



Legume Innovation Lab



MASFRIJOL "More Beans" Feed the Future Legume Innovation Lab

MASFRIJOL

The Challenge

The Mayan population living in Guatemala's western highlands is one of the most undernourished in the world, with their diet consisting almost exclusively of maize, which is insufficient to meet people's nutritional needs. This poor diet leads to chronic malnutrition and stunting among children; unchecked, stunting affects long-term cognitive development and adult productivity.

Although beans are traditional staples of the Mayan people and provide a quality protein when eaten with maize, access to sufficient beans for household consumption is inadequate in the highlands. Low bean production from limited access to farmland and low productivity from the inability of most bean varieties to grow well at elevations above 2,500 meters has made them scarce and expensive. Further, beans are not eaten regularly due to poor understanding of dietary health, with the few farmers who grow them selling most of their yield as a cash



A woman prepares plain tortillas, a standard feature of the Mayan diet, for lunch. Although delicious, too often these tortillas are eaten alone, which is inadequate for complete nutrition.



At a MASFRJOL fair, women prepare bean-filled tortillas, which provide a complete protein, while MASFRJOL educators teach attendees how to make them, providing an easy, healthful alternative for a common meal.



top, l. A bean-filled tortilla; lower, l. cooked beans cooked and a sample being served; rt., A local farmer receives improved bean seed for planting while also tasting recipes made with the new varieties.

crop. Increased bean yields and the incorporation of additional sources of protein in daily meals are central to addressing malnutrition in this region.

The Project

Financed by USAID Guatemala, the MASFRJOL project recognizes that improving nutrition in Guatemala requires a two-pronged approach: increasing bean yields and enhancing knowledge of the nutrition and health value of regularly eating beans along with corn for improved nutrition. As its first step, MASFRJOL provides smallholder farmers with high quality seed of improved, disease-resistant bean varieties adapted to the agroecologies of the western highlands. These altitude-appropriate varieties, along with education and training on such topics as soil preparation, seed germination, and safe bean storage, have helped farmers improve their crop management and increase yields from 30 to 100 percent. GrainPro storage bags, which permit families to store their beans safely for up to six months, free of crop-destroying bugs, has helped increase the life of the harvested crop.

Concurrently, MASFRJOL's extension educators set up programs throughout the western highlands to increase household understanding of the link between regularly eating beans with maize for improved health. They visit villages to teach households how to *(continued on reverse)*



Improved bean varieties that grow well in the western highlands help farmers achieve better harvests.



MASFRIJOL's mobile classroom, which allows teaching in remote areas



Beans are intermixed with corn in farmers' fields in Guatemala, a practice called the *milpa* system.

(continued from front) use, store, and cook the beans they grow, including how to prepare a healthier formula for young children to replace *atole*, a maize-sugar beverage given to infants that provides calories but little nutrition. Organized recipe contests and community fairs promote hands-on learning for parents and children. Video presentations increase understanding of the link between diet and health.

Pairing the seed distribution and first planting of improved bean varieties with nutrition education and new recipes multiplies the program's effectiveness. Households that suddenly find themselves with a large bean harvest know why and how to use them most advantageously—and do.

Project Objectives

1. Dissemination of seed of improved bean varieties to 25,000 smallholder farmers in Guatemala's western highlands
2. Establishment of Community Seed Depots (CSDs) for local seed production to scale up distribution sustainably
3. Nutrition education and technical assistance to support the complementary agricultural and nutritional areas of the project
4. Nutrition assessments on beneficiary families

Major Achievements to Date

1. Project partners distributed **24,995 bags** of improved bean seed varieties to 24,995 beneficiary families for planting; more than **1,095 hectares have been cultivated** with improved black bean varieties.
2. More than **11,000 bean seed recipients** have been trained on improved agronomic practices for bean production, many on **improved bean storage practices**, too.
3. **Yield per hectare** surpassed the target of 465kg/ha to **779kg/ha**.
4. **More than 5,300+ women** participated in nutrition education and training to learn to add beans more regularly (at least three times per week) to the family diet; **7,135 children under five** years were also reached with age-specific interventions.
5. **Forty-seven (47) Community Seed Depots** were established and 36 have already been harvested during the first planting of 2016.
6. **Nearly 4,100 pounds of improved seed were produced** and commercialized in the target communities by CSDs. Available CSD seed is poised to increase as MASFRIJOL expands the CSD model.
7. **One hundred twenty (120) technicians** from the Ministries of Agriculture and Health and collaborating projects cross-trained in the Agriculture and Nutrition program developed by MASFRIJOL.



A MASFRIJOL team member demonstrates how to use storage bags to protect the harvested bean crop from insect pests.



MASFRIJOL is funded by and is an associate project of the Feed the Future Legume Innovation Lab at Michigan State University. Email: legumelab@anr.msu.edu www.legumelab.msu.edu/associate_projects