



**Purdue University
University of the Llanos**

**Farmer-to-Farmer in Colombia's Orinoquia Region
PDP-2014-2**

**Final Report
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I. Executive Summary

The main goal for the Farmer-to-Farmer (F2F) project in Colombia's Orinoquia Region under RFA No. AID0AA-13-00053 was to promote rural development to support sustainable and economically equitable peace in the region, through integrated volunteer technical assistance. The project focused on the Meta region of the Orinoquia, known for its diverse ecological landscapes. Specifically, Purdue and its in-country partner, Unillanos (University de los Llanos) focused on two areas in the Meta department (state): the Altillanura and Ariari regions. These areas have high exposure to extensive cattle ranching and low-input agriculture¹ and are home to 46 protected indigenous groups as well as families that are recipients of land grants from the Colombian government who had been displaced by armed conflict. A recent surge in development of infrastructure, industrial-scale agriculture, and the hopes of a lasting peace agreement between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC), led to the need for an increased focus on rural development. The project sought a balance between assisting small farms that use sustainable agricultural practices and larger agro-industries in the region.

The overarching strategy used to achieve this goal was to help build sustainable local food value chains. In order to accomplish this, decades of farmers' perceptions and practices in marketing their products needed to be addressed. They had long been accustomed to selling products to intermediary markets where they were often paid nominal fees, while the intermediaries enjoyed the profits. The local food value chains, which are also referred to as "food hubs", look different in each of the two focus regions. According to the USDA, the definition of a food hub is a "value-based supply chain". Essentially, that means from farmer (or producer) to consumer the entire supply chain and production thereof is completely transparent. The development of value chains/food hub concepts was tailored to meet the differing needs of each of the focus areas for this project.

Altillanura

When the Farmer-to-Farmer project began in September 2014, the small- and medium-sized farmers in the Altillanura region had little contact with markets and few value added agricultural or food products were produced for self-consumption. The region was characterized by the use of land mainly for extensive livestock grazing. Production and processing of fruit, vegetable, cereal, medicinal and aromatic plants were minimal at best. Most of the farmers who were interviewed or contacted by the project team during the initial survey stated the low fertility of the soil, combined with a high degree of acidity, made cultivation difficult and the only option for income was livestock grazing. Much of the region has been settled by families who were displaced by the armed conflict in Colombia. Many grow products for subsistence, so the focus for the F2F project in this

¹ <http://ciatblogs.cgiar.org/soils/ecosystem-signposts-in-orinoquia/>

region was to provide training that would allow them to transition to growing/raising products for the market as well. The food hub model in Altillanura focused on improving production and opening a regional store featuring products from local farmers.

As a result of the F2F project, beneficiary farmers and organizations are beginning to realize a surplus in products which they are able to market. They are also developing new value added products for F2F supported newly formed farmers markets in Puerto López, Puerto Gaitán, and elsewhere. Although many beneficiary farmers still depend on renting their land for livestock grazing, their sources of income are now diversified due to the efforts of Purdue's F2F project.

In the Altillanura region, project estimations show that 23.5 hectares of land were brought under food production (not counting areas improved by technologies such as electric fence and improved livestock management) due to recommendations made by F2F volunteers and efforts of the local team. Compared to the initial survey, the food production area has been increased by one hectare on each of the participating farms. An increase in the area of food production is still important in a relatively difficult zone².

Ariari

The Ariari region was also chosen as a focus because it is considered a primary food producer in the Meta region and has a strongly developed system of agricultural markets, generally linked to intermediary operations. In contrast to Altillanura, the Ariari region has crop/market systems for products such as citrus, guava, papaya, banana, cassava, cocoa, rice and corn, along with an increasing production of dual-purpose cattle. In order to provide producers an alternative market for their products, the food hub model in Ariari focused on preparing farmers for, and laying the foundation of, an online marketplace where they would be able to sell their products without an intermediary - called PROTOS Market for Life. This food hub focuses on sustainable food production and providing safe, quality foods to the marketplace linked to responsible consumption. Farmers must have their production methods vetted to meet the sustainability requirements of PROTOS. Commercial fruit farmers in particular have shown great interest in the development of the online food hub due to its business model and potential reduced dependence on market intermediaries. There currently are 30 farmers ready to participate.

Livestock and the development and promotion of agro-tourism were also focuses in Ariari, which resulted in 6.5 hectares transformed. The project also impacted production issues, such as: integrated production systems, organic soil management, green vegetable production, and biodigesters.

In both Altillanura and Ariari, according to the analysis of the local team, the key factors

² The families of small and medium farmers in the Altillanura area have an average of 24 hectares of land each. They mainly depend on family labor and simple tools for farm work. They have limited access to capital for hiring labor or investing on farm equipment and machinery. In general, each family raises food crops on 1 or 2 hectares.

that impacted food production and product diversification were: adoption of key technologies (encouraged by F2F volunteers), greater awareness among farmers about the opportunity and value of their products, and growth of demand and consumption trends of organically grown products associated with particular farms. Additionally, the local team found smallholder farmers needed support to increase production through environmentally sustainable farming practices. There was a need to build better relationships with local consumers (individuals, businesses and institutions), enhance the capacity of farmers to market their products, and organize and lobby local government for sustainable agricultural development. Three project objectives were designed to provide a framework necessary to create and support local food value chains. These objectives were: 1) improved agricultural productivity through sustainable agricultural practices and natural resource management; 2) a strengthened regional agricultural economy through value-added processing and sustainable innovations along the value chain; and 3) new and strengthened networks to support small farms and markets for local food systems.

II. Program Objectives and Results

The core focus of the project was to create and support local food value chains. Forty volunteers were fielded over a period of three years.

Objective 1): Farm productivity to increase yields: Improved agricultural productivity through sustainable agricultural practices and natural resource management. Volunteers will work with smallholder farmers to enhance their knowledge and ability to cross train others in the community.

Volunteers / Activities

Fourteen (14) volunteers worked with eight (8) separate hosts to support this objective. The majority of the volunteers worked in the Altillanura area, specifically with smallholder farmers who are land grant recipients. Program staff discovered the pH level of the soil was not conducive for sustainable crop production and portions of the land were being rented for cattle grazing, leading to further depletion of soil fertility. Due to these conditions, many farmers were not able to produce enough crops to support their family, thus limiting their ability to enter into a marketplace and generate additional income. Therefore, this area needed to be developed from the ground up for sustainable agriculture.

Activities to improve the soil were focused on water conservation, intercropping, wastewater management through the implementation of biodigesters, soil conservation and organic soil management. The benefit of composting to add needed nutrients back into the soil was demonstrated and taught using various composting methods. To help ameliorate the effects of over-grazing and improve livestock feeding and fodder quality, volunteers demonstrated the use of electric fences to prevent overgrazing and rotating grazing areas. The economic benefits of raising pigs outdoors were explored. Pigs are

efficient in controlling weeds and pests. The manure can improve soil fertility and pig meat is a good source of nutrition and generates needed income for farmers.

In order to improve the overall productivity it was necessary to introduce the horticultural component. Volunteers taught farmers and hosts: quality seed saving techniques, how to identify and control plant diseases and organically manage crop pests, organic vegetable production, and finally, proper grain storage techniques to decrease pest infestation and control moisture (reducing potential aflatoxin contamination).

Results

Some of the most impactful recommendations that were adopted include the use of biodigesters, soil conservation techniques and water harvesting. Program staff observed that the use of biodigesters resulted in reduced firewood gathering and thus rejuvenation of forested land. Staff also measured that biodigester use led to improved environmental management of wastewater from the pig production facility, and reduced the use of propane gas and fertilizers. Additional results were the implementation of water harvesting, soil conservation, and intercropping. Manure from dairy cows was applied to pastures during the dry season to enhance soil fertility. Trees and other live barriers were planted to prevent soil erosion. Farmers harvested rainwater, created micro-catchments around plants and shrubs to conserve water, and adopted techniques of micro water harvesting. Intercropping systems and outdoor pig production, as well as rotational grazing were also implemented. All of these efforts will improve local farms, resulting in better quality and more production of fruits and vegetables, for which there is a demand in the market.

One of the best examples of the results obtained from the F2F initiative on this objective is the story of Eloisa Aguirre. Eloisa is a land grant recipient in the Atitlanura region. At the beginning of the F2F project, the soil was so poor on Eloisa's farm she was unable to provide for her family. Through the training and support from F2F volunteers and Unillanos, three years later Eloisa is now raising livestock and growing vegetables, fruits, and coffee.

How it supports the food hub

The focus for this objective is to teach the smallholder farmers and hosts how to increase production of livestock, fruits, and vegetables in a sustainable and organic manner. Increased production will lead to an excess, which can then be sold into to the market place.



Eloisa Aguirre on her farm with Jorge Clavijo Velez from Unillanos (2017), which is now flourishing thanks to F2F

Recommendations for future development efforts

Continued support in working with the smallholder farmers and hosts is vital. The F2F project has laid the foundation through education on techniques that can be economically and easily implemented to improve the sustainability of their farms by using organic methods sourced from local materials. Many of these farmers have realized notable improvements because of this project. Future support from volunteers or other experts would cement the learning from F2F and ensure they become a way of life in the region. Ongoing technical support will also help farmers overcome years of cultural stigma so they can begin to openly collaborate, educate, and support one another.

Objective 2): Processing and Markets: Strengthened regional agricultural economy through value-added processing and sustainable innovations along the value chain. Volunteers will provide technical assistance in agricultural processing, product innovation, and marketing.

Volunteers/ Activities

This objective fielded 18 volunteers visiting 14 host organizations as well as smallholder farmers and various small businesses. Three of the volunteers focused on youth development and youth organizations. There has been a marked decline in the younger generation taking over the farms. The future of the rural farms is dependent upon the youth becoming re-engaged, also they often have a greater awareness and comfort level with new technologies that can be used to help market products.

Three other volunteers completed a month-long joint assignment to teach students how to build a versatile utility vehicle, the AgRover, to assist with both increasing production processes on the farms, and in getting those products to the marketplace. The AgRover is an innovative vehicle that has been used in other countries and can be modified to serve various functions on the farm, such as a grinder that allows farmers to grind corn into flour as soon as it is harvested. In addition, it can act as an intermediary mode of transportation to help farmers get their products to market by transporting them over what would otherwise be virtually inaccessible roads. All the parts are locally sourced to further support the local economy and sustainability of the AgRover (*See Annex 4: Success Stories*). Another volunteer worked with hosts on cocoa, specifically roasting techniques and how to develop new products. Additional assignments focused on: beekeeping, healthy eating, pork processing, milk production, mature cheeses, and how to build and use solar dryers to produce marketable products. It should be noted, 62 smallholder farmers were trained on how to build and use the solar dryers.

To support marketing, volunteers worked with smallholder farmers, host organizations, and small businesses to teach organizational capacity and planning, account management, how to start a cheese store business, a farmers' store, and sustainable tourism. Volunteers worked with farmers and small businesses to identify and create market niches. In addition, there was a large amount of work with nine (9) separate small

businesses to help develop marketing and media strategies to increase market presence.

Results

- Solar dryers are currently being used for moringa, pineapple, mango, banana, plantain, and chilies.
- Host organization CEP helped support and develop a new product, Christmas baskets. Local farmers and small businesses collectively gather various goods and products and place them in decorated baskets to sell at Christmas. This proved to be successful in 2017 and will continue.
- The beekeeping assignment resulted in a host producing honey for the first time in December. Shortly, their beehives will be producing enough honey to market.
- Technologies such as the AgRover and solar dryers helped train students and increase the capacity of professors and technical staff. These items were manufactured using locally sourced materials to increase local capacity and ensure procurement of parts needed to maintain these products.
- New types of cheese were developed.
- The cocoa assignment led to a new product, chocolate with honey.
- The healthy eating assignment also resulted in new products; banana flour, coconut milk drinks, chocolate and yogurt.
- Host SENA was trained in pork slaughtering and processing, including the preparation of meat cuts. An additional eighteen (18) small producers were also trained. The SENA instructors, who received the training, are incorporating the information into their curriculum for new students.

Concepts were developed to link smallholder farmers to the tourism industry by linking farm experiences with the natural beauty of the countryside. For example, one farm may allow tourists to make their own cheese and is exploring options related to bird watching. Many smallholder farmers see agritourism as a legal way to supplement income from their farms and promote the conservation of natural resources. Strategies were identified to market the development of a sustainable tourism industry. This was done through social media, event promotions, and marketing strategies.

The volunteers conveyed the importance of GAP (good agricultural practices) and GMP (good manufacturing practices) and how they can be economically feasible for the farmers. They taught farmers and small business owners' proper processing techniques to produce better quality products, which in turn will be more valued in the consumer market. One challenge was addressing concerns regarding the future of farms, with the increasing age of farmers and a large population of the youth leaving rural areas and migrating to the cities. It is too early to predict impact the volunteers may have had on youth, but some of them did express renewed interest in agriculture to the volunteers.

How it supports the food hub

The implementation of many activities under this objective directly supported the development of a food hub system. In order for farmers and small businesses to participate in a food hub, many were provided with training on business development. Training was also provided on value-added processing (as well as GAP and GMP), which leads to better quality products, which increases consumer demand. New products were created, which also creates consumer demand and may fill a niche market space. Farmers learned how to collaborate with other farmers as well as small businesses to leverage resources to create products that fulfilled consumer demand. Training on stronger financial processes (setting prices for profitability, sound recordkeeping), as well as on how to market products helped farmers participate more fully in a food hub system.

Recommendations for future development efforts

Continued work with the farmers and host organizations is needed to build on the business processes implemented. Farmers are not accustomed to record keeping and developing the financial plans needed to run a business or sell products. GAP and GMP should also be fully integrated into future training. Additional support from future F2F or other projects would help to improve this process. Several of the host organizations were excited to learn improved techniques and manufacturing practices but lacked the capital to implement. Perhaps in the future the identification of funding sources to support the volunteer's recommendations could be incorporated into the volunteer's report.

Tourism is a complex and competitive business requiring significant capital investments that most of the hosts do not have access to. It also benefits from relationships with all levels of government as potential sources for funding to help offset the large startup costs. Relationships with related tourism industries also need to be developed to operate successfully and provide support services- i.e. Ground Operators. Marketing tourism beyond a local environment/community is not practical without dedicated staff. A long-term funding plan is required, plus market research on all competitive offerings of tourism from the area. Then, the economic impact of new tourism for the region can be projected to solicit funding.

Objective 3): Enhanced Networks: New and strengthened networks support small farms and markets for local food systems.

Volunteers / Activities

Eight volunteers were fielded to support this objective, supporting ten (10) host organizations and various small business owners. Although this objective had the fewest volunteers, much work was accomplished. Volunteers developed a marketing plan on responsible consumption, and held working groups with 60 small farmers, local government representatives, and NGOs in two regions to provide input into the development of annual small farms conferences (see Annex 7) and the development of food system awareness. In 2017, our partner organization, Unillanos, held the first small

farms conference with nearly 60 farmers directly impacted by the F2F project in attendance. The conference was a unique opportunity for the farmers to collaborate on the recommendations and implementations from the project that led to improved sustainable farming activities. The farmers visited some of the impacted farms to showcase the results and reiterate how the utilization of the recommendations from the F2F project can benefit the farmers' ability to produce goods.

On the last day of the conference, a total of 100 participants from various government organizations, NGOs, farmers and researchers attended. The group discussed sustainable food production, the economic efficiency of small and medium farms, and the impacts of the F2F project along with some of the main recommendations that have been implemented. The purpose of an open forum aimed to boost collaboration among farmers and other organizations, and to encourage participation in rural development.

PROTOS Market for Life, an online food hub concept was patterned after the existing Hoosier Harvest Market and was introduced after the launch of this project. Alvaro Ocampo Duran, the lead for in-country partner, Unillanos, visited the U.S. and after seeing the demonstration of Hoosier Harvest Market and its success, encouraged the implementation of the same in Colombia. As a result, we focused on the Ariari region for the implementation of PROTOS since, as mentioned above, this region already had established food markets and linkages to intermediary operations. Meetings were held with farmers, local authorities, institutions, and organizations to explore the interest in an online market. Volunteers educated producers on the concept of the online food hub, identified consumer needs, conducted feasibility studies, willingness to pay studies, and conducted market research. In addition, we built a financial plan, developed a business plan, and identified funding sources and e-commerce platforms (Shopify, Square Space, etc.) for the online platform. From the producers' perspective, each producer must meet a strict set of quality standards where their products are sustainably and organically produced. To date, we vetted 30 suppliers who are currently meeting the high quality standards required to participate in the food hub, and identified 25 more interested suppliers.

Results

- In the Altillanura region local farmers have opened a Farmer's store (*see Appendix 4: Success Stories*). The store is wholly owned by the farmers and sells meat, fruits, and vegetables. In less than six months of operation, it has already been profitable. Currently the farmers are reinvesting the profits into the store.
- Training from two volunteers in strengthening business and marketing strategies resulted in host Chocoartesano realizing a 25% growth in sales in 6 municipalities in the Meta region. They also signed new commercial agreements with distributors in Villavicencio.
- Both of the regions (Ariari and Altillanura) have begun to hold a unified small farms

conference. The small farms conference is a means to connect farmers from different regions, share ideas, and create networks.

- The PROTOS Market for Life online food hub is nearing completion. The groundwork for the online food hub has been developed. Unillanos needs to collaborate with an IT company who can support the internet platform of the food hub, and secure the proper funding. Initial funding opportunities were declined because the IT company, who was identified to be a partner, did not have the capital outlay required by the Colombian government. Once Unillanos can identify a new IT company that meets the financial requirements, funding can be obtained. They will then need to contract with a warehouse and local distribution channels, and then begin to market the idea to draw traffic to the website.

How it supports the food hub

The small farms conferences have led to stronger networks among farmers. By conducting the small farm conferences jointly with both regions, it has also increased the awareness of a food hub system. Farmers collaborated on how to further develop a food hub system within each of their respective regions. The creation of the Farmer’s store in Altillanura is the culmination of a number of F2F volunteer assignments that helped small farmers move from subsistence farming to producing products for sale, and it has given them a final market for their produce. The PROTOS Market for Life has brought together larger farmers from Ariari to raise their production standards to meet the sustainability requirements of a transparent value chain.

Recommendations for future development efforts

Hosts had a wide range of business skills, but minimal skills related to marketing and media. For small farmers to develop networks and collaborate further on food hubs, they need to be more familiar with these aspects as well as how internet platforms (i.e. social media) can play a major role in marketing for little to no capital outlay. This is where youth engagement could potentially play a role in moving farmers into having an online presence.

III. Targets and Indicators

	Persons Trained			No. of Persons Directly Assisted		
	Male	Female	Total	Male	Female	Total
FY 2015	253	200	453	477	330	807
FY 2016	179	207	386	258	303	561
FY 2017	209	235	444	307	261	568
LOP	641	642	1283	1042	894	1936
Targets (revised)	733	736	1496	1248	1143	2391

4/12/2017)						
Deviation from Target (%)	(13%)	(13%)	(14%)	(16%)	(22%)	(19%)

The project focused on the Altillanura and Ariari regions, which are two very different regions with respect to the environment, social and economic processes. In the Altillanura region, the project largely worked with organizations and farmers who were land grant recipients displaced by the country’s history of violence. In this region, recipients were eager to learn and improve their way of life. As a result, we were able to assist more people than originally expected.

In the Ariari region, the project initially began working with farmers located close to the Ariari River and municipalities where most of the food is produced in the Orinoquia region. Half way through the project the peace agreement with the FARC was implemented in this area, which opened up additional areas of opportunities within the Ariari region. Farmers and local organizations within the new areas were cautiously optimistic to receive support from the F2F project, however, the lingering history of violence fresh in their lives, made the farmers reluctant to participate in trainings or meetings. For this reason, the overall target of people trained was less than anticipated.

A total of 40 volunteers were fielded, of which 14 were females; 570 volunteer days completed, valuing \$267,900 U.S. dollars of time leveraged and 186 recommendations made. The estimated value of volunteer time leveraged was \$13,752. The project worked with a total of 22 host organizations. The impact realized for the host organizations was 5,296 total beneficiaries; annual net income from all organizations over the life of the project was \$123,798. Forty-three hectares of area under improved environmental/natural resource management was impacted. A total of 69 outreach activities were conducted with value of resources leveraged for the life of the project totaling \$41,600.

IV. Lessons Learned

- A more focused effort on fewer hosts or better vetting of hosts may have led to a greater impact. The life-of-project target number for host organizations was 12 groups - Purdue’s project achieved this goal and continued to develop relationships with potential organizations (concluding with assistance to 22 hosts). The intent on increasing the number of host organizations was to have a broader impact. However, in the process, some of the hosts may not have been fully vetted in regards to having the financial capability of implementing the volunteer recommendations. By proper vetting and keeping the number of host organizations smaller, volunteers could have concentrated on those hosts to make a greater impact.

- Staff could have spent more time understanding the operational capacity of hosts in order to plan more efficient volunteer efforts. Better communication with hosts prior to volunteer visits would help to manage expectations.
- Recruit more local volunteers who are knowledgeable about the region, history, challenges, and are passionate about making a change. Local volunteers will increase the stability and sustainability of F2F program ideals beyond the life of the project. Due to their proximity, they are more aptly able to train the trainers and ensure new techniques are understood and implemented properly.
- Help identify funding sources to implement ideas. Some of the host organizations could benefit from volunteer recommendations, but lack the funding source to implement them. It could be desirable to send volunteers trained in grant proposal preparation to train a select group of hosts in effective communication strategies and preparation of proposals that meet the expectations of local and central government funding agencies and the private sector.
- The F2F project allowed the Purdue team to learn a great deal about Colombia and the Llanos region. This empowered Purdue to explore another project entitled “Opportunities for Agriculture and Tourism in the Orinoquia Region of Colombia” which was funded by the Colombian government. The aim of this project was to provide the Colombian national government, departments and municipalities the analysis and research-based tools to understand the economic and development opportunities related to agriculture and tourism in the Orinoquia region. This project coupled nicely with the F2F project and connections and results from the Orinoquia Initiative project allows farmers and government entities to be able to run statistical modeling to determine the best methods for farmers to utilize their land (livestock, crops, and percentages of each).
- Through this project, Purdue learned that Colombian local labor laws related to hiring, tax and employee management can be complicated. This process helped Purdue ensure the employees hired and managed in-country remained in compliance with Colombian laws.
- Extension Educators who volunteered on this project learned a great deal about tropical agriculture, sustainability of small scale farms, cultural diversity and economic realities of Meta region. The lessons learned by each volunteer will assist them in other potential F2F volunteer opportunities in that region.
- International Programs in Agriculture office learned valuable lessons in program management, working in a conflict region in Colombia. For example, due to the past history of violence in these regions, farmers have a reluctance to change or trust new ideas and outsiders for fear of future retaliation from FARC. The area also holds a long history of intermediary markets. Assisting farmers in building direct markets requires the farmers to overcome years of being suppressed.

Annex 1: Volunteer Assignments

1. **Tallal Hassan (Harvesting, storage, and efficiency of water usage)**. The assignment focused on training in rainwater harvesting systems, water storage, distribution and efficient use in production systems.
2. **Dave Roberts (Integrated Agricultural Production Systems)** For this topic, voluntary work in training on the various techniques of integrating systems such as intercropping, forestry, agroforestry, integrated production systems and farm animals was done.
3. **Anne Dare (Management of Waste water)** This assignment trained farmer organizations in the management of wastewater, such as bio-digesters, bioremediation, reuse in irrigation, seeking to reduce the impact of production processes on the resource and increase efficiency in their use.
4. **Michael Morrow (Marketing Community Supported Agriculture)** Promotion of a local food system, investigation of feasibility, and recommendations on steps for establishing a direct to consumer local market system for small farmers and processors.
5. **Mathilde Paino (Soils and the Nutrient Cycle)** Worked on issues of cycles of decay and transformation of soil nutrients, biomass production and its use for different purposes within the farm.
6. **Cris Derusha (Youth Agriculture Clubs and Opportunities)** This assignment developed local youth leadership potential for agriculture and food production.
7. **Carmen Derusha (Agricultural producer organizational capacity and planning)** This assignment was to work with the host organizations to motivate new organization and planning process from the perspective of local capacities and intergenerational inclusion to ensure that organizations develop basic planning schemes.
8. **Andrew Martin (Mature cheese)** The objective for Andre's assignment was to work with farmers to identify needs in the milk production system in order to make mature cheeses. Teach basic techniques for the mature cheese production according to the context of small farmers of the area.
9. **Marisa Benzle (Soil Organic Management and Food Production)** To promote sustainable family farm production, teach people how to identify the bio-indicators, to the health of the agro-ecosystem. The focus on horticulture should promote options for diversifying horticultural vegetable and herb production, considering tomato, onion, basil, cilantro, carrot, and other potential crops for family consumption (added nutrition) and for sale, to increase income.
10. **Steve Engelking (Small Farms Conference Planning and Livestock Management)** Steve focused on best practices and issues in planning for a small farms conference. Assessing farmers' livestock practices.
11. **Tommy Creswell (Plant Disease Diagnostic Capacity)** Taught participants procedures and lab techniques to identify plant diseases. It was a strategic contribution by the project to improve the capability in the region and to generate a network between professionals linked to plant pathology diagnostics.
12. **Lina Rodriguez (Plant Disease Diagnostic Capacity)** Taught participants procedures and lab techniques to identify plant diseases. It was a strategic contribution by

the project to improve the capability in the region and to generate a network between professionals linked to plant pathology diagnostics.

13. **Michael Morrow (Market Assessment for Local Food Chain)** Michael worked with Alexander Cardona. His objective was to support the logistical planning of PROTOS, based on his experience with the Hoosier Harvest Market. Michael helped PROTOS by drafting the project and work plans.

14. **Alexander Cardona (IT Platform for Small Farmers Food Hub)** The objective of this assignment was to improve the capacities of those individuals working with the Unillanos Microbiology Lab for plant disease diagnostics. Tom and Lina worked with samples of local diseases in order to support the local farming community. Based on the volunteers' recommendations, new equipment was purchased and lab workers improved their techniques for identifying fungi and working with equipment.

15. **Amanda Dickson (Information & Account Management for Small Farms)** The objective of this assignment was to encourage farmers to keep account records of their farms. She worked with 37 farmers and taught them basic concepts of record keeping, incomes, expenses, outcomes, costs and investments records. The challenge for this assignment was that though the farmers are interested in account management, they are used to keeping their accounts in their head and have little education.

16. **Silvana Pietrosevoli (Outdoor Pig Production)** - Silvana Pietrosevoli worked with several farmers to improve/increase the use of pigs in other farm processes (manure as fertilizer and soil tillage with pigs). Silvana visited farms to show them examples of outdoors pig productions design. Also, Silvana explained the importance of local forage for animal nutrition. On this last point, several farmers have adopted Silvana's recommendations. They are planting new crops or increasing the amount of area for farmed for feed. The farmers are also using pig manure to grow their crops.

17., **William Nichols (Business & Financial Plans)** William worked with the F2F team to develop a business and financial plan for PROTOS. During his assignment, William worked with the F2F team, master's students, farmers and municipal leadership.

18. **Leah Joyner (Agrotourism)** The objective of this assignment was to improve the use of natural resources in the agritourism practices of the area's farmers. Leah worked with farmers on their farms to teach them concepts and practices to improve their agritourism services without damage the environment.

19. **Jonathon Day (Agrotourism)** This assignment worked on agritourism planning. Jonathon worked with farmers, municipal representatives, and local institutions. He visited several farms with agritourism activities and he taught them how to organize the tourism and their services, based on sustainable principals.

20. **Michelle Fried (Healthy Foods)** Michelle Fried conducted a healthy foods workshop, highlighting the use of local foods, biodiversity and natural resources to human nutrition and health. Several farmers are starting to use new plants in their cooking—such as Bore (*Alocasia macrorrhiza*) and leaves of plants like yucca (*Cassava*)—that they did not previously known were edible.

21. **James Young (Seed Saving)** The objective of this assignment was to improve the techniques of seed saving and to increase the use of local seeds in the farms. James worked with producers to explain the basic concepts of pollination and seed formation as

well as types of seeds. James demonstrated several treatments for seed saving—hot water, winnowing, and quality selection.

22. **Matthew Rubbin (Cocoa)** Matt taught farmers the principals and basic techniques of adding value to cacao. Matt taught both a theoretical session—where he explained the characteristics of cacao beans and the differences between varieties—and worked in the kitchen. The last two days of his assignment, Matt gave hands on demonstrations about quality control and how to add value to cacao. As a result of this training Chocoartesano has improved their production process by including a filter and changing their roasting and milling process.

23. **Andres Crecelius (Market Niches)** The objective of this assignment was to develop the rural businesses' connection to market opportunities. Andrew conducted a workshop about market niches and related concepts—such as business plans, marketing strategies, etc. The majority of his time was spent working directly with the farmers to teach them the basics of marketing plans and business plans.

24. **Heather Fabries (Responsible Consumption)** With a draft business plan and a partial financial plan, Heather worked to strengthen the PROTOS business plan and finish the financial plan. She also developed the outline of a marketing plan after working with stakeholders and farmers.

25. **Richard Beckort (Organic Vegetable Production)** The objective of this assignment was to encourage the use of organic techniques in vegetable production. Richard worked with farmers that had some experience with vegetable production to address the common problems of pests, diseases and plant nutrition.

26. **Jorge Lugo (Soil Conservation)** The objective of this assignment was to educate the farmers on soil conservation, and soil diagnostic techniques to identify soil conditions. Jorge Lugo held two three-day workshops; one in Puerto López and one in Lejanias. The workshops were hands on field work and demonstrations testing soil pH, identifying soil resources, and how to take soil samples. The outcome with soil conservation efforts will lead to increased crop production, sustainability, and market value.

27. **Jeffrey Stuart (Pest Control)** The objective of this assignment was to educate the farmers on how to identify pests and beneficial insects on their farm, how to control pests without the use of harsh chemicals, and how to implement pest-monitoring systems. The assignment recommended the development of communication and training material distributed to farmers to educate them on the pesticides, usage, safety, etc.

28. **Ricky Foster (Pest Control)** The objective of this assignment was to educate the farmers on how to identify pests and beneficial insects on their farm, how to control pests without the use of harsh chemicals, and how to implement pest-monitoring systems. The assignment recommended the development of communication and training material distributed to farmers to educate them on the pesticides, usage, safety, etc.

29. **Jerry Shafer (Market Strategies for responsible Consumption)** The objective of this assignment was to visit numerous smallholder farmers and local food networks to strengthen their relationships and devise a marketing method to support PROTOS. Jerry visited many different smallholder producers and potential tourism destinations. Nine different producers were visited ranging from tourism destinations to small-scale production of specialty cakes, chocolate, and natural yogurt. The recommendation for

each site differed based on their needs and capabilities (economic and technologic). Jerry further recommended action items for the producers as a whole to move towards an online marketing strategy (PROTOS).

30. **Lucas Roosa (Port Processing)** The objective of this assignment was to educate farmers and local meat processors on food safety practices and environmental cleanliness in both the raising of pork and the manufacturing facilities. Recommendations were made on how to keep work environments clean, best practices for manufacturing such as testing meat temperature to ensure no biological contamination, proper methods to prepare and cut the meat for increased tenderness and flavor, and the importance of proper refrigeration and a clean water supply.

31. **Ellen Geisler (Beekeeping)** The objective of this assignment was to educate and train the farmers on proper beekeeping activities and help to improve the production of honey for market. Ellen held hands on sessions in each of the areas, but those in the La Cabaña are more knowledgeable in practice and thus felt more at ease. A concern is the smaller farmers may not be able to afford the necessary equipment (protective clothing, harvesting equipment, etc.) and therefore may not be as successful, unless they form an association and share cost and equipment.

32. **David Wilson (PUP Manufacturing)** The objective of the assignment was to assist Unillanos to develop prototypes and strategies to equip smallholder farmers with the technology and equipment to increase agricultural productivity. Tyler, David, and John spent a month in country on the assignment to build a prototype AgRover.

33. **John Lumkes (PUP Manufacturing)** The objective of the assignment was to assist Unillanos to develop prototypes and strategies to equip smallholder farmers with the technology and equipment to increase agricultural productivity. Tyler, David, and John spent a month in country on the assignment to build a prototype AgRover.

34. **Tyler Anselm (PUP Manufacturing)** The objective of the assignment was to assist Unillanos to develop prototypes and strategies to equip smallholder farmers with the technology and equipment to increase agricultural productivity. Tyler, David, and John spent a month in country on the assignment to build a prototype AgRover.

35. **Brian Greer (Youth Organizational Development)** The objective of this assignment was to promote host organizational and leadership by promoting youth engagement in agriculture. Brian visited two separate sites and discussed the importance of agriculture and the “big picture” it plays in the economic growth of the community. He also encouraged the youth to form organizational agriculture communities, such as 4-H.

36. **Bradley Smith (Good Storage Practices)** The focus of this assignment was to teach the farmers the importance of the humidity and crop moisture during the storage (corn, cocoa and coffee). Bradley worked to support the farmer in the use of basic technologies like hygrometers or other basic techniques available locally, and also explained to them the basic rules and conditions for good crop storage (materials, hermetic conditions, light, temperature, environment humidity, etc.).

37. **Trisha Wagner (Best Practices to increase milk quality)** The objective of this assignment was to explain to the farmers the relationship between milk production factors and the quality of the milk. Trisha also worked to help farmers improve their milking practices, as well as demonstrate simple indicators of milk quality and the understanding

of general milk quality indicators.

38. **Stephanie Montalban (Cheese production and milk quality)** This volunteer was fielded and worked hand-in-hand with Trisha Wagner's assignment on milk quality. Together, they stressed the importance of the quality of milk affects the quality of cheeses. They educated producers on sanitary improvements that comply with regulations and recommended improvements to their infrastructure and helped to develop the technical knowledge for the organizations to develop new types of cheeses.

39. **Tiffanie Stone (Youth Engagement – Organizational Development)** This assignment was developed to promote host organizational and leadership development, improve host capacity to develop workable plans and support hosts to create plans for agriculture related projects. Tiffanie held interviews with youth groups to discuss leadership issues and conducted team-building and leadership activities. They held discussions how to develop platforms to use for engaging the rural youth.

40. **Tyler Anselm (Solar Dryers)** The objective of this assignment was to improve the knowledge of farmers on solar drying and drying techniques, and help build solar dryers with the participating farmers. Tyler taught the farmers how to build a solar dryer using locally sourced materials and how to properly dry various products, such as fruits.

Annex 2: Small Farms Conference
SMALL FARMERS, FOOD AND TERRITORY CONFERENCE

Puerto
Lopez,

**CONFERENCIA PEQUEÑOS
PRODUCTORES
ALIMENTO Y TERRITORIO**
Puerto López, 29 de Septiembre 2017



**¡Si, los pequeños productores de la Altillanura
producen ALIMENTOS!**

Lugar: Auditorio Hotel Tío Pepe
Hora: 9 am

Información
Teléfono 6616800 Extensión 209

Con el Apoyo de



September 29th, 2017.

Yes, the small farmers from Altillanura produce food!

Place: Tio Pepe hotel auditorium

Time: 9am

SMALL FARMERS, FOOD AND TERRITORY CONFERENCE

YES, THE SMALL FARMERS FROM ALTILLANURA PRODUCE FOOD!

The three-day conference offered the farmers, host organizations, and out in country partner, Unillanos, the opportunity to share and celebrate the work done by the farmers from Altillanura and directly interact with them. There were three key activities: 1) tour of selected farmer's property with the farmers to learn and discuss about crops and farming practices; 2) the workshop where the farmers discussed their needs for legislation that supports farming interests; and 3) the public workshop where the farmers shared their ideas regarding sustainable food production, economic analysis and discussed recommendations made by the Farmer-to-Farmer volunteers. The property tours and workshop had about 50 participants, the activity was open to the public.

For the field workshops, we worked with 3 farms belonging to Altillanura's farmers, each one selected according to their achievements and success in the sustainable management of their property. These workshops allowed us to learn about the initial condition of the soil, the different processes and challenges that small farmers have had to overcome in order to successfully produce a wide variety of crops on their existing land. A comparative analysis of the initial conditions before implementing the recommendation of F2F were described along with the type of support offered to them by the F2F team to improve the system. This allowed the development of a sustainable tropical production approach in the Altillanura, with the support from Universidad de los Llanos and Purdue University through the Farmer-to-Farmer project and other entities that train and assist the small farmers in the Altillanura and the department of Meta.

Although there are several successful examples of sustainable tropical production in the Altillanura, 3 farms were selected in which key aspects of sustainable production are implemented for the analysis and discussion at the workshop. We heard from other farmers asking the question, "Why am I not doing it on my farm?"

The first farm visited was Villa Fortuna belonging to Alberto Bejarano and his son. It highlighted plant diversity, recycling of nutrients, use of organic fertilizers, and the processing of products with honey and its derivatives such as soap, repellent, lipstick, wine and others. In addition they use live fences and practice silvopastoral systems that were recommended by the project. An efficient rotational management of the grasslands to improve livestock productivity was also observed. Likewise, the proper management of water, its contents, and supply of clean water to animals were noted.

The second farm we visited was Marayal belonging to Saúl Quiroga, Rosa Corrales and children. Here family integration, water management, biodiversity, processing of honey and its derivatives, and the successful adaptation of pigs for soil transformation were highlighted. The pigs were a big hit because of multiple benefits they offer in terms of weed control, soil improvement and nutrient addition by manure. We were impressed by the excellent examples of water harvesting and developing a high phreatic level area into ponds for fish farming, with an area protected by planting of Moriche palms (*Mauritia flexuosa*). The importance of the Boton de oro cultivation (*Tithonia diversifolia*) and its effect on soil fertility could be observed. This visit generated a healthy discussion on the farm about pastureland rotation and use of pigs to enhance fertility by recycling pig manure and rotating pigs to allow crop production.

The third farm we visited was Mi Fortuna which belongs to Wenceslao Tapiero and Rosalba Novoa. They highlighted management and conservation of water with planting of forest species, which increases plant species diversity and improves soil conditions. A visit to gallery forest and a lagoon for water conservation exemplified the importance of ecosystem management that was well appreciated by visitors. This farm is a unique example of integrating agroforestry concepts with crop production where in both systems benefit leading to a healthy community.

It is very important to emphasize that after visiting each farm two basic concepts were explored: What did we learn at the farm? What recommendations do we have for the owners? This led to a healthy discussion and useful suggestions to farmers and participants.

The second activity was held in the community hall of the village “El Toro”, where the “World Coffee” methodology was practiced. In this brain storming session 4 groups were formed and posed with questions to explore: 1) Who are we and what we do? 2) What is our importance as growers to society? 3) What do we need from public policy to strengthen food production? Responses from each group were compiled on a poster board and this input was used to prepare a memorandum by the farmers. This was publicly read on the opening day of the conference. The memorandum emphasized the importance of farm community not only in food production and protecting the environment, but also in formulating policies that are beneficial to small and medium farms and rural communities.

The last event of the conference was open to the public and Gobernación del Meta, the Municipality of Puerto López, CORPOICA, the Ministry of Agriculture, the Cosmopolitan Foundation and a greater number of farmers in the Altillanura were represented. In total, 100 people attended this event. The highlight of the event were the talks by Alberto Castro, Agroeconomic Development Secretary of the Department of Meta and engineer Eliana Rojas, Environment and Rural Development Secretary, on the programs to support small and medium-sized farmer business. Dr. Álvaro Ocampo Durán talked about sustainable food production in the Altillanura, Science magister candidate Constanza

Yunda Romero explained the economic efficiency of food production by small and medium farmers in the Altillanura; Roberto Rodríguez from Cosmopolitana foundation talked about viable sustainable alternatives for small and medium farmers from the Altillanura and engineer Jorge Iván Clavijo presented the alternatives to improve the sustainable production of food suggested by international volunteers of the Farmer-to-Farmer Project.

In addition to the talks mentioned above, the main event was the reading of the declaration made by the farmers to the policymakers. In summary, this document stated that for more than 10 years facing great difficulties, farmers work every day to produce food for their family and the community, while protecting water and natural resources. They work hard to guarantee the food they produce is nutritious, free from agrochemical contamination and aesthetically appealing. They do their best to impart traditional values to their children while realizing they have been excluded from development due to the armed conflicts and neglect from Colombian government. To alleviate long time suffering of farmers in the region they need public policies on: * Legalization of properties, * Incentives to access technologies and make them work for the organic agriculture, * Market protection policies, use and preservation of native seeds, * Programs for children and youth to affirm farming as a viable and profitable option, and policies to improve production of food and the quality of life of the farmers.

It is essential to highlight the participation of the people during the 3 days of the conference and prevailing interest to exchange knowledge and apply some lessons learned on their properties. The conference lived up to its theme and again affirmed that "YES, THE SMALL FARMERS FROM LA ALTILLANURA PRODUCE FOODS" in a sustainable manner affirming to local cultures while protecting the environment they call home.

PHOTOGRAPHS OF THE ACTIVITIES

1) Territory tour.



Visita 2 : Finca Maraya

¿Que aprendimos?

- Tratar áreas pequeñas con cerdos "transformación productivos con cerdos"
- Sensibilidad de la familia "CALIDAD HUMANA"
- Se puede tener animales felices.
- La importancia del relevo generacional.
- Energías alternativas: Biodigestor.
- A comer de todo.
- "saber utilizar la agua" (Fotos)
- Silo de moriche
- Transformación de los productos
- Producción orgánica honesta:
- Importancia de microorganismos para el éxito de la agricultura orgánica.
- No se gasta en concentrado para alimentación de cerdos.
- Cuando un sistema está integrado y la familia "Finca" la finca tiene éxito.
- El querer es poder, No esperamos que los otros solucionen nuestros problemas.
- Integración de la finca y tejido social



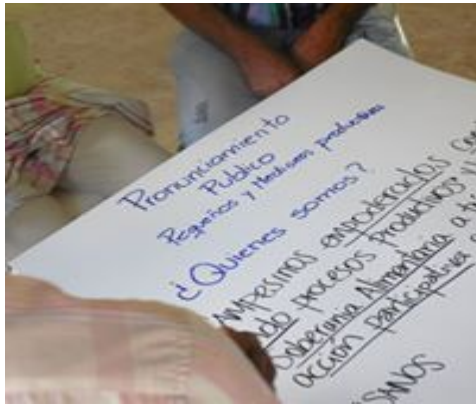
Visita # 3. Finca: Mi Fortuna

¿Que aprendimos?

- Enriquecimiento Forestal (Introducir especies en los bosques)
- Debemos cuidar las fuentes hídricas
- Aprendimos a trabajar para comer
- Debemos proteger y promover los bosques (En la sabana se muere, en la manigua se vive)
- Debemos organizarnos y tener un plan/proyecto vision -teniendo en cuenta a las generaciones venideras
- El dialogo ayuda a construir armonia. ✓ (Resolver las cosas en vida) (Desprendimiento)
- Respetar, reconocer el trabajo del otro (Complementaridad)
- Reforzamos conocimientos sobre el cuidado del suelo y formación de suelo
- Se conocieron nuevas especies, vegetales
- Los bosques son un regalo para la familia campesina
- Diversidad de la dieta de los cerdos son animales omnívoros
- Hay que buscar o manejar genética bovina más adaptada a las condiciones y trabajar sobre la base de lo que tienen



2) Declaration preparation workshop



3) Open CONFERENCE to the public







29 September 2017

Public Declaration

(Altillanura farmers) we do produce food

"A country without farmers would be a country with hunger and misery"

Farmers from the area of Altillanura and some guests from the regions of Ariari and Macarena, we all meet in the context of the conference " Food and Territory are possible "made during 27th, 28th and 29th of September, 2017 in the municipality of Puerto López (Meta.) During this meeting we went through, analyzed and shared our experiences as small-scale food farmers. As a result of this exchange of experiences we presented the institutions, decision makers and other participants the following public declaration, prepared in a participatory manner by farmers attending this event. This declaration collects primary elements of our identity (who we are), what to do (what we do), our value and our approaches to the productive and social development of the farmers.

We are farmers in love and empowered by our land, who for more than 10 years we have been building productive processes, in a peaceful and on good terms to the environment. Despite the difficulties we have faced, nowadays we have hope in the present time and clear life plans for our future, which promote the production of healthy foods, which contribute to the food sovereignty of our nation.

Day by day, we work to produce, transform and commercialize food and make the countryside an ideal place to live in harmony with the environment, improving the link between man and countryside. Our wisdom and our culture educate our children, from sunrise to sunset, cows, crops, our tools and our effort, are the basis for teaching new generations, love for the countryside, nature and our culture.

We are an essential base in the supply of healthy food, product of a clean production, increasingly aware and committed to reducing the use of



agrochemicals, privileging organic management. We work to offer quality and good presentation food, produced with love, to feed the countryside and the city. Our families with their hands and tools transform, protect and conserve natural resources; we sow and produce diversity of crops and animals that are the basis of our income.

For years we have been apart from development, we have lived through the toughest conditions of the armed conflict and economic crises, the absence of the Colombian state and appropriate public policies to our conditions have limited our development. However, we continue forward with courage and pride. We recognize the value and importance we have for the society and the territory.

Based on our experiences, needs and projections, we consider vital the existence of public policies that strengthen and prosper our participation in the production of food, consolidate our link with the territory and allow the good living of our families and communities. Therefore, it will be essential that the policy for the field and the people, assume the following considerations and purposes:

- Legalization of the properties.
- Incentives to access appropriate and relevant technologies according to our soil conditions and production system.
- Promote a policy of protection at the market level, of the production of food produced on a small scale, favoring and making a fair market a reality.
- Programs so that children and young people have a greater option of personal development in the field.
- Education and training for agriculture and food processing.
- Rural housing programs and improvement of tertiary roads.
- Policies that promote the use, conservation and multiplication of native seeds.
- Economic and technological incentives for farmers who dedicate themselves to organic agriculture.



- Appraise the tax policy for the reduction of the property tax to small and medium farmers.
- Monitor and control regarding the application of environmental regulations, mainly to large companies and preventing any risk of cross contamination that may affect our food production and the health of our families.