduras** and **Nicaragua**, there are high levels of awareness across the region which can be attributed to formal integration of the training materials into school curricula.

The project also worked to improve effective governance of collective groups. Effective governance was reported as an index based on the following criteria: board members are elected democratically, women have membership in the board, there is a regular change of leadership, women are in leadership positions, the collective is accountable to its members, and has a functional financial system developed. Across the region, between 60-77% of collective groups reported effective governance. While there is no baseline data for comparison, 5 of the 7 cooperatives in **Nicaragua** became legally recognized cooperatives, with 2 of 4 cooperatives in **Honduras** reporting similar results.



## Conclusion

### Impact

Indicator	Country	Baseline	End line	Target	% Change/ Difference	Achievement
Average per-capita income (USD/monthly)	Guatemala	\$99	\$215.69	\$108.9	+(117%)	Achieved
	Honduras	\$74.9	\$198.76	\$90	+(165.4%)	Achieved
	Nicaragua	\$67.6	\$83.16	\$81.7	+(22.5%)	Achieved
Household assets ownership index	Guatemala	24.63	28.09	35	+(4%)	Achieved
	Honduras	26	29	29	+(3%)	Achieved
	Nicaragua	19.2	23.4	30	+(4%)	Not Achieved
Women's Empowerment Index	Guatemala	35.7	42.7	40	+(7%)	Achieved
	Honduras	43	64	53	+(21%)	Achieved
	Nicaragua	68.5	76	81.7	+(8%)	Not Achieved
Average household dietary diversity score	Guatemala	6.46	7.53	7.11	+(16.6%)	Achieved
	Honduras	6.0	8.7	7	+(45%)	Achieved
	Nicaragua	7.01	8.42	8	+(20.1%)	Achieved
Average number of months of household food insecurity	Guatemala	5	2	3.5	-(60%)	Achieved
	Honduras	2.1	1.7	1.7	-(19%)	Achieved
	Nicaragua	2.72	2.35	2	-(13.6%)	Achieved

Based on these results, NTF has successfully achieved its goal of fostering prosperous and resilient communities. Farmers and micro entrepreneurs across Central America have greater access to services including formal and informal financial services, business and financial training, and agronomic capacity building. Small-scale producers are applying what they have learned to maintain and expand their businesses, with some venturing to develop new businesses. Despite unpredictable climate patterns and an unprecedented time of drought resulting from El Niño, NTF farmers reported significant increases in agricultural production, while most farmers in the agricultural sector cited less productive seasons. NTF sorghum production in **Nicaragua** was 45% higher than the national average (1.82 tons/ha). A likely explanation for the observed increase in production is better agricultural practices among NTF farmers. The number of farmers using agricultural techniques that will help them improve their production doubled in **Honduras** and **Nicaragua**. There was a 26.1% increase in **Guatemala**, with 95% of the farmers applying at least one improved practice. Farmers also had broader access to inputs as a result of the project, with access to inputs increasing by 27.8%, 25.7%, and 34.8% respectively. Moreover, by developing stronger linkages, farmers were able to sell more of their agricultural production. Connecting sorghum and yellow maize to Cargill's supply chain resulted in 100% of **Nicaragua's** sorghum production and 89.3% of **Honduras's** yellow maize production to be sold. In **Guatemala**, farmers sold 12 times more green beans, 4 times more blackberries, and 8 times more peas to local markets compared to baseline. Farmers in **Honduras** sold 4 times more white maize.

The combination of increased agricultural production, agronomic capacity building, stronger linkages to markets, financial and business management education, and livelihood diversification has facilitated a two-fold increase in per-capita

income among households in **Guatemala** and **Honduras** and a 22.5% increase in **Nicaragua**. In addition to significant gains in income, families own more household assets as before, which can serve as a safety-net in emergency situations or other unforeseen stresses within their lives.

Another dimension of resilience worth noting is access to credit. Farmers often face financial capital constraints before harvesting their crops. They often need to take loans to support themselves until the next harvest yet lack of information, high interest rates, lack of collateral to take loans, and loan sharks are barriers to farmers' ability to access financial resources. In **Guatemala** and **Honduras**, the proportion of farmers who improved their access to credit increased by 2.3% and 14% respectively. In **Honduras**, access to credit increased by 37.2% among women micro entrepreneurs. The result of this increase can largely be attributed to the proportion of farmers savings via formal banks. In all three countries savings through formal banks increased between 8.6%-17.8%, from 22.2% to 40% at end line in **Guatemala**, from 28.2% to 36.8% in **Honduras**, and from 23.5% to 38.3% in **Nicaragua**. Farmers and micro entrepreneurs also described revolving funds within collective groups and *Cajas Rurales* as a valuable service provided by the project along with opportunities to more broadly access informal financial services. Moreover, saving motivation has dramatically shifted. Access to financial capital and financial management education has transformed how NTF beneficiaries are thinking about the future, with savings objectives changing dramatically from the beginning of the project. For example, the proportion of farmers saving for emergencies increased nearly two-fold in **Nicaragua**, from 44% to 82.7% at end line, and by 11.8% in **Honduras**. There was also a 5.9% increase in the percentage of farmers saving for business in **Honduras** and a 2% increase in **Guatemala**. The majority of respondents across the region reported saving for emergencies and health needs. Increased household savings for business and emergencies coupled with greater access to credit can create opportunities for historically marginalized small-holder farming families to have a cushion in the case of unexpected emergencies on their farms or within their homes.

A significant impact on behavior change in nutrition was also observed. The project's holistic approach and livelihood focus led to greater food access across the communities. Household food insecurity was halved in **Guatemala**, decreasing from an average of 5 months of food insecurity to 2 months at end line. In **Honduras** and **Nicaragua** food insecurity was reduced by 19% and 13.69% respectively. Households also report healthier diets, with household dietary diversity increasing by 16.6% in **Guatemala**, 45% in **Honduras**, and 20.1% in **Nicaragua**. At end line, project households that were samples in all three countries were eating the minimum threshold of 7 food groups per day.

The women's empowerment index shows an increase empowerment of 7% in **Guatemala**, 21% in **Honduras**, and 8% in **Nicaragua**. This was achieved by working with women and communities, promoting the empowerment of women as a strategy for equality, given that inequality is an underlying cause of poverty. The project also aimed to influence local institutional and organizational structures in allowing greater participation of women in positions of leadership. NTF also developed a gender and women's empowerment plan focused on educating male and female small-scale producers on self-esteem, gender equality, and the importance of women's participation in capacity building, training and leadership. Despite reported increases in women's empowerment, however, data shows women's access to productive resources remains restricted, limiting their productivity and household income generation. With larger society norms dictating women's access to income and productive resources, the need for strengthened gender programming is evident.

With these findings as supporting evidence, the project made significant progress toward the goal of prosperous and resilient communities. Despite long periods of drought, families were able to avoid farm related losses. Farmers and micro entrepreneurs also cited investing more money in their homes and their businesses. In **Guatemala** and **Honduras** almost all farmers have established a new business, 95% and 88% respectively. Families across all three countries have demonstrated their ability to manage climate-related stresses, generating both more income and higher quantities of agricultural production. They have access to more assets, capacities, financial capital, and services that will continue to provide with them with a safety net in the event of unforeseen shocks and stresses.

## Lessons Learned

### Recommendations

#### **Improve access to new technology:**

There is high demand for equipment including motorized spraying machines and weighing scales among farmers. While CARE facilitates access to some of this equipment, access to machinery remains low among men and women farmers. The project should consider additional platforms to increase access to agricultural machinery.

#### **Facilitate broader access to productive resources for women farmers:**

There are access inequities between men and women, specifically in access to tools and other miscellaneous inputs. In the future, the project should focus on addressing gender inequality within farming communities, increasing access to large machinery and tools for women farmers so that women can have the resources they need to maximize their productivity.

#### **Increase access to and availability of climate information:**

Include capacity building activities on climate change mitigation measures for farmers. The erratic rainfall pattern reported by farmers requires future interventions to include training modules on climate change mitigation and seasonal climate patterns to help farmers anticipate and adapt to climate variability.

#### **Involve children, parents, teachers, and schools:**

The project used 63 schools as a platform for nutrition promotion, training teachers and students on optimal nutrition practices and providing opportunities for broader community engagement. Communities were given access to 61 school vegetable gardens, a mechanism the project used to disseminate information regarding the importance of fruit and vegetable consumption. Given the project's results regarding nutrition, future programming should use and improve this model and continue working through schools.

#### **Improve governance of cooperatives:**

While 60-77% of collectives groups reported effective governance, there is still a lack of compliance with commitments, purchasing contracts, and minimal inclusion of women in leadership. The project should invest in alternative mechanisms for improving the governance structure of cooperatives and incorporate more rigorous monitoring of the groups themselves into programming.

#### **Increase access to financial services:**

While increased access to financial services increased, the total proportion of farmers with access is less than 40% in **Guatemala** and less than 60% in **Nicaragua**. Savings groups within cooperatives, like Honduras's *Cajas Rurales*, and revolving funds within producer groups were cited as valuable services provided by the project. More than half of farmers in **Honduras** reported using *Cajas Rurales* as a primary savings mechanism. The next phase of the partnership should incorporate the *Cajas Rurales* model into other countries to promote broader access to informal financial services as well as formal financial services.



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