



USAID | MASFRIJOL

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With the collaboration of



MICHIGAN STATE UNIVERSITY



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List of Acronyms

Acronym	Name
AGEXPORT	Guatemala Association of Exporters
ANACAFE	National Coffee Association
CECODE	Center for Communication on Development
COCODE	Community Committees for Development
COCOSAN	Community Committee for Food and Nutrition Security
COMUSAN	Municipal Committee for Food and Nutrition Security
EMPR	Environmental Mitigation Plan and Report
FANTA III	Food and Nutrition Technical Assistance (III)
ICTA	Instituto de Ciencia y Tecnología Agrícolas
INCAP	Institute of Nutrition of Central America and Panama
MAGA	Ministry of Agriculture and Livestock
MSPAS	Ministry of Health
NGO	Non-Governmental Organization
PCI	Project Concern International
PCR/V	Peace Corps Response Volunteers
PCVR	Rural Value Chain Project
SESAN	Guatemala Food and Nutrition Security Secretariat
SAT	Superintendencia de Acción Tributaria (tax administration)
USAID	US Agency for International Development
VAT	Value-Added Tax
WHIP	USAID's Western Highlands Initiative Program

1. Introduction

This MASFRIJOL Project Report covers the period from April through September 2015. During this period, the project has strengthened its collaboration links with 385 communities where farmers and community leaders were identified. The newly covered geographic area continues to help us build on project results while concurrently informing us of ways to improve our daily activities. For the current reporting period, such intensive interaction with communities, subcontracted partners, and WHIP implementing partners has resulted in significant progress toward our Performance Monitoring Plan (PMP). The numbers and experiences presented herein constitute a great motivation for our team as it continues to witness improved crops yields and better, more nutritional diets among thousands of families in the Guatemalan Highlands who have participated in MASFRIJOL plantings and fairs—and have subsequently benefitted from more beans at their tables.

Below is a list of project highlights:

11,391 new beneficiary families reached with seed of improved varieties. With the addition of these families, the project reached a cumulative total of 25,100 families reached in 18 months of field activities. This achievement could not have been possible without the strong commitment of our MASFRIJOL field office and partners.

285 communities reached in the target geographic zone. This achievement is noteworthy because it identifies community leaders for contact and interaction throughout the remainder of the project. This initial contact precedes the organization of Community Seed Depots and the planning of training sessions to disseminate best practices to achieve higher bean productivity and bean consumption. It is pivotal to the sustainable success envisioned for MASFRIJOL's impact, even after the project officially ends.



5,664 beneficiaries attended sessions on nutrition education. 1,158 women and 4,506 men participated in training activities over these six months, contributing to the project goal of promoting increased bean consumption as part of an improved diet.

1,205 participants attended seven bean and nutrition fairs. These events were conducted in four departments, with the participation of 879 women and 326 men. The fairs raised awareness about the project's goals, its partners, and its approach. Their organization is arranged with municipal authorities, MSPAS and MAGA technicians, and the participation of Community Committees for Food and Nutrition Security (COCOSAN) and Municipal Committees for Food and Nutrition Security (COMUSAN). The fairs are highly dynamic and interactive and allow the project team to demonstrate content on productivity-enhancing technologies and nutrition education.

832 beneficiaries received training on productivity-enhancing agronomic practices. 532 women and 300 men participated during this six-month period in training sessions presented by our Mobile Units/locals rooms on planting distances, pest control, fertilization, harvest, and postharvest practices.

65 technicians participated in Agriculture–Health cross training sessions. 26 women and 39 men working for MASFRIJOL partners (MSPAS, ICTA, SEGAMIL, MAGA, and others) received a three-day training on linking agriculture with nutrition. The nutrition content was very efficiently presented by the Project FANTA III.

The Municipality of San Miguel Ixtahuacán deserves special recognition for pioneering a number of activities proposed by MASFRIJOL and tested in this location. Projects like SEGAMIL also deserve special recognition because they bought into the MASFRIJOL technical approach to increase bean production and consumption with their target beneficiaries). Their staff’s time and effort to reach remote locations and to identify leaders, despite their ongoing workload, is particularly commendable. As a result, protocols for tighter coordination have been drafted that are expected to yield results and impact beyond what was originally proposed in the MASFRIJOL PMP.

In addition to the daily coordination with ICTA and MSPAS, the list of partners that deserve credit for these results are:

- Save the Children (Through PAISANO / PCVR / ADAM)
- Association or National Café n (ANACAFE) / PCVR / FUNCAFE
- Guatemalan Association of Exporters (AGEXPORT) / PCVR
- Food and Nutrition Technical Assistance III Project (FANTA III)
- Catholic Relief Services (CRS) / SEGAMIL / Café Green / ADIPO
- Project Concern International (PCI)
- Ministry of Agriculture Food and Livestock Extension Services (MAGA)
- Municipal Authorities in at least two municipalities

As presented in the previous report, this document is organized according to the sections contained in the Y2 Workplan, with an overview of administrative and programmatic results and success stories gathered during the current period.

2. Administrative Results

In the 18 months of field operations since MASFRIJOL’s inception in April 2014, the last six have been the most active and dynamic. From the Legume Innovation Lab’s Management Office (MO) to the daily interaction with FUNDIT, the program is working as anticipated. USAID Guatemala has been highly instrumental in helping our office sort out most of our previous challenges. As a result, MASFRIJOL has fully equipped mobile units on the road, has purchased motorcycles for our MSPAS

collaborators, and has all the hardware and software needed to be effective in the field. In particular, USAID Guatemala's support in addressing MASFRIJOL's capacity to comply with the tax exemption policies has been noteworthy.

MASFRIJOL expects to address some pending administrative issues concerning the use of phone and internet services in the next six-month period. In the meantime, the project possesses all the tools necessary to advance its programmatic agenda as expected.

3. Results on Supporting Increased Bean Productivity



Much of the bean crop planting for the current agriculture year 2015 took place during this reporting period. April to September is typically known as the rainy season, characterized by short to long drought spells depending on the year. Planting dates still fall between late April and early June for the *primera* season, and August and September for the *segunda* season. Only those farmers with enough residual humidity in their soil or with access to irrigation plant this second season. Bush-type beans are planted during both seasons due to their short growing cycles. For instance, ICTA Ligerito takes from 70 to 76 days from planting to harvesting while the cycle for ICTA Hunapú, Altense, and Super

Chiva ranges from 115 to 120 days. Climbing type beans are only planted in April or May because they require almost 150 days from planting to harvesting.

During these growing cycles, the project continued to disseminate ICTA Hunapú, ICTA Super Chiva, and ICTA Altense varieties adaptable to elevations of 1,500–2,500 m. In some cases, particular microclimates and time of year make it possible for MASFRIJOL varieties to be planted significantly outside this altitude range. MASFRIJOL also made available ICTA Ligerito, a bush-type variety with strong disease resistance in altitudes below 1,000 m. In addition to these varieties, MASFRIJOL established test plots with two climbing varieties under evaluation prior to their official release. These varieties are known as *bolonillo* (for their rounded grain shape) and are strongly recommended for planting in combination with maize under the *milpa* system. Table 1 shows the summary of the total beneficiaries reached to date.

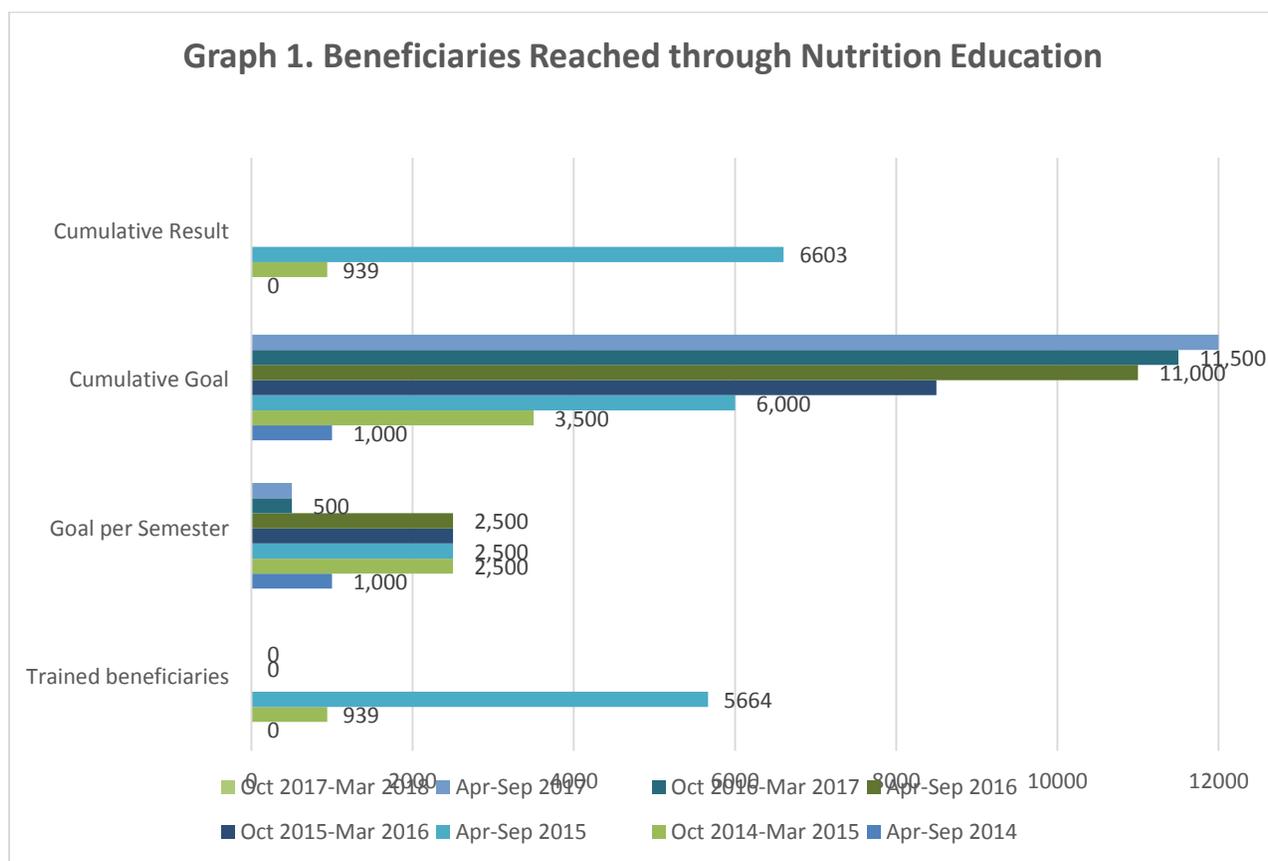
Farmers who have reported their production results expressed their satisfaction with the newly acquired seed. Some families, however, have not attained the same success in productivity due to the irregular rainy seasons prevailing in 2014 and 2015. In those cases, MASFRIJOL will be returning to disseminate seed again, so that farmers who experienced crop failures due to climatic challenges have a second chance to plant the improved varieties. Additional seed will be produced in Year 3 (FY16) to address this demand while still expanding the target 25,000 households to 5,000 more in collaboration with partners. The ability to achieve these results rests significantly on the project's ability to coordinate activities with WHIP partners and the municipal authorities.

Table 1. Seed Dissemination Efforts from April-September 2015

SEED DELIVERED APRIL TO SEPTEMBER 2015 - HUEHUETENANGO									
DATE	INSTITUTION	Municipality	ICTA VARIETIES/ORIGIN						TOTAL
			ICTA S. Chiva	ICTA Altense	ICTA Hunapu	ICTA Bol. S. Jeron.	ICTA Bol. Xela	ICTA Ligero	
4/15/2015	Munic. San Sebastian	San Sebastian H	33	126	141	0	0	0	300
4/15/2015	MSPAS	San Juan Atitan	99	383	435	0	0	0	917
4/20/2015	MSPAS	San Sebastian H	76	296	338	0	0	0	710
4/20/2015	MSPAS	San Antonio H	33	128	145	0	0	0	306
4/20/2015	MSPAS	Chiantla	28	109	124	0	0	0	261
4/22/2015	MSPAS	San Antonio H, Huehuetenango	35	109	124	0	0	0	268
4/23/2015	FUNCAFE-ANACAFE-	La Libertad, Huehuetenango	39	147	164	0	0	0	350
4/23/2015	MSPAS-Santa Cruz Barillas	Santa Cruz, Barillas, Huehuetenango	28	108	122	0	0	0	258
4/29/2015	MASFRIJOL-Luis Santos	Huehuetenango	50	223	275	0	0	0	548
5/4/2015	MAGA	Jacaltenango, Huehuetenango	0	0	0	15	10	0	25
5/11/2015	MAGA	Concepcion Huista, Huehuetenango	0	0	0	5	15	0	20
7/21/2015	MSPAS	La Democracia, Huehuetenango	0	0	0	0	0	150	150
7/24/2015	FUNCAFE	La Democracia, Huehuetenango	0	0	0	0	0	200	200
8/11/2015	MSPAS	Concepcion Huista, Huehuetenango	0	0	0	0	0	50	50
8/11/2015	MAGA	Jacaltenango, Huehuetenango	0	0	0	0	0	50	50
8/11/2015	MAGA	San Antonio H, Huehuetenango	0	0	0	0	0	50	50
8/11/2015	MSPAS	San Sebastian H, Huehuetenango	0	0	0	0	0	60	60
TOTAL			421	1629	1868	20	25	560	4523
SEED DELIVERED APRIL TO SEPTEMBER 2015 - SAN MARCOS									
4/7/2015	MSPAS	Sibinal	0	100	100	0	0	0	200
4/7/2015	SEGAMIL	Sibinal	25	25	70	0	0	0	120
4/10/2015	CRS Caritas-San Marcos	Tajumulco	0	0	22	0	0	0	22
4/14/2015	CRS-San Marcos	Comitancillo	50	75	175	0	0	0	300
4/20/2015	MAGA-Extension San Miguel	San Miguel Ixtahuacan	0	250	0	0	0	0	250
4/21/2015	Sesan-San Marcos	San Marcos.	0	0	50	0	0	0	50
4/21/2015	FUNCAFE-San Marcos	San Rafael, San Pablo, El Rodeo, Nvo.	115	0	0	0	0	0	115
4/22/2015	MSPAS	San Marcos, Depto. San Marcos	120	0	896	0	0	0	1016
4/23/2015	MSPAS	San Marcos, Depto. San Marcos	0	1051	0	0	0	0	1051
5/5/2015	Municipalidad	San Miguel Ixtahuacan, Depto. San	0	0	0	19	1	0	20
5/5/2015	SEGAMIL	Tajumulco	0	0	0	0	13	0	13
5/5/2015	SEGAMIL	Sibinal, Departamento de San Marcos	0	0	0	0	13	0	13
5/5/2015	ANACAFE	San Marcos, Depto. San Marcos	30	0	0	0	0	0	30
8/3/2015	SEGAMIL	Tajumulco, Sibinal	0	0	0	0	0	300	300
8/3/2015	Muni San Miguel Ixt.	San Miguel Ixtahuacan, Depto. San	0	0	0	0	0	60	60
8/3/2015	Muni San Miguel Ixt.	San Miguel Ixtahuacan, Depto. San	0	20	0	0	0	0	20
8/11/2015	SEGAMIL	Tajumulco, Sibinal partes Bajas	0	0	0	0	0	200	200
TOTAL			340	1521	1313	19	27	560	3780
SEED DELIVERED APRIL TO SEPTEMBER 2015 - EL QUICHE									
4/7/2015	MSPAS	Uspantán, Zacualpa, Depto. de Quiché	0	0	200	0	0	0	200
4/20/2015	MSPAS	Chichicastenango, Quiché	0	0	105	0	0	0	105
1/28/2015	MAGA	Sacapulas Quiché	0	0	360	0	0	0	360
4/13/2015	MAGA	Sacapulas, Quiché	0	0	203	0	0	0	203
4/20/2015	Paisano - Save The Children	Nebaj, Chajul, Cotzal, Chichicastenango,	0	227	93	0	0	0	320
4/27/2015	Save The Children - Cadenas de Valor	Zacualpa, Uspantán, Cunén, Nebaj, Quiché	0	0	0	19	27	0	46
5/7/2015	Save the Children- PAISANO	Santa Cruz Quiché, Quiché	17	0	93	0	0	0	110
7/1/2015	MSPAS	Zacualpa	0	0	0	0	0	75	75
7/1/2015	Save The Children, Cadenas de Valor	Zacualpa	0	0	0	0	0	225	225
7/1/2015	Save The Children-Cadenas de Valor	La Zona Reina, Uspantán, El Quiché	0	0	0	0	0	260	260
TOTAL			17	227	1054	19	27	560	1904
SEED DELIVERED APRIL TO SEPTEMBER 2015 - QUETZALTENANGO									
4/23/2015	Paisano - Save The Children	San Juan Ostuncalco	0	88	12	0	0	0	100
4/28/2015	Save The Children - Cadenas de Valor	San Juan Ostuncalco, Conc. Chiquichapan	0	0	0	19	27	0	46
5/4/2015	MSPAS	San Juan Ostuncalco, Quetzaltenango	0	29	0	0	0	0	29
7/24/2015	Save the Children- Cadenas de Valor	Las Barrancas, San Juan Ostuncalco	0	0	0	0	0	70	70
TOTAL			0	117	12	19	27	70	245
SEED DELIVERED APRIL TO SEPTEMBER 2015 - TOTONICAPAN									
4/13/2015	MSPAS-Totonicapan	Momostenango, Santa Lucia la	295	142	352	0	0	0	789
4/30/2015	ADIPO	Santa Lucia la Reforma, Totonicapan	0	150	0	0	0	0	150
TOTAL			295	292	352	0	0	0	939

4. Programmatic Activities and Results Enhancing the Nutritional Quality of Diets

During period, MASFRIJOL has given priority to reaching farmers who have received seed of improved varieties with nutrition education. As households who have completed a cropping cycle realize the potential to produce more beans, the follow-up strategy is to expand the dialogue towards the importance of beans in their daily diets. During this six-month period MASFRIJOL has reached 5,564 households through health and nutrition education using an outreach strategy that has been well-informed by community needs assessments.



During the previous six-month period (October 2014-March 2015) we collected valuable community-based information on three areas relevant to program design and delivery: 1) Agricultural needs, 2) nutritional needs and 3) learning preferences. Data were collected using focus groups (n~15-20 people each), and also in personal interviews with the leading families in the communities. Following transcription of the audiotapes, the data were tabulated for each department according to the topic. These community assessments were conducted in the municipalities and communities outlined in the table below. The most outstanding learning outcomes have well informed the production of teaching materials being used now in the field when preparing teaching sessions, recipes with available ingredients in the community, organizing groups around common themes and when planning bean and nutrition fairs.

Table 2. Community Needs Assessments Completed April-September 2015

Department	Municipality	Community
Quiché	Zacualpa	La Vega
		Xemosché
	Chichicastenango	Mactzul 2
		Saquilla 2
	Cunen	Río Blanco
		Aldea Chiul
San Marcos	Sibinal	San Andrés Cheoj
		Checamba
	San Miguel Ixtahuacán	Aldea Cabajchum
		Alen
		Chisnan
		Tierra Blanca la Vega
		La Estancia
	El arenal	
San Pablo	Santo Domingo	
Huehuetenango	Todos Santos Cuchumatanes	Las Lajas
	Chiantla	Las Guayabitas
	Concepción Huista	Trapichitos
	San Antonio Huista	Esquipulas
	San Sebastian Huehuetenngo	Palajchuj
Totonicapán	Santa Lucía La Reforma	San Luis Sibilá
Quetzaltenango	San Juan Ostuncalco	Las Victorias, Agua Tibia, Varsovia
		Buena Vista 2
		Agua Blanca

Bean and Nutrition Fairs

Bean and Nutrition Fairs are activities coordinated with other partners where families are invited to learn about what MASFRIJOL does. Participants attend various presentations and take part in different games. MASFRIJOL has organized these events to be held in open fields or around community markets raising awareness about the importance of consuming beans. Our presentations range from explaining the quality of our improved varieties to showcasing bean-based recipes and talks about the role of beans in the diets of nursing mothers and children under 5 years of age.





During the period of this report (April-September 2015), MASFRIJOL seven fairs with the participation of ICTA, MSPAS, Save the Children, SEGAMIL, MAGA Extension Services, CECODE, ANACAFE/FUNCAFE and two municipalities. Table 3 shows the locations where these events were held and attended by 1,205 people (326 men and 879 women).

Table 3. Bean and Nutrition Fairs Organized April-September 2015

Date	Department	Municipality	Community	No. Men	No. Women
25-06-2015	Quiché	Zacualpa	Zacualpa	63	66
29-07-2015	San Marcos	Comitancillo	Tuijala (field day with CRS)	27	77
30-07-2015	San Marcos	San Miguel Ixtahuacan	Tierra Colorada	175	416
26-08-2015	Huehuetenango	La Democracia	Chuchles	33	10
22-09-2015	Huehuetenango	Chiantla	Quilingo	26	54
24-09-2015	Totonicapán	Sta. Lucia La Reforma	Pabaquit	0	97
19-09-2015	Huehuetenango	Conc. Huista	Petatán	2	159
TOTAL				326	879

Development of training materials

One of the most important components of the MASFRIJOL technical approach is the development of culture-sensitive educational materials. Promotional videos and training guides on recipes and nutrition education have been developed keeping in mind the literacy and language barriers of our target population. Recipe leaflets, information collection forms, videos, banners, posters and various other materials are done with pictures and icons that have been validated in several opportunities with groups of men and women in rural communities. During the period of this report the project developed six videos, seven teaching guides on topics of nutrition, eight guides on topics of bean production, three recipe leaflets, two educational banners, a children's coloring book with nutrition messages and various other materials that support the educational guides. The project is scheduled to develop other videos that complement the material to be included in educational guidelines.



Recipes developed for training sessions.

GrainPro bag dissemination



As explained throughout this report, one of the two main objectives of MASFRIJOL is to promote increased bean consumption at the household. However, an important factor to achieve this objective is to improve the household's capacity to store their harvest free of pests for a longer period of time. Current storage alternatives include open plastic containers and bags that do not protect the grain from weevils (bruchids), the main threat to grain quality. GrainPro storage bags, which are made of special plastic material (three extruded layers), prevent the exchange of gases (oxygen) in and out of the bag limiting the oxygen supply to weevils and other aerobic pests presence in the grain. MASFRIJOL initiated the facilitation of this technology during the months of August and September 2015 as farmers began to harvest. Preliminary results underline that farmers have confirmed the effectiveness of the bags in killing weevils. MASFRIJOL expects farmers to receive two small GrainPro bags, one for seed and one for grain.

5. Success Stories

San Marcos

Break bean yield records: For decades, Mr. Miguel Simeon Diaz Domingo, a farmer in the village of Tierra Colorada, Municipality of San Miguel Ixtahuacán, the Department of San Marcos, has sustained his family with his agriculture production. Introduced to the MASFRIJOL project through the Municipality of San Miguel Ixtahuacán, he experimented this year with 5 pounds of ICTA

Altense seed in one cuerda. By the end of June, he reported 225 lbs. of harvest. Mr. Diaz Domingo had never seen such yield in bean production per cuerda. Mr. Diaz Domingo attributes this yield increase to the quality of the seed he received from MASFRIJOL, which produced robust plants loaded with pods. He also believes that the agricultural practices taught by the MASFRIJOL team led him to harvest a superior crop



Bean field planted and tended by Mr. Miguel Simeón Díaz Domingo; Aldea Tierra Colorada, Municipality of San Miguel Ixtahuacán, San Marcos, 2015.

compared to neighbors who have not tried this seed or these practices. Mr. Diaz Domingo plans to keep this grain for consumption and sales while also saving seed for the next planting season. He is grateful to the project and the Municipality of San Miguel Ixtahuacán for introducing him to this improved variety.

Increased optimism about bean production: Like many other producers, Mr. Felipe Santos Garcia Ortiz, who lives in the village Suchiate, Municipality of Sibinal, Department of San Marcos, is a beneficiary of the MASFRIJOL project. Don Felipe's main concern each year is to produce as much food as possible from his small plot of land. This year, he benefitted from 5 lbs. of ICTA Hunapú. Unsure of the seed quality, he chose to plant only a portion of the seed—enough to cover half a cuerda (about 220m²). Having received agricultural advice on planting and tending his plot from MASFRIJOL and MSPAS technicians, he planted his crop on May 15. On September 12, he was pleased and proud to harvest 150 pounds, a wonderful quantity from such a small plot—equivalent to 300 lbs./cuerda, which represents the largest yield ever seen in his community.

Mr. Santos Garcia Ortiz is thankful to the project and is saving 25 lbs. of his harvest as seed to expand his crop next year. He has saved 100 lbs. of grain for consumption and has traded 25 pounds for other goods and necessities for his family. In his words, it has been a blessing to work with MASFRIJOL and the Ministry of Public Health and Social Assistance (MSPAS) technicians who consistently monitored his progress in applying their recommended agricultural practices. Mr. Santos Garcia Ortiz is very optimistic about his future plantings and will continue exploiting the potential of ICTA Hunapú on his land to improve his family's food and nutritional security.



Bean plot of Don Felipe Santos García, Aldea Suchiate, Municipality of Sibinal, San Marcos, 2015.

Huehuetenango

COMUSAN and MASFRIJOL's effective partnership: During bean dissemination activities in May 2015, MASFRIJOL coordinated the establishment of a demonstration plot with the Municipality's Committee on Food and Nutrition Security—COMUSAN—in the village of Chichalum, Municipality of Chiantla, Huehuetenango. This committee is formed by representatives of such public sector institutions as MAGA, MSPAS, SESAN, and the municipal authorities. The goal of this demonstration plot was to verify if ICTA Hunapú could be successfully adapted to lower areas of the municipality and then share the yield with families living in areas above 3,000 m where



A portion of the bountiful harvest obtained in Aldea Chichalum (located above 3,000m), Municipality of Chiantla, Huehuetenango, 2015.

only potatoes because can withstand its cold temperatures. Traditional bean seed has thrived in this environment. Consequently, sources of protein are scarce and beans are expensive to buy; children of families living in this area suffer from chronic malnutrition. MASFRIJOL and COMUSAN launched the initiative to plant a one cuerda plot of beans and were able to harvest 200 lbs. in return. Ten families in the upper Chiantla area each received 20 pounds of beans, which the COMUSAN estimates will last them for an entire month of daily bean consumption. A MASFRIJOL Mobile Unit and the MASFRIJOL team celebrated this bountiful harvest by demonstrating the preparation of two nutritious recipes, bean cake with herbs and bean ceviche.

Communities producing more beans despite unfavorable climate patterns: recent article published in *Prensa Libre* (the main newspaper in Guatemala) on October 22, 2015, argued that coffee, corn, and sugar cane dominated agriculture production in Guatemala. Beans, conversely, had shifted from 184,000 ha in 2014 to only 55,000 ha in 2014. This data came from the National Agriculture Survey, which blamed major changes in rainfall patterns as unfavorable to bean crops. Contrary to these numbers, however, some communities in the department of Huehuetenango showed great improvements in bean yields among families who benefitted from the MASFRIJOL project.



Plot of Don Isabel López, Quilenco, Chiantla, Huehuetenango, 2015.

This data is based on the collected harvest forms. For instance, in the village Cantón Reforma, the MASFRIJOL project positively impacted 40 families; their community reported average yields of 130 pounds per cuerda (versus the 40 lbs./cuerda average). The village Tzunhuitz in Concepcion Huista reported even higher average yields of 141 lbs./cuerda, while Quilenco in Chiantla reported an average of 115 lbs./cuerda.

While average yields are a strong indicator of how well farmers' fields have performed, outliers to this statistics continue to surprise MASFRIJOL technicians. For instance, Don Isabel Lopez in Quilenco harvested 250 lbs./cuerda and Don Perfecto produced 200 lbs./cuerda. The contrast with past harvests is shocking; some Huista beneficiaries reported yields of 21 lbs./cuerda before using MASFRIJOL's improved varieties. Whether it is 75 lbs., 100 lbs., or 250 lbs., farmers, many of whom had never planted an improved variety before, are grateful for this technology. Additionally, the good news is not particular to the Huista region; Chapaltelaj in Jacaltenango reported an average yield of 77 lbs./cuerda.

Quiché

Leading farmer helping MASFRIJOL's technical support to other farmers: Don Marcelino Ajanel established a plot of the ICTA Hunapú bean variety on June 8, 2015, at an altitude of 1,838 m. in the village of Batzul, San Gaspar Chajul, Department of Quiché. Don



Don Marcelino Ajanel and daughter working in their bean plot. Aldea Batzul, San Gaspar, Quiché, 2015.

Marcelino and his daughter performed weed control manually avoiding the use of chemical pesticides when possible. During one of MASFRIJOL's technical monitoring visits on August 13 that year, one of the technicians confirmed that the plantings were at the pod formation stage. The technician also

noticed that the plot had developed a strong architecture and foliage beyond standard, which was attributed to the incorporation of organic fertilizers. Don Marcelino Ajanel applied manure at one quintal per cuerda, which improved the soil's fertility and water-holding capacity. Although this geographic area suffered a heat wave and prolonged dry period, Don Marcelino harvested 100 pounds of beans per cuerda, a result he finds satisfying and that motivated him to learn about other varieties promoted by MASFRIJOL. A natural leader with a curiosity for agricultural best practices and technologies, Mr. Ajanel is helping MASFRIJOL by monitoring the bean fields of at least 11 other families that planted ICTA Hunapú and has emerged as a strong candidate to host a Community Seed Depot, through which other varieties, technologies and practices will be promoted in his community, in the near future.

Showcasing success stories to other farmers: Mr. Francisco Tum Chic, a member of the Community Committee for Development (COCODE), possesses great initiative and innovation. Motivated by MSPAS staff, he planted a cuerda of ICTA Hunapú on February 11, 2015, in his field located at an altitude of 1,783 m. in San Antonio Sinaché V Centro, Municipality of Zacualpa, Quiché. This area of the country contains abundant water sources that can be captured by artisanal sprinkler irrigation systems. MASFRIJOL visited Mr. Tum Chic on April 29 to confirm his estimation of 200 lbs. /cuerda. Prior to Mr. Tum Chic's planting with ICTA Hunapú, MASFRIJOL had not easily convinced many farmers to plant this improved variety; after his success, however, twenty other families contacted MSPAS to try ICTA Hunapú. One of these families was Mr. Tomas Tum Riquiac's, whose field yielded more than 200 lbs./cuerda and will be featured in a video to be developed by MSU in the next few weeks so that other farmers can learn about his experience.



Don Francisco Tum Chic's plot. Comunidad San Antonio Sinaché V Centro, Municipality of Zacualpa, Quiché, 2015.

Giving farmers a second chance to try improved bean varieties pays off: Don Pedro Castro, a community promoter working for Save the Children and a community leader in the village of Ixlaj, San Gaspar Chajul, Quiché, did not have a good experience planting ICTA Hunapú in 2014. His plot, located at 2,125 m. above sea level, underwent unfavorable climatic conditions that year. Despite a healthy-looking crop throughout most of the growing cycle, a sudden but prolonged heat wave during blooming decimated his yield; he ultimately harvested just 20 lbs./cuerda, an insufficient amount for his family's consumption needs. Nonetheless, he knew the seed was of superior quality. Aware of his good intention to continue learning about the



Don Pedro Castro's bean plot in Aldea Ixlaj, San Gaspar Chajul, Quiché, 2015.

management of improved varieties, Save the Children revisited him with 5 lbs. of seed in 2015. During a visit on August 13 this year, a robust and uniform bean crop was observed. With a better climate this year, Mr. Castro and MASFRIJOL technicians estimate yields of 150 pounds/cuerda. Mr. Castro plans to keep 125 lbs. for his family's consumption and to sell about 25 pounds. Additionally, Mr. Castro monitors 25 other families who implemented plots of ICTA Hunapú and ICTA Superchiva. His success and experience this year will be a great motivator for other farmers in his village to plant on of MASFRIJOL's improved varieties.

Quetzaltenango

Bean crop responds to recommended agronomic practices by MASFRIJOL: The house and grounds of Don Oscar Remigio Lopez are located in the community of Las Moras (altitude circa 2,500 m.), in the Municipality of San Juan Ostuncalco, Quetzaltenango. Don Oscar, a head of household, has benefitted through the MASFRIJOL project through ADAM Project. Don Oscar, an enthusiastic and active farmer who received ICTA Hunapú seed in 2014, chose to save it for planting until May 2015 due to climatic conditions and a delay in seed delivery. The land he planted lies in a wooded area surrounded by crops, which helps the ground retain moisture, so the 2015 drought was not a limiting factor for bean production. Aware that many of his neighbors complain about the low bean yields, he dedicated special attention to verifying that the variety he planted was responsive to the recommended agronomic practices. To his positive surprise, he obtained 150 to 200 pounds of grain. He plans to save part of his harvest for next year's planting. Farmers who have seen the performance of ICTA Hunapú have expressed their desire to access seed again and would like to follow Don Oscar's example.



Las Moras, municipality of San Juan Ostuncalco, ICTA Hunapú planted by Mr. Oscar Remigio.

Totonicapán

Bean and Nutrition Fairs highly welcome by communities: In the community of Pabaquit, Municipality of Santa Lucia La Reforma, Totonicapán, MASFRIJOL has been training families on how to increase bean productivity and improve nutrition through greater bean consumption. At a recent Bean and Nutrition Fair held there recently, 97 community members participated in various activities, some focused on feeding beans to one-year-old children and other on the importance of establishing family gardens. Attendees reported learning— for the first time!—



View of the fair where the following topics were presented: Good quality protein, Bean varieties, MASFRIJOL recipes, Family gardens and bean-based foods after 12 months of age.

about the importance of consuming good quality protein. The community expressed appreciation to MASFRIJOL, MSPAS, SEGAMIL, and Save the Children for bringing these important educational activities to their area and making them fun and entertaining. More such events will be planned in Tonicapán during Year 3. Even though this department has the least ideal bean production areas, MASFRIJOL considers their learning about the nutritional value of beans to be of paramount importance in addressing the chronic malnutrition that is widespread in Guatemala's western highlands.

Annex 1. Table 4.1 Updated Performance Indicators for Increasing Bean Productivity in Highland Systems

Activity *	Target Outputs by Year								Life of Project Targets	Target Outcomes	FTF Indicator/ Measure (data capture)	Frequency of Measure	Expected Impact (end of Four Years)
	Year 1 (FY 14)		Year 2 (FY15)		Year 3 (FY16)		Year 4 (FY17)						
	Target	Actual	Target	Actual	Target	Actual	Target	Actual					
Implement a customized needs assessment in 200 communities in terms of improved bean production technologies , nutrition	50	6	150	24					200	a) Introduce community leaders to project b) Engage communities program delivery on bean productivity and nutrition enhancement technologies and	None/Reports of customized community needs each community	-Baseline	
Reach a total of 25,000 HH with seed of improved bean varieties (one delivery/HH during the 4 yr)	5000 new	8,213	10,000 new	16,887	10,000 new		5,000		30,000	a) At least 80% of disseminated seed is planted so farmers compare its performance with other seed alternatives b) Increased bean productivity by at least 10% (based on prior LIL experience) in the target departments	<ul style="list-style-type: none"> • FTFMS Indicator 4.5.2-39 No. of technologies or management practices Phase II: under field testing as a result of USG assistance /Seed delivery form • Custom indicator: Yield per hectare of beans (adjusted for intercropping when needed)/ Sample surveys to assess productivity gains • FTFMS Indicator 4.5.2-2 No. hectares under improved technology or management practices as a result of USG assistance/ Sample surveys to assess seed utilization 	Annually Baseline, Annually Annually	Increased number of households planting improved varieties and increased bean productivity

Activity *	Target Outputs by Year								Life of Project Targets	Target Outcomes	FTF Indicator/ Measure (data capture)	Frequency of Measure	Expected Impact (end of Four Years)
	Year 1 (FY 14)		Year 2 (FY15)		Year 3 (FY16)		Year 4 (FY17)						
	Target	Actual	Target	Actual	Target	Actual	Target	Actual					
Reach 25,000 HH with diffusion of technologies to increase bean productivity	5000	8,213	10,000 new	16,887	10,000 new	8,213	5,000		25,000	a) At least 60% adopt 1 or 2 agronomic practices	<ul style="list-style-type: none"> FTFMS Indicator 4.5.2-2 No. of hectares under improved technologies or management practices as a result of USG assistance / Sample surveys to assess seed utilization 4.5.2-5 Number of farmers who have applied (new) technologies or management practices as a result of USG assistance. FTFMS Indicator 4.5.2-7 No. individuals who have received USG supported short-term agricultural sector productivity training/ Field training sign-up sheets, summary reports 	Annually	Increased community's seed security to access improved bean varieties
Establish 75 Community Seed Depots in communities that meet the established criteria to produce seed of the improved varieties preferred by the geographic area	0	0	0	0	50		25		75	a) Dissemination of seed of improved varieties b) Management of demonstration plots to showcase improved agronomic practices c) b) Trained communities to multiply high quality bean seed locally and at reduced cost	<ul style="list-style-type: none"> Custom Indicator: No. of AC established and functioning/ /List of established ACs Custom Indicator: Total increase in community seed production /List established ACs and their production 	Annually	

Annex 2. Table 4.2 Updated Performance Indicators for Enhancing Nutritional Quality of Diets⁷

Activity*	Target Outputs by Year								Life of Project Targets	Target Outcomes	FTF Indicator/ Measure (data capture)	Frequency of Measure	Expected Impact (end of Four Years)
	Year 1 (FY 14)		Year 2 (FY15)		Year 3 (FY16)		Year 4 (FY17)						
	Target	Actual	Target	Actual	Target	Actual	Target	Actual					
Distribute PICS bags to 20,000 (HH) for bean storage to the same HH that received seed.	3,000	0	15,000	800	2,000	12,000			20,000	HH will improve storage capacity doubling the length of time storing grains	FTFMS Indicator 4.5-10: Number of HH using this technology and total increase in bean storage capacity (Kg and cubic meters) at HH level/ Seed Form, PICS Form, Education Form & PICS Follow-up Form. "How long do you keep your beans?"	- Baseline, Annually	Improved accessibility & availability of beans at HH level
Educate HH about nutrition and healthy diets.	1,000	0	5,000	6,603	5,000		1,000		12,000	Increase HH knowledge of health value of eating beans daily especially for pregnant women & young children	FTFMS 4.5.2-14: No. of vulnerable households benefiting directly from USG interventions FTFMS 3.1.9-1: No. of people trained in child health and nutrition through USG supported programs /Nutrition Education Form FTFMS 3.1.9-15: No. of children <5years reached by USG-supported nutrition programs/Nutritional Education Form & Bean Intake Forms 1.2 FTFMS Custom indicator: Knowledge assessment/Qualitative reports of new information, queried by educator (e.g., most significant impact determination).	-Annually -Annually -Annually -End of project	Improved bean intake

Activity *	Target Outputs by Year								Life of Project Targets	Target Outcomes	FTF Indicator/ Measure (data capture)	Frequency of Measure	Expected Impact (end of Four Years)
	Year 1 (FY 14)		Year 2 (FY15)		Year 3 (FY16)		Year 4 (FY17)						
	Target	Actual	Target	Actual	Target	Actual	Target	Actual					
Enhance HH consumption of beans by teaching new preparation methods for tasty, but easily digestible, bean- based	200	0	400	0	1,200	400			2,000	HH will have new ways to prepare beans	<ul style="list-style-type: none"> • Custom measure: No. of current methods for preparing beans/ Nutritional Education Form • Custom indicator: New methods used by HHs/ Nutrition Education Form and Qualitative reports of new information, queried by educator (e.g., most significant impact determination). 	-baseline -every two years, end of project	Improved diet diversity of women and improved growth indicators for infants
Obtain the actual baselines and then tracking of results from activities in nutrition			350	0	350	350	350		700	Data on diets and anthropometrics for 150 HH per department on average for pregnant and lactating women and children 6-24 months	<ul style="list-style-type: none"> • Custom Indicator based on FTFMS 3.1.9.1-1 Prevalence of children 6-23 months receiving a minimum acceptable diet/Child feeding form • Custom Indicator based on FTFMS 3.1.9.1-2 Women's diet diversity: Mean number of food groups consumed by women of reproductive age/ Maternal Diet Diversity • Custom Indicator based on FTFMS 3.1.9- 11Prevalence of stunted children under 5 years of age / age for height, weight for age, weight for height • Custom Indicator based on FTFMS 3.1.9-12 Prevalence of wasted children under five years of age/ age for height, weight for age, weight for height 	-baseline and end of project -baseline and end of project -baseline and end of project	

Activity *	Target Outputs by Year								Life of Project Targets	Target Outcomes	FTF Indicator/ Measure (data capture)	Frequen cy of Measure	Expected Impact (end of Four Years)
	Year 1 (FY 14)		Year 2 (FY15)		Year 3 (FY16)		Year 4 (FY17)						
	Target	Actual	Target	Actual	Target	Actual	Target	Actual					
Evaluate changes related with the above activities in nutrition	5	0	50	0	350 (repeat)	105			405	Data on diets and anthropometrics for 150 HH per department on average for pregnant and lactating women and children 6-24 months	<ul style="list-style-type: none"> Custom indicators: Women's dietary diversity scores, use of exclusive breast feeding, age for height, weight for age, weight for height/Child feeding form, women's dietary diversity index and measurements reported in percentages with respect to total beneficiaries. 	Baseline, every two years, end of project	Improved diet diversity of women and improved growth indicators for infants

⁷ We use "Custom Indicator based on FTFMS indicator" to reflect that while we collect these indicators on a project level, the FTFMS system for that Indicator requires community, regional, or national level sampling, which will not be the case under MASFRIJOL. Thus these indicators will be used for project, not FTFMS, purposes.