Development of Educational Material for Farmer Field Schools in Guatemala

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2017 McBurney Fellows
McGill Institute for Health and Social Policy

IHSP
Institute for Health and Social Policy

Project Overview

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Department: Bioresource Engineering and
Organization: Instituto de Investigación y Proyección sobre Ambiente Natural y Sociedad (Iarna) and the "Water and Forest Program" from the GIZ
Location: Jutiapa and Guatemala City, Guatemala
Mentor: Jan Adamowski and Julie Major
Fellowship Duration: May 16th to July 20th, 2017

About the McBurney Fellowship Program

Through McGill's Institute for Health and Social Policy, the McBurney Fellowship Program supports students in international service programs related to health and social policy in Latin America. McBurney Fellows serve abroad in organizations working to meet the basic needs of local populations. One key aspect of this fellowship is its mandate to make a significant contribution to improving the health and social conditions of poor and marginalized populations through the delivery of concrete and measurable interventions. Students and their mentors identify issues, make connections with local organizations, and develop a strategy for the fellowship. The views expressed in this document are the opinions of the fellow, and do not necessarily reflect the opinions of the IHSP.

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Fellowship Rational and Objectives

In the region bordering Guatemala, El Salvador and Honduras (known as the Trifinio Region), the Forest and Water Program managed by the German Cooperation for International Development (GIZ) started in 2009 implementing agroecological practices, such as agroforestry, with the goal of preserving a highly threatened and marginalized ecoregion. Agroecological practices allow for the control of soil erosion, preventing flooding and increasing flow rates in rivers, enhances local biodiversity, as well as improving farmers' income. During our fellowship, we worked with the Forest and Water Program to disseminate the benefits of agroforestry for smallholder farmers. The program already had a social structure for farmer-to-farmer knowledge transfer consisting in a continuing training of farmers to become "agricultural community promoter" (Promotores Agrícolas Comunitarios, PAC) — community farmers who have committed to learning about and implementing low input crop care and teaching others about their impacts. We found that it was a simple way to quickly and effectively empower farmers in small communities; for this reason, we decided to directly work with the PACs to further implement educational workshops using the method of Farmer Field Schools[1] to teach them how to teach fellow farmers the benefits of agroecological practices. As a pilot project, we targeted the workshops towards the benefits of agroforestry for natural pest control, since the community where we stayed, El Quebracho, implements agroforestry as their agricultural system and the benefit of agroecology for natural pest control was an aspect that was yet to be addressed by the Forest and Water Program.

Our project focused on adding to farmer knowledge about, and facilitating discussions on, the life cycles of pests and their natural controllers in coffee agroforestry crops. We sought to implement the Farmer Field School method to give farmers educational tools to share among other farmers the knowledge they possess about their local ecosystem and share techniques to promote natural crop care. From the start of the project, our specific objectives have been threefold: (1) to develop practical workshops that teach farmers about the natural pest controllers present in their agroecological systems; (2) to empower farmers by providing the necessary tools to teach others about the benefits of agroecological principles they are already practicing; and (3) to spread awareness

[1] Method taken from: Pontius, John, Russell Dilts, and Andrew Bartlett. 2002. *From Farmer Field School to Community IPM: Ten Years of IPM Training in Asia*. FAO Community IPM Programme, Food and Agricuture Organization of the United Nations, Regional Office for Asia and the Pacific.

at the institutional level about the importance of farmer empowerment, and farmer-to-farmer knowledge sharing.

Background/Context

The community of El Quebracho lies at the base of the Suchitán volcano. It marks the entrance to the "Parque Regional Y Area Natural Recreative", an area that has been registered as protected by the National Council of Protected Areas ("Consejo Nacional de Areas Protegidas", CONAP), since the volcano provides water to the villages it encloses as well as many others in the surrounding areas. During our stay in El Quebracho, we witnessed general issues know to be affecting the southeast part of Guatemala.

From the environmental perspective, this area is known to be part of the "corredor seco"—dry hallway — and, due to climate change, the already short rainy season is becoming rarer. Villagers told us that, in the past two years, rain has been extremely scarce and crops at the bottom-half of the volcano have not produced much yield. The middle top of the volcano has a humid microclimate, allowing fields at the top of the mountain to receive enough rain during the very bad years. However, this makes it such that bad years are pushing farmers higher up into the mountain, leading to the degradation of an ecosystem that is a source of water for the surrounding areas, affecting all the villages down the watershed.

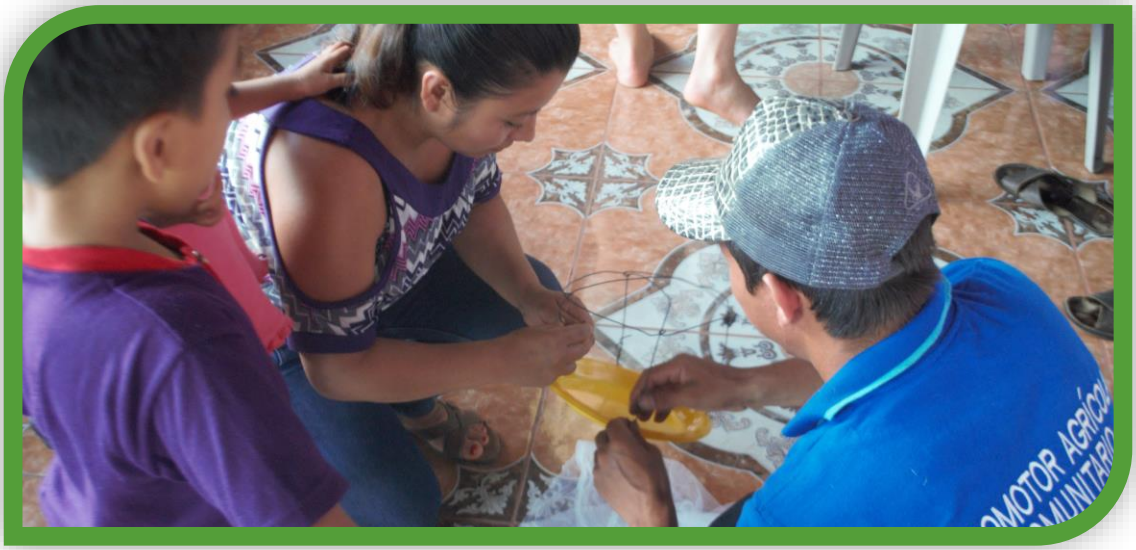
From an economical perspective, El Quebracho is a community that depends on subsistence agriculture for their basic grains and produces coffee as a cash crop. Unfortunately, economic pressures are also experienced by the villagers since, on one hand, climate change is diminishing the yield of their rain-fed agricultural products and, on the other hand, global market fluctuations of the coffee price highly impact farmers since they do not have the economic capital to withstand periods of low rentability. Climate and market pressures put these farmers in a precarious social position to the point of not knowing whether they will be able to feed their family the following year. Often, some of them will take the dangerous route of migrating towards the US to assure a stable revenue for their families. Unfortunately, along with money, migration also brings its great deal of social problems to the community.

According to testimonies shared with us by the villagers, once the migrant reaches the US, he will often experience a hard life and sometimes even discrimination. Adding to their problems as migrants, the temptation of gaining more money can push them towards bad options; they might enter the world of drug business or gangs, for example. Eventually, these people sometimes commit some type of crime that will deport them back to their community. With the weak government of Guatemala, the deported migrants that have acquired "bad habits"—as often expressed by the villagers — will be seen as a bad apple that will spoil the whole bunch, introducing crime and violence that is already present in the country into their village. Indeed, twenty minutes away from El Quebracho, the village called Suchitán was known by the locals as a highly insecure community with high crime rate and presence of gangs, to the point where the people will avoid entering or simply passing by it.

Activities

Our time spent in Guatemala was a mixture of facilitating discussions and workshops; presenting the project to institutional stakeholders; and taking notes on local agroecological methods to build a booklet we would distribute to farms—all while taking photos and video footage.

In the village, we held three workshops, and met informally with the farmers countless times. The first workshop was devoted to giving a brief presentation on common local coffee pests along with their natural controllers, and demonstrating the construction process of breeding chambers. The breeding chambers are simple compartments that allow farmers to see the life cycle of insects and any parasitoid wasp that might come out of an infected pest. Later the same week, we held a hands-on workshop introducing a second tool to observe insect biodiversity in the field. This tool consisted on a yellow plate filled with a mixture of soap and water; the reflection of the sun on the yellow plate attracted insects and the mixture of soap and water captured the insect in the plate. During the workshop, we were able to identify beneficial insects, pests, and other insects that are "neutral" for the coffee production. Meanwhile, during that whole month, we spent our mornings collecting insects from coffee plantations and preserving them in small vials of alcohol. Finally, in our last workshop, we started by allowing the PACs that attended the first workshop to teach their fellow farmers the construction of the breeding chambers, promoting farmer-to-farmer knowledge sharing. Then, we divided all the participants into four groups and passed around one vial of previously collected insects to each group for an insect identification task. For this last task, we displayed photos of the beneficial insects that were collected in



the coffee fields and asked them to identify among the insects in their vials the ones shown in the pictures. They carefully observed the insects that were as small as two millimetres and this sparked their interest on the functioning in the ecosystem of all the different insects they had in their hands. Lastly, we showed the PACs how to preserve the insects in an insectarium; they practiced pinning their own insects, starting their first data base on pests and beneficial insects present in their coffee plantations.

During the time we spent outside El Quebracho, we were able to reinforce the institutional links with our host institutions and we prepared all the tasks necessary to the development, printing and distribution of an educational booklet. We presented the objectives, advancements and expected outcomes to the directors, administrator, managers and technical staff of the GIZ that worked in the Trifinio Region including, but not exclusively to, the Water and Forest Program. We were also able to present the project to the Iarna, an academic institution whose mission is to safeguard the natural ecosystem of the country while taking into consideration its social and economic context. Finally, we also coordinated with the Water and Forest Program and the Iarna, on what will be the content of the booklet, who will do the diagramming, and who will print and distribute it. Indeed, after the presentation of the project, both institutions showed their enthusiasm and gave us their full support (financial and expertise) in the development of the educational material we will distribute to the PACs.

Challenges and Successes

It is difficult to say whether our broad goal of sparking the dissemination of sustainable agricultural practices was accomplished, as the spread of information is mostly out of our hands, but we unquestionably did our best to facilitate crucial discussions and add to growing interest within the PACs. The farmers we worked with were already aware of the dangers of chemical pest control, but propelling or reigniting the conversation was necessary, as it is difficult for the sustainability of this issue to remain a priority for them when they are concerned with other economic and social issues. Concerning our three specific objectives, we can say that we have accomplished them, even if the activities planned were not all implemented as expected.

Our first objective to develop practical workshops to teach farmers about natural control of pests was planned to be achieved through seven workshops where farmers would be introduced to growing chambers, yellow traps, and an insectarium, as all these tools were meant for the observation of pest's life cycle, predation and parasitism and the ecological biodiversity of their field. However, out of the seven workshops we were only able to conduct three since the timing was not convenient, as we were making sure to work around the farmers' schedules. In addition, we were not able to routinely observe parasitism in the breeding chamber as the climate was not ideal for the development of parasitoid wasps. An unplanned but quite successful activity was capturing the collected insects in photos, as they enabled us to show farmers detailed images of pests and beneficial insects from their own crops, and the positive impacts of their agroecological management practices on the biodiversity. Overall, these workshops were more successful than either of us could have imagined, mostly due to the extremely outgoing attitudes of the farmers we worked with, and their truly outstanding eagerness to participate. As the workshops were so well received, and most of the village was aware of our presence and purpose, we believe that sustainability efforts by the farmers will be endowed with new motivation.

Our second objective was to empower farmers by providing the necessary tools to teach other farmers about the benefits of agroecological principles. We decided to merge the two documents initially planned into one booklet to reduce the amount of written documentation handed to farmers. We started following the format of a booklet introduced by the Water and Forest Program, which was already used and very appreciated by the PACs. We had planned to finish and distribute the booklets, but time was scarce and we mainly focused on the workshops, pushing the development of the booklet back to when we will be in Montreal. Still, by working with the PACs, we used a structure that essentially teaches farmers how to teach, giving them a constructive way to communicate about farming biodiversity and beneficial or harmful insects. Although our workshops were effective at empowering farmers, the booklets we design will have more lasting impact, as the farmers will be able to return to the material repeatedly if they are unsure about something that was presented.

Finally, our third objective was to spread awareness at the institutional level about the importance of farmer empowerment, and farmer-to-farmer knowledge sharing. We planned to present a promotional video to show key institutional stakeholders our work. We ended up doing PowerPoint presentations since we did not have the necessary equipment for video editing; however, we did take some footage to finish the video later in the semester. The presentations were wonderful, as it was an invaluable exercise in presenting research proposals to official institutions of national and international environmental significance.

Questions Raised

We had many discussions while in Guatemala about the inevitability of our uselessness in the community's sustainability ambitions for their environmental, economic and social wellbeing. We would leave, but farmers would continue to fight pressures from increasingly difficult pests, to drops of the coffee price in the market while being in a context of violence and social injustices. Though all developmental work faces the issue of combatting one problem and ignoring others, it is still a conflict which must be recognized in every project. How can farmers maintain high yields while preparing for changes in climate and practicing sustainable low input crop care? How can and should institutions in Guatemala support the spread of these techniques without becoming an imposing and unwelcome presence in rural areas? Additionally, are certification requirements an appropriate way to change crop care norms? What steps could be taken to create niche markets by smallholder farmers, reducing their dependency of the global market?

Training and Mentoring

Through our time in Guatemala the Iarna provided us with office space in the city. In the village, the Water and Forest Program helped us through the agricultural extentionist, René; he proved invaluable to our project since he connected us to each PAC, found us a place to stay in the village, and gave detailed answers to our entomology questions.

Eleanor Reynolds: I received no training from my McGill supervisor—Julie Major—before departure, as the sole purpose of my supervisor is to assist with a report that I will complete in my upcoming Fall semester. We maintained email contact, but planned to discuss the independent project in the fall. However, it was helpful for me to discuss my plan for a research paper before I left, as I was able to look for things to take note of in conversations, workshops, or demonstrations, which might be relevant to my topic.

Marcela Rojas: Since this was my third time going to and working on a project in Guatemala, I did not need any training and very little mentoring from my McGill supervisor. However, we did maintain a monthly communication to assure that everything was on track.

What did you learn?

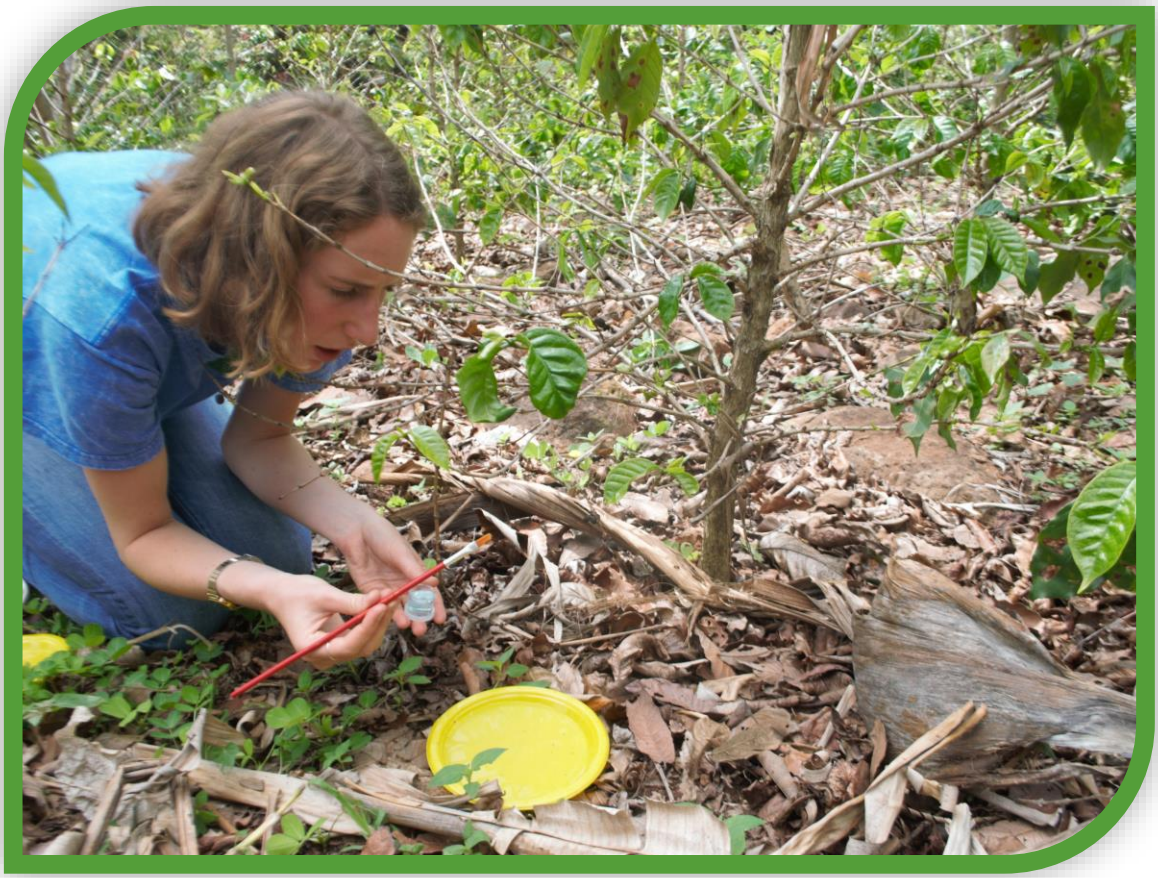
Eleanor Reynolds: My month in Guatemala was a learning experience both personally and academically, as it was my first time conducting research abroad. Firstly, my companion for most of the trip—Marcela—is undoubtedly one of the most intelligent, conscientious, and passionate people I have ever met. Working with her was a genuine honor, and I have never learned so much from someone only five years my senior. She was never patronizing, and always came from a place of understanding when she spoke to me about my role in the project or her past experiences with similar work. She was careful not to teach too much when speaking to the villagers, and gave every presentation with impressive ease. Most of all, Marcela is extremely passionate about what she studies, and about Latin America, which inspired a renewed passion in me for my own personal and academic ambitions. While working with her I learned how to appropriately conduct myself when collecting research in a foreign place and a foreign language. I learned to take the data very seriously, because although it may feel slow and unimportant in the moment, it will be crucial to the project and your findings. Regular discussions with Marcela taught me to articulate my feelings on sustainability and development in my home country—which I only felt I could write about before. I learned heaps about Latin American culture and history from hours of talking with her, and I am very grateful to have had the opportunity to absorb some of her years of experience. Until this trip, I have always been nervous to express many of my own opinions aloud, as I felt I lacked the experience to ground them. Now that I have had a fraction of her travel and research experience, I am a step closer to feeling confident in my perspective.

One aspect I would have changed before departure was my knowledge of the Spanish language. I studied a bit in middle school, so I was familiar with very basic phrases, but needed reminding for most other conversational Spanish. One month before I left the U.S I began to study a grammar book each night, copying verbs and phrases twice over into a notebook. Because I was studying for my finals at the same time, I was distracted and did not learn as quickly as I could have solely

focused on learning Spanish. If I had had more time, I would have been able to devote more time to learning proper grammar, which would have changed much of the trip. I would have assisted Marcela in her presentations, and moving around the city on my own—which would have saved project time and resources. However, my inadequate knowledge of the language forced me to devote real time to studying verbs and phrases, which was an exercise in motivation. When we arrived in Guatemala I could scarcely have a conversation, but I made up my mind to listen as much as I could, and write down everything I heard used most. I knew that I could gain infinitely more from my time in Latin America if I knew minimal Spanish. By the end of my first week I could carry on a conversation well enough, but with broken grammar. I studied in my down time and Marcela helped by leaving me to order things or buy food on my own, in the village and in the capital. I was surprised by how easily I could pick up the most common phrases, and it gave me confidence in my ambition and drive to be of use to Marcela in the project. Because I was successful in teaching myself enough to follow a conversation by the end of my stay, I had renewed confidence in my capacity to add to the project.

Additionally, I learned that I tend to overcomplicate and overthink things, instead of simply being present—especially when I am surrounded by new places and people. As this was my first time travelling without family, some hesitation and “depaysment” was expected, and Marcela was exceedingly understanding. I had slight bouts of loneliness during the first week wherein I would miss my family terribly, and have a difficult time focusing on having new experiences. Marcela was the only other English speaker in the village, and, thus, the only person I could speak to initially, so I felt the distance between Guatemala and home weigh heavily on me. However, I quickly learned to channel this anxiety into studying Spanish—I asked more language questions, and listened to Spanish conversations with rapt attention. By the end of the first week, I was very grateful to be where I was, and had become very fond of the family that hosted us, as well as the PACs we worked with.

Lastly, the smallholder farmers I met and conversed with greatly impacted the way I feel about my own country, as well as the way I think about foreign conflict. It is shockingly easy to feel disconnected from the rest of the world from a middle-class home in the United States. Every family I met in the village had a brother or a father who spent, or was spending, at least five years



in the U.S making money only to return with enough money to live out their lives comfortably (if they are lucky) at home—and contrary to popular U.S. belief, these immigrants had no desire to remain in my country. The family members who remained did not know if they would ever see their loved ones again, but hoped that someday they would be able to visit, or that their relatives in the U.S would be lucky enough to acquire the papers to leave and return. I have always known that the United States has generally treated outsiders with cruelty, but I have never really felt the shame that I felt walking around Guatemala, because the United States has been stepping on Latin Americans throughout history, yet somehow their commercials and signs proudly feature the most light-skinned actors next to English words. What a childish thing to be shocked by the amount of unkindness in the world, but I was.

Marcela Rojas: From an academic or professional standpoint, this fellowship allowed me to develop and implement a project that I envisioned for the last three years in a rural area of Latin America; an area where I will like to direct my career towards. The McBurney fellowship also gave me the opportunity to learn how to coordinate a project with a fellow student, to develop it as a team, and to achieve it in a short and compact timeframe. The only change I would make to our project, if I was to redo it, would be an evaluation method; it was very difficult to estimate the concrete impact of our work in the community, and having this feedback would have been very useful for future projects.

From a personal point of view, what I learned the most was the true meaning of generosity. I was amazed at the bigheartedness of our host in El Quebracho, Doña Marta; she is a woman with no formal education who does not even know how to read or write. If it was not because we insisted on paying for our own expenses, she would have given us food and lodging for free. She was just as generous with everyone that came to visit her. From time to time, people in need would come and she would send them back with corn, beans, coffee and chickens. The day that I asked her why was she so generous, she simply answered: "I was born poor and I have always been happy. Why would I like to have more? Everything I receive, I just give it back." I knew this single sentence was worth my whole trip to Guatemala. It is certainly a lesson of humility that will stay with me for life.

Community Implications and Further Work

Although we cannot assume that our work will truly shatter any timidity that the PACs feel sharing their knowledge of low input crop care, we can confidently say that we have brought back a conversation on sustainable crop care that may have grown stale since the last visit the summer before. We mainly believe that our many conversations with the farmers provided an opportunity to voice their concerns and ask questions, and that they began to feel more confident in themselves and the incredible work they have been pioneering. The farmers are unsure of themselves when it comes to voicing their knowledge of sustainable crop care, which is partly a result of centuries of smallholder farmer inferiority complexes begun and perpetuated by those who do not work the land. Although we did not address the economic and social issues faced by the community, we hope that our presence showed the farmers how important they are and how crucial their work really is, giving them the energy to keep fighting all the pressures infringed onto them.

After our fellowship in Guatemala, we started believing that, if farmers around the world began to feel more capable of affecting change, they would be confident enough in their own crop techniques to insist that others adopt them. Each community that practices low input crop care is providing not only healthier soil and a more welcoming ecosystem, but the start of an ideology that holds stewardship of the environment for future generations above profit and chemical crop care. We hope that El Quebracho will not be misled by harmful fertilizer and insecticides practices, but will resist and keep pioneering healthy agricultural practices that respect the ecosystem. We also hope that the community is proud of their work accomplished since their farmers are leading the way, and ensuring crop security for the future. Now that our planet is on the brink of climatic chaos, empowering farmers is one of the most effective avenues to, at long last, treating our agricultural ecosystems with care.

Farmer Field Schools can be used as this very needed empowering tool and this project was a first step towards a formal development on an official Farmer Field School program. If we can secure funding, we will still have the doors open to continue the work in the village, with the Iarna whose reach is at a national scale, and the GIZ—through the Water and Forest Program—whose reach is at a global scale. We hope that this project will continue to be carry on by the McGill's Global Food

Security Institution to develop, through Farmer Field Schools, a global farmer's knowledge sharing institution. Further immediate steps will include staying a full growing season in the field for the development and application of more modules, and developing an evaluation and monitoring methodology to get feedback on the work that is being accomplished.

future students, researchers, and visitors to use as a resource. We believe that this will be an important resource for future visitors who have an interest in supporting the legacy of past projects, making improvements to past implementations, or creating new positive impacts.

Program Evaluation

Eleanor joined this project having never travelled for research, and she found it an incredible learning experience and a lesson in humility and perspective. For Marcela, this fellowship gave her the financial resources to work and immerse herself in a project that she had been developing for the past couple of years. This trip gave both of us invaluable practice at getting to know the life in a rural community whilst maintaining an objective eye, and working to fit into the daily life. We feel that we are now much more prepared for a longer research journey, and we are eager to do more fieldwork.

Future McBurney Fellows would do well to ensure that they have a proficient knowledge of the language in the area they are visiting, as it is crucial to our experience. Everything a researcher can get out of the social aspects of living in the field hinges on their ability to speak to the people around them. We would also say that it is crucial that researchers make a real effort to step out of their outsider role every once and a while, because it can get lonely being an outsider and you only have lessons to gain by stepping out of your comfort zone. Lastly, we would say that immersing yourself in the research as much as possible is crucial, because it will enhance your interest in the topic every day.