



MEAL FLOUR



# 2017 Annual Report

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# Timeline 2017

## January

- Exit surveys in Candelaria
- Start of follow-up phase; weekly home visits and monthly focus groups with Candelaria participants

## February

- Test farm set-up in San Martin

## March

- Presentation to women from Xela with PEILE
- Follow-up meeting with PEILE students

## April

- Started train-the-trainer program in Huehuetenango
- Presented at Global Health and Innovation Conference in New Haven, CT

## May

- Received Inaugural Michelle Obama Alumni Community Impact Award
- Attended Conciencia program at Alterna in Xela

## June

- Finalists in the Classy Awards
- Welcomed 3 summer interns from the University of Chicago

## August

- Presented to the Ministry of Agriculture in Guatemala City
- Began participating in Día Del Campo in Xela
- Our intern completed a food security study in the Palajunoj Valley
- Start of bi-weekly home visits to participants in Candelaria

## September

- Presentation in Huehuetenango run by train-the-trainer participants
- Joined MIT SOLVE community

## October

- PEILE paid for 7 women to have their own farm

## November

- Presented to ADEMi's promotoras in Tecpan, Chimaltenango
- Signed MOU with MIGHTi
- Presented to staff from Asociación BPD
- Start of monthly home visits to participants in Candelaria

## December

- Planning for 2018 and conclusion of crowdfunding campaign

# Projects

## Valle Palajunoj

### Candelaria

In 2017, MealFlour continued to follow-up with the 5 women in our pilot program. In January, medical students affiliated with Primeros Pasos helped conduct exit surveys to gauge the success of the trainings and collect feedback for future improvement. The results of the surveys were positive. 100% of the participants understood proper farm maintenance; storing the farm in a dark and dry place, when to transfer the pupa, when to replace the water source, and to toast the mealworms before grinding. Knowledge that was not universally retained included how to turn the mealworms into a powder and the need to clean the worms before making the powder. Two women eat their mealworms roasted with lime and salt, one made pancakes with homemade mealworm powder, and another made carrot cake. One woman has not yet eaten the mealworms in order to expand her stock before harvesting.

All of the initial 5 participants continue to properly maintain their farms, but colder weather beginning in November slowed the farms' progress. 2018 farm output will be recorded with measuring cups distributed by MealFlour.



### Food Security Study

In August 2017, a MealFlour intern, Sebastian Otero, a student from the University of Chicago, worked with MealFlour and Primeros Pasos to conduct a food security study in the Palajunoj Valley.

237 individuals from all 10 communities in the Valley were surveyed and the results show that all 10 communities in the Valley experience food insecurity, but at varying levels.

The communities with the highest levels of food insecurity are those further away from the Quetzaltenango city center, which are more difficult to access. The relationship between population size and food security was not a linear relationship.

The survey also gauged interest in the MealFlour program. Out of the 237 individuals surveyed, only one had eaten a mealworm before. When asked why they haven't tried a mealworm, most said they "Never thought about it" and 24% answered "They are not food." Only 2.2% responded that they are repugnant. There was a significant increase in the number of individuals who would, or would consider, eating mealworms for health benefits if advised by a doctor.

Based on the level of food insecurity and acceptability of mealworms the following is a proposed order of priority for expansion: Tierra Colorada Baja, Xepache, Candelaria, Chuicavioc, Xecaracoj, Llano del Pinal, Tierra Colorada Alta, Bella Vista, Las Majadas. To increase the likelihood of uptake in the communities, the introduction should come from a doctor, a healthcare professional, or nutritionist.

A detailed report of the study and further suggestions can be found [HERE](#).

## PEILE

### Huehuetenango: Train-the-trainer

In April 2017, MealFlour collaborated with PEILE to begin a train-the-trainer program in the department of Huehuetenango. 5 PEILE staff members in the Malacatancito vocational training center participated in a 5-week training over 3 months. The participants worked together to maintain a test-farm and figure out how to best adapt the mealworm farming process to the climate in Huehuetenango. In September, the participants organized an open house to present mealworm farming to Malacatancito community members and gauge their interest in the program. MealFlour staff attended and brought samples of mealworm flour cookies.

Although many expressed interest in mealworm farming during the event, no attendees signed up to participate. MealFlour moved our train-the-trainer program to a new partner organization in 2018.



### Xela

In October, MealFlour started working with 7 individuals at PEILE's vocational training center in Xela. PEILE provided the funds for all farm materials and mealworms, a preliminary test of MealFlour's long term goal to have existing organizations and NGOs pay for the program in order to ensure sustainability. We are also piloting a new follow-up model where participants use their smartphones to take pictures of their farms, send them to us, and receive feedback through text messages.

Results so far are mixed. A Whatsapp group virtually connects all participants, but only 3 regularly respond and only 2 send pictures.

## Test Farms

### San Martin

In February, to determine how varying climates in Guatemala affect mealworm farming, MealFlour taught a family in San Martin, Retalhuleu how to maintain a farm. San Martin is close to the coast and is hotter and more humid than Quetzaltenango and Huehuetenango. Because of the higher humidity, the family adjusted the farm model— unstacking the layers to minimize the amount of condensation, using wheat flour instead of oats because it absorbs less moisture, and using dryer food scraps. After making these adjustments, the mealworms started reproducing faster.

### MealFlour Experiment

In December, based on feedback from program participants and suggestions from edible insect experts, MealFlour started an experiment of three new farming models which we are testing with 12000 mealworms. We expect to have the results of this experiment by mid-2018.



## Community Outreach

### Presentation to MAGA

In August 2017, MealFlour presented our work to the Guatemalan Ministry of Agriculture (MAGA) in Guatemala City, resulting in approval to import mealworms from the US, key to maintaining genetic diversity in our mealworm stock. Our attempt to import mealworms in October was unsuccessful because of issues with the tax administration. Fortunately, in late 2017, MealFlour connected with an edible insect farmer in Chimaltenango, allowing us to purchase insects from a new and more cost-effective distributor.

### Día del Campo and Organic Markets

In August and September, MealFlour participated in the monthly Día del Campo event in Xela. This event brings together community members and food vendors at the local organic farm. In addition to selling delicious mealworm cookies, MealFlour set up a mealworm farming demonstration to raise awareness about edible insects in the city.

MealFlour also connected with the organizers of the organic market in Xela. MealFlour provided them with educational materials and continues to provide guidance and support as they establish their own farm. They hope to use their background in social work and connections to different organizations to teach others how to raise mealworms.



## Awards and Presentations

In May, MealFlour was awarded the Inaugural Michelle Obama Alumni Community Impact Award from the University of Chicago Community Service Center. The award honors "extraordinary commitment of alumnus who has made a positive community impact in society by addressing a systemic social issue in a collaborative manner and by effectively leveraging community assets".

MealFlour also participated in various conferences such as the Global Health and Innovation Conference in New Haven, CT, and the Conciencia social enterprise accelerator program at Alterna in Xela.

In June, MealFlour was selected as a finalist in the Classy Awards. "The Classy Awards exist to put a spotlight on the most remarkable changemakers of our generation. The Winners and Finalists recognized are addressing the incredibly complex and equally severe problems we face today."

In September, MealFlour was selected to join the MIT SOLVE community. MIT Solve's mission is to identify the best solutions to specific, actionable challenges through open innovation. To build and convene a community of leaders and change-makers committed to partnering together to pilot and implement these solutions.

# Partners

## MIGHTI

MIGHTi, led by Valerie Stull, is a research project designed to address the multifaceted factors that contribute to food insecurity in Southern Africa.

MealFlour and MIGHTi will collaborate on projects that use edible insects to improve nutrition in Guatemala, Zambia, and elsewhere. This collaboration will serve to assess the efficacy of edible insect farming training programs through the use of a train-the-trainer model. The goal is to develop a model to bring edible insect programs to communities in countries around the world.

## ADEMI

Asociación de Mujeres Ixpiyakok (ADEMI, Ixpiyakok Women's Association) was started in 1984 by 30 indigenous Mayan women who lost their husbands in the civil war. Now, they work with over 30 communities throughout the Chimaltenango and Quiché regions to improve food security and nutrition, economic development, health, and political education. MealFlour will teach ADEMI's health promoters how to raise mealworms and then help them set up training programs in their communities. These will be the first mealworm farming trainings conducted in Kaqchikel, one of the 22 Mayan languages spoken in Guatemala, and which is spoken by many communities in Chimaltenango and Quiché.

## Asociación BPD

Asociación BPD works in Chimaltenango on projects dedicated to increased production of nutritious foods, nutrition education, increased access to water and sanitation, reduction of indoor air pollution, increased access to family planning, empowerment of women, and empowerment of young people to improve their long-term health and that of the next generation.

## Primeros Pasos

MealFlour first worked with Primeros Pasos in 2016 to introduce the training program to the community of Candelaria. In 2017, Primeros Pasos assisted MealFlour with follow-up surveys of our training program and a food security analysis in the Palajunoj Valley. In 2018, MealFlour hopes to work with them to expand the MealFlour program.

## PEILE

PEILE runs vocational training program throughout Guatemala. MealFlour started working with PEILE in 2016 when we ran a crash course of the MealFlour program for university students. In 2017, MealFlour worked with PEILE to run a train-the-trainer program in Huehuetenango. With help from PEILE staff, MealFlour also set up a mealworm farm in the department of Retalhuleu, in the town of San Martín.



# 2018

## Goals

In 2017, MealFlour worked mainly with communities, piloting the training program and optimizing the farming process. For 2018, the primary goal is to work closely with locally run organizations to complete a train-the-trainer program in Guatemala. The results will be shared with larger international organizations hoping to bring the MealFlour model to communities around the world.

## Primary Projected Activities

With these goals in mind, thanks to a successful crowdfunding effort at the end of 2017, MealFlour's anticipated and potential projects in 2018 include, but are not limited to:

- Train-the-trainer program at the **Puesto de Salud** in the town of Estancia de la Virgen, on the border of the Quetzaltenango and Huehuetenango departments
- Train-the-trainer program in the **Palajunoj Valley** with Primeros Pasos
- Teaching and hosting **volunteers and interns**. From March – May 2018, MealFlour will host a Natural Sciences student from the University of Sassari in Italy. From June– August 2018, 2– 5 undergraduate students will come to Xela from the University of Chicago.
- Create and test **model for participants to sell mealworms** to local businesses
- Wrap-up activities with **PEILE** in Huehuetenango
- Work with **MIGHTi in Zambia**, to create open source mealworm farming program
- Work with Professor Marianne Shockley from the University of Georgia to conduct a **Lessons Learned in Edible Insects** study
- A train-the-trainer program with a cohort in **Guatemala City**
- Completion of an experiment to **find a more efficient and low-cost mealworm farming model**

## Directors, Volunteers, and Thank Yous

MealFlour is run by Directors and Co-Founders Elizabeth Frank and Gabrielle Wimer, both based in Quetzaltenango Guatemala.

In the Summer of 2017, MealFlour also welcomed three interns from the University of Chicago; [Symphony Fletcher](#), [Jessica Mora](#), and [Sebastian Otero](#).

Special thanks to co-founder Joyce Lu and to MealFlour's Board of Advisors; Monica Ayieko, Ted Fischer, Stephen Marcinuk, Gavin Yamey, and Michelle Iseminger

