

Nicaragua Value Chain in Horticulture Project Farmer-to-Farmer

EXECUTIVE SUMMARY

Arlen Albrecht, Robert Burke and Julie Keown-Bomar worked as team to interview, investigate and plan for the 2011-2012 Farmer to Farmer Value Chain Project in Horticulture. Our purposes were to explore and investigate the issue of food security, types of vegetables currently eaten, types of vegetables people would like to eat if they could and methods of preserving fruits and vegetable during times of abundance. We also explored the types of gardening and small scale vegetable production practiced now, introduced the Square Foot Gardening concept, and helped trouble shoot some minor plant disease issues. The third component of our work was to investigate the “system gaps” from the production cycle to market, and learn more about how produce was marketed. Each of the three volunteers had expertise in one or more of the areas and complemented each other’s work.

The team visited 12 potential “host” sites and found 10 viable partners that possess: a basic organizational structure, a strong desire to work as a community or cooperative, sufficient resources and a passion to learn to improve their circumstances.

We identified their concerns and issues growing vegetables for family consumption and for market:

- not knowing how to safely prepare many vegetables and/or the nutritional value of eating them
- wanting to learn how to preserve food for times of scarcity
- lack of adequate water, seeds, knowledge of making organic fertilizers
- insect, fungus and virus problems
- little or no marketing knowledge
- few options to sell
- business concepts of cost of production to break even points
- all hosts wanted leadership training and organizational development and viewed those skills equal to learning and improving in vegetable production

ACTIVITIES, OBSERVATIONS, RECOMMENDATIONS and RESULTS

Activity Summary: All the sites are listed; purposes of visits are described; as well as information about participants (actual numbers are listed in parentheses):

1. Community of Buenos Aires: investigate gardening—what works what doesn’t, and why; demonstrate a typical rural wood stove kitchen and sanitary conditions; and learn where and how products were taken to market (4 women, 4 men).

Observations:

- a. They get broken hearted if the gardens fail and loose interest in continuing.
- b. Volunteers cannot give false hope; this is a harsh environment for growing vegetables with ants, insects, heat, wind, drought, and hard rains. Gardens require attention and dedication.
- c. After years of encouragement, Carlos is moving the gardens and his production closer to the river and

thus saves tremendously on fuel for the water pump and labor.

- d. People are reluctant to eat new vegetables or don't know when to harvest. More attention should be given to teaching harvest and preparation practices.
- e. Attitudes prevail such as: I don't eat vegetables/I prefer gallo pinto (rice and beans), or I need more help, money and supplies.
- f. Through the years of FTF intervention Albrecht noted he has witnessed growth and quality of life improvements:
 - i. Three children in college
 - ii. Electricity and refrigeration and a TV
 - iii. False teeth for the grand mother
 - iv. Wood working skills
 - v. Profits made from selling drip irrigated melon and squash during dry season.
 - vi. Built a new house and converted the old one to a sewing learning center, crafts center and lending library

Recommendations:

- a. Better selection of seeds for hot dry climate: focus on radish, beets, okra, Swiss chard, egg plant, beans and tomato.
- b. Continue making compost during the dry season so it is ready for rainy season, and incorporate both plantain and melon production.
- c. Experiment with sun screen/shade for dry season garden—use hoop idea.
- d. Water in the early morning not at night to avoid having wet leaves for extended period of time—risk of molds/mildews.
- e. Discontinue use of flood irrigation—too costly and creates more weed growth. Use plastic sheet as liner for a small pond and connect drip irrigation system to the reservoir.
- f. Store seeds in a sealed container under the bed so they do not bake or dry out—use seeds in the community within 6 months.

RESULTS:

This site should be continued to be observed and evaluated over time. Mayra and Carlos will participate in the Villa Del Carmen community as they are also members of the coop.

- 2. Pio XII: Investigate progress in gardening and evaluate food security, value chain analysis. This is an artisan community, teeming with furniture, plants and flowers for sale. Team members visited with four community leaders and toured four small scale farms and kitchen gardens. They learned about obstacles to growing success, lack of market options due to few numbers of buyers, disease and insect pests. They concluded the day with a demonstration on new ways of preparing vegetables for their home consumption (total: 14 men, 15 women and 15 children).

Observations:

- a. The seeds brought down by earlier by FTF volunteers were growing wonderfully—cabbage, green beans tomato, broccoli, kohlrabi, radish, carrots, Swiss chard, peppers, kale, and peas.
- b. Participants shared that they had learned a lot from Rose Skora, FTF volunteer who visited in 2008.
- c. They had developed their own natural mix for insecticides and fertilizer tea (combinations of vinegar,

- tobacco, pepper).
- d. Great emphasis on compost—2 types.
 - i. Chicken manure, feathers and bones mixed with rice hulls
 - ii. Leaves, organic material and manures
 - e. The lead growers in the coop love to experiment and create their own methods of production.
 - f. They grow many oriental and forage trees and fruit trees for sale to retailers.
 - g. Herenda, one of the coop leaders, has done quite well selling parsley to local restaurants. She made \$1000 the year before.
 - h. They are paid very little for their fruit and vegetable crops and the middleman sells to the market with a huge markup. For example, they sell about 500 star fruit for 10 Cordova and the fruit is sold in the market at 12 fruit for 10 Cordova. Selling direct is hard because transportation is expensive. Buyers are not willing to pay more for organic vegetables.
 - i. The post harvest food loss is great. This coop unit lost 12 tons of mangos last year because of an overabundant supply on the market combined with no knowledge or resources to preserve the harvest.
 - j. Coop leaders love to try new vegetables, but consuming new and more vegetables may take time and persuasion with other coop and community members.
 - k. The coop leaders will be working with 20 producers to be broken down in smaller groups and eventually include 200 in the community.
 - l. They are interested in getting assistance in creating a value chain; for example, coffee grown and roasted locally by the coop with labels made by local artisan. The area also experimenting with rabbit raising for meat and fur and they have the idea that they can sell the hides to local artisans.
 - m. When we returned 24 hours later to drop off a few things, one of the main coop leaders, Herenda, had half the seeds planted, built two taller gardens and planted them with seeds, had evenly distributed the seeds to the coop households, and developed a business idea for selling the sunflowers and purple cabbage as ornamentals for \$1.00 each!!

Recommendations:

- a. Plant the seeds as soon as possible.
- b. Develop and install a drip irrigation system to avoid high water costs.
- c. Experiment with vegetable and fruit drying.
- d. Look for diamond back cabbage moth worms and hand remove from cole crops.
- e. Put a little detergent in the bio repellent.
- f. Continue to demonstrate how to prepare new vegetables.
- g. Continue the development of compost.

RESULTS:

- a. Provided seeds sufficient to supply 20 large family garden plots.
- b. Left a demonstration small scale drip irrigation system to use a 5 gallon pail as reservoir.
- c. Made plans to return to do a workshop on food preservation and value chain analysis.
- d. Participants tried two vegetable salads with produce from local gardens, learned about the nutritional benefits of eating “a rainbow of vegetables,” discussed how to get children to eat vegetables, and taste-tested kohlrabi to determine ideal harvest size. Handed out 2011 calendar with recipes (in

Spanish) and handouts (in Spanish) about the food pyramid as well as a hand food grater and kitchen knives.

3. Las Mujeres Bahai Learning Center: Visited their main village center (house of the community leader). Group talked about food security, health issues, community strengths, economic strengths, square foot gardening and viewed existing programs (26 people: 1/3 men, 2/3 women and children).



Working with Agriculture Students at Las Mujeres Bahai Learning Center

Observations:

- a. Isolated community 7km from the blacktop road to San Juan Del Sur, 67 families totaling about 187 people.
- b. Only 2 busses per week enter the area.
- c. Health concerns: diabetes, fever, diarrhea, colds. No access to insulin so people try and control diabetes by diet alone. People are open to alternative treatment of diseases (herbal and diet remedies).
- d. The association has a microenterprise loan program developed for women. Individual loans are about \$200. They also have had training in leadership, corn production, sewing.
- e. A great program effort to give participants a pig, rabbit geese, chickens goats and fruit trees but question if there is enough feed for the animals on small house hold plots.
- f. Presented an incredible effort in carrying for animals.
- g. The association has had good luck growing melon, tomato, pepper, squash, mango and orange. Women are interested in learning how to cook a variety of vegetable, pickling. Another women's organization has had some training in drying vegetables but they have not. Mangos come in April or August and they get a lot of them. They do have ovens, racks, and pans for food processing and fuel for the ovens.
- h. Food consumption was discussed for some time to get an idea of what people were eating, typical dietary patterns and limitations. They indicated they have meat about once per week. Fish is too expensive. Chicken soup is a common way to consume poultry.

Typical daily consumption:

- Breakfast: gallo pinto (red beans and rice), eggs, sour milk and cheese, perhaps mango, but fruit does not make them feel full.

- Lunch: rice and beans (separate), perhaps some cheese (for those that own cows).
- Dinner: gallo pinto (perhaps with peppers and onions), tortillas, coffee or water, plantain cooked in oil or water, maybe some pinol (fried corn meal patty w/ cinnamon and sugar).

Vegetable discussion: if available, people eat squash, cucumber, cassava, corn, spinach (native variety and people eat leaves off the vine as well as make the seeds into a tea) and tomatoes. The store doesn't have vegetables and the truck only comes two times per week to their rural area. People don't have the money to buy and/or transport vegetables and it is hard to do alone. Vegetables are difficult to produce during the dry season. Chickens are a problem (need barriers around gardens).

Food security. Most people have something to eat all the time, throughout the dry and rainy season. They grow their own beans and corn. However, they don't have a varied, well rounded diet throughout the year. Some people do not have enough food and when they run short, the wealthier families will offer them some land to grow food or share their food. They indicated that this was a Christian community and residents took care of those that did not have enough to eat. They indicated they knew that they would be more food secure if they grew their own food.

- Have a good compost system going—worm and organic matter.
- Each family has an artisanal pump, about 7-16 meters deep.
- They are sending 5 students to college who are big contributors to the community.
- The population is stable; very few people leave the village for live in the city or Costa Rica.
- Each family has an artisanal well about 7-16 meters deep, but sometimes they go dry during the dry season.
- Community members share resources.
- They have great leadership and organizational structure.

Recommendations:

- Since there is well water for pail irrigating do square foot gardening training community wide, finish the compost pile soon for use in the gardens, and plant all the seeds within 6 months.
- The three agriculture students can teach the lessons with a little support from a FTF volunteer.
- Continue to strive for self sufficiency and build on local assets.
- Explore fruit and vegetable drying.

RESULTS:

- Provided seeds for the community.
- Rob Burke worked with participants on microenterprise development; Arlen Albrecht worked with the Agriculture students on square food gardening, and Julie Keown-Bomar worked with women and children on household vegetable consumption, recipe ideas and family nutrition.
- Agriculture students agreed to help train and assist women in getting household gardens started.

- Coop Lacteos Nicarao: Rivas area, visited with the general director and one tecnico who worked with the gardens in the past.

Observations:

- The coop general director Lic. Laura Jimenez is very knowledgeable of the coop and their production of milk and milk products and producers.

- b. She told volunteers about the members and other producers whose main interests are in dairy and secondly, in basic grain crops of beans, corn and millet.
- c. Very little historic production of vegetables although they did get some seeds and with the help from FTF volunteer Susan Mahr and Chrissy Register they planted a small demonstration plot by the cheese plant which generated interest.
- d. The garden was productive and they ate all the produce.
- e. They did not replant because they ran out of seeds and purchasing new seeds was too expensive.
- f. They have water on site and they have a desire to continue gardening.
- g. Want more training and seek sustainability with their own seed production.
- h. At this time no interest in marketing produce—just home consumption to provide for food security.

Recommendations:

- a. Research possibility of growing kitchen gardens on the home sites.
- b. Get the compost pile going ASAP.
- c. Send FTF Horticulture volunteer to “kick start” the effort again.
- d. Research seed costs and determine if the coop can purchase the cans and distribute small amounts of members using a “library system” or “seed bank”.
- e. Send FTF volunteer to teach about seed saving.

RESULTS:

- a. Provided vegetable seeds for the communal area and a few home gardens.
- b. Asked technician to research the cost and variety of locally available seeds.

5. Learning Center el Raizon: talked with Miriam Ortiz and her husband about their small farm site and interviewed couple about their sources of income (which are very few).

Observations:

- a. Appeared to be a single family household with about 3-4 acres of land and rented another 2-3 for cattle grazing.
- b. Had milk cows (got 8 liters of milk per cow) chickens, pigs and sheep.
- c. Income from sale of corn, beans, milk in the local area (minimal).
- d. Had recently started a small, front-porch business selling snacks, processed food.
- e. Food production is mainly for home consumption.
- f. Water was an issue with only three hours, two days a week from the municipality and it is costly.
- g. Had a great fence to keep animals out of the garden but were only growing peppers and beans at the moment due to water issue.

Recommendations:

- a. The team does not see this as a FTF Host. There is no community structure/organization or communal group; just an individual household. We do not believe this is the mission of FTF to work where the efforts do not expand beyond the individual.

RESULTS:

- a. Provided some vegetable seeds for the family.

6. Villa del Carmen Community: Met with a group of 12 men and 4 women who were all members of the newly formed vegetable growers coop—they showed us their legal documentation. We toured their tomato/pepper farm. This is quite an isolated location.

Observations:

- a. Have five separate plots ½ acre each of tomatoes and peppers growing under a flood type irrigation system.
- b. They are a new organization and an official COOP.
- c. They built a cement water holding pond to use as a drip irrigation tank for plants.
- d. There is an additional 2 manzana field they have ready to plant beans and corn on but mainly for family consumption—will use drip irrigation on this plot.
- e. Used a flood irrigation for system using a 10 hp diesel water pump out of the creek.
- f. The creek never runs dry at the source, but not concerned about downstream.
- g. The tomatoes were all infected with a leaf virus and on the decline even though this is the time for the first picking.
- h. Many ripe tomatoes had blossom end rot-- 50% loss.
- i. Marketing scheme was to sell 50% in the community & 50% to a broker but didn't know who
- j. Interested in selling fresh salsa (make and produce at a roadside table), canning and especially drying.
- k. Group members displayed positive attitudes, they are risk takers and interested in learning new techniques.

Recommendations:

- a. Develop a plan for picking and transporting produce of the site—very isolated with no road.
- b. Purchase and use drip irrigation to reduce fuel costs and wetting of the plants.
- c. Create higher trestles to tie up tomato plants and pick off bottom leaf that touch the ground to avoid leave scuffing and disease transfer from the soil.
- d. Start making compost to reduce input costs of purchased fertilizer.
- e. Send FTF volunteers with expertise in plant pathology and entomology to help the coop members with Integrated Pest Management and disease prevention and management.
- f. Soil testing would be beneficial.

RESULTS:

- a) One of the coop members plans on attending the food processing workshop next week in Pio XII.
- b) Distributed a number of vegetable seeds to the coop members

7. Tipitapa Learning Center El Chilamatillo: met with 20 male growers and 2 women of the community at the school grounds.

Observations:

- a. There was one obvious self-appointed community leader who spoke for the group on most questions or clarified other's statements.
- b. The majority of the participants came to the meeting because they thought the project would reward them with money to buy irrigation pumps seed and land.

- c. Most growers rent land for the rainy season from land owners and then during the dry season from the alcaldia's (Mayor's) properties close to Lake Managua.
- d. Growers do not have long term contracts and thus do not want to improve the soils because someone else would benefit.
- e. Growers are not willing to share the costs of testing soil, as someone else would benefit.
- f. They indicated they do not want to purchase water pumps and share use.
- g. They indicated they do not want to organize.
- h. Many indicated they were at the mercy of the middle man to pick up and purchase produce for the Managua Market.
- i. Grew traditional crops only—they indicated an interest in growing water melon, chayote, tomato and pepper because that is what is grown in this region. They did not express an interest in growing any other crops.
- j. Food security is an issue in this region as they grow to sell and do not save for home use and are reluctant to eat the "seconds" that are rejected by the buyer, but the majority of those present did not seem interested in working to address the issue of food security.

Recommendations:

- a. Since there is no organizational structure and the majority of those at the meeting do not want to change current practices, but want "donations," we do not recommend this area as an FTF host.
- b. However there was some interest by the two women to try square foot gardens and maybe create a school garden for family consumption.

RESULTS:

- a. Left seeds with the women to start growing a community garden for the less fortunate.
8. Companeros/Nicaragua Y Wisconsin---Famisalud: met with Directora Johanna Rivas at her office and discussed their past and present efforts. Possible involvement with the "Mother and Maternity Houses was a primary focus of the conversation (1 woman, 1 male).

Observations:

- a. The staff work with pregnant women, mothers and their children under five years of age.
- b. They focus on preventative health education with programming in maternal, infant and child health and nutrition.
- c. Food security is an issue in the region. Staff said children show signs of malnutrition (both Marasmus and Kwashiorkor). Staff indicated high infant mortality, maternal death during or after labor, failure to thrive, and general malnutrition. Breastfeeding rates are very poor (only 5% of women provide breast milk as the sole source of nutrition for their infants). In some cases, vegetables and fruits may be available (lemons, for example) that could supplement the diet, but people do not take advantage of these products. In this region, parents have inadequate knowledge of proper diet, maternal and infant nutrition. Access to sufficient quantities of nutritious food is a problem.
- d. Joanna and her staff are very knowledgeable of square foot gardens. They have participated in past projects but when the seeds ran out, they quit gardening.
- e. They would like to resume gardening with all rural participants but start with the Maternity Houses with a few square foot gardens.

Recommendations:

- a. We think it is important to support and promote the efforts of Companeros Nicaragua Y Wisconsin and provide some training and seeds for the Maternity Houses and expand efforts in the future in the rural regions.
- b. Seed saving and banking needs to be developed. For example, if agencies could purchase seeds locally, then distribute them in small quantities to households for a low, “break even” fee this would help promote food security and sustainability of horticulture programs.

RESULTS:

- a. Seeds were provided to grow numerous gardens with the support of local staff.
- b. Soaps were provided to aid in the hand-washing programs with children and parents.

9. Union of Coops---Las Brumas: Met with the Board president Sra. Hayde Rodriguez and Director Lic. Hernandez at their office. They provided an in depth explanation of their work and efforts (2 women).

Observations:

- a. They are an umbrella organization for 20 smaller coops legally recognized by government.
- b. They work mainly with women and for communal projects identified by women.
- c. They hired a consultant to help them do a community asset mapping and SWOT analysis of each member coop.
- d. The organization is very focused on women’s issues, health nutrition and food security, and policy changes that will help finance women who wish to own land and improve women’s access to land ownership.
- e. Food security is a big issue.
- f. Teaching people proper nutrition and dispelling myths about eating certain foods is key. They discussed value added processing (making jelly).
- g. 80% of all land and homes are owned by men—women have few legal rights in marriage for property after divorce.
- h. The group is learning to become politically active and members are taking action to influence legislation and legislators.
- i. They are concerned about the failure of this year’s bean and corn crops due to heavy rains followed by drought. They blame weather shift on global warming.
- j. They mainly grow yucca, pipian, chayote, and coffee and plantain.

Recommendations:

- a. FTF should provide SFG training soon for home consumption.
- b. Expand into FTF larger horticulture production of cabbage, lettuce green beans and peas.
- c. They want to learn more organizational development methods.
- d. They expressed a lot of interesting in marketing their products.
- e. Food preservation and new cooking methods to get children interested in eating vegetables and dispel myths are topics of interest.
- f. They are interested in creating a seed bank for seed redistribution to coop members.

Results:

- a. Provided a wealth of seeds for distribution.

10. National Potato Growers Association: met with Alvaro Travers Garcia President of the association at his field. A second producer joined us as we looked at seed potato preparation site, prepared field for planting, potatoes growing in the field and tomatoes growing in an intensive hoop/drip irrigation method (2-males).

Observations:

- a. Very knowledgeable and energetic leader—Alvaro.
- b. Crew cutting seed potatoes and dipping the cut into a brown powder—“baked corn flower”.
- c. Acres of tomatoes intensively grown with hoop cloths to protect from white fly ground plastic for moisture and weed control and drip irrigation.
- d. Tomato and potato grown side by side.
- e. Fields looked marvelous—no visible diseases or insect problems.
- f. Alvaro and other farmer were very observant of leaf color or signs of insects.
- g. Potato field looked good—a few leaf minors were found.
- h. They market their potatoes and tomatoes to the Managua “middle man” and have little control over prices. They pick them up at the side of the road on a take it or leave it price.

Recommendations:

- a. The Potato Association would be a great HOST for FTF.
- b. Tremendous potential for programming in:
 - i. General production
 - ii. Marketing
 - iii. Harvesting and post harvest care
 - iv. Seed production
 - v. Soil moisture and irrigation methods
 - vi. Best management practices and integrated pest management for insect/disease prevention and control

Results:

- 1) Made some preliminary connections and inquiries for FTF volunteer Bryan Bowen, potato specialist, who will be in Nicaragua in February 2011.

11. Grupo de Esquipulas: located 35 kilometers from highway, on a dirt road, this organization is based in a mountain area that is rugged, beautiful and remote. Volunteers met with two technicians and the head of the project. The group is focuses on organic production of vegetables for household consumption for poor, rural families. Seventy-one women work family gardens with some limited financial support and technical assistance by the organization. A church in Louisville, Kentucky provides some financial assistance for the project which pays each family about \$11/month, provides some medicine, pays the technicians’ salaries, and seeds. It is not enough money to provide for all project costs, but the group has done exceptionally well maximizing their resources.

Observations

- a. The women are growing cabbage, beets, lettuce, cucumber, carrots and pepper.
- b. Some families are forced to rent land because they don't have access.
- c. The primary goal of the project is to improve family nutrition. If they have more, then they choose to sell. The secondary goal is to increase income through vegetable sales.
- d. They have seen an increase each year in the numbers of participants (from 30 to 71)
- e. They bank and save seeds but also have to buy cans of seeds which are very expensive. This is their most significant problem.
- f. They practice composting: 22 day compost cycle, in trenches 15 meters long, one meter wide
- g. They have witnessed an improvement in health. For example, many children had anemia but these rates have dropped.
- h. They make a bio pesticide composed of: hot pepper, magnesium, detergent, neem and iron. They buy one kind of organic pesticide.
- i. They do have carvendensi, a plant fungus on a small scale.
- j. A doctor works in each community about once every two months. With limited resources, they have to focus their effort on children.
- k. They have also seen improvement in people's consumption of vegetables. In the beginning, families didn't like the taste but the staff kept trying to share the value of eating vegetables, provided demonstrations, and asked women to share their experiences and recipes. It appears that their strategy worked--familiarity with and willingness to try vegetables has improved.
- l. They don't have money for transporting volunteers and technicians. Growers also face transportation problems; some women travel 12 kilometers or more to get to the market.
- m. We visited Juan Gea's organic dairy operation. Cows were very healthy eating a diet of legumes, and a combination of two grasses. He milks once a day.
- n. We drove a long dirt road to a women's garden operation. All gardens were organic and looked quite productive at the end of the season. Some insect and bacterial damage on cabbage. Reported that vegetable consumption is going very well.
- o. Observed backyard gardens planted in tires. Excellent example of reuse and small container gardening.

Recommendations:

- a) Send FTF volunteers to the area for an extended stay of 3-4 days to work with farming communities on seed saving, IPM, insect and disease prevention and control.
- b) This organization is highly successful given their limited resources. Technicians and coop members should be invited to share their experiences in other communities, particularly in the areas of food production, organic practices and food consumption.
- c) SFG methods the women's gardens might lead to more production and less insect damage.

Results:

- a) Distributed seeds, nutritional information and recipes.

12. Camoapa-Casa de la Mujer: volunteers spent two days working with Casa de la Mujer Volunteers, a

grassroots domestic violence prevention and intervention organization (12 women). The volunteer leaders shared in-depth community profiles and needs assessments they had conducted including both rural and urban settings. Given that the group is focused on domestic violence, they are also very concerned with assisting women in gaining self-sufficiency and providing for their families. Women can learn how to sew, bake and make jewelry and crafts at the Casa. Gardens have been started in some barrios and volunteers visited one of site where previous FTF volunteers had worked with neighbors to start community gardens (2 men, 7 women, 7 kids). The second day, volunteers facilitated a workshop focused on preparing a mission and a vision statement and some strategic planning of priorities.

Observations:

- a. Organization volunteers have depth and breadth of skills (law, psychology, education, health) and diversity of leadership. Women from the barrios and communities they serve are also part of the core leadership group.
- b. All the leaders that were present the day of the workshop and participated equally. This group has many leadership and organizational strengths and a strong sense of service and solidarity.
- c. The organization recognizes the need to build revenue streams. Currently, the only financial support they receive is from a Spanish organization.
- d. Concern with seeds: germination, saving, and access.
- e. Not enough compost for the size of the community garden.
- f. Many female headed households—future volunteers need to consider labor requirements and strategies to promote cooperation because food production drops off greatly when only one adult is present in the household.
- g. The media seems to be covering what is happening with the organization (noted previous FTF visits) and their willingness to interview people at the workshop.



Community gardeners in Camoapa

Results:

- a. Helped organization develop mission statement, vision statement and priorities. They had been trying to make this progress for two years were thankful for the facilitation.
- b. Distributed seeds for community gardens.
- c. Provided supplies to help with training (sewing supplies, cake decorating tools, etc.).

13. Pios XII: Volunteers returned to the community to deliver a dehydration workshop and conduct a value chain analysis (4 women, 3 men). Julie led the group in a hands-on workshop focused on dehydrating different kinds of fruit, vegetables and herbs using a wood stove. Rob led a discussion focused on the value chain, problems, gaps and barriers.

Observations:

- a. Participants were eager to try out food dehydration and quickly got to work heating the wood stove and preparing the vegetables. They asked many good questions.
- b. The enthusiasm this core group has for trying new seeds and processing techniques is infectious.
- c. The wood stove heats up rather quickly. The challenge may be keeping a low, sustained heat for six or more hours in the process of drying out food.



Food dehydration workshop in Pio XII

- d. We left instructions for dehydrating food (tables of food preparation and processing times). Elisa translated many of these materials in Spanish. We left other recipes for canning that were already in Spanish.
- e. Volunteers were unable to find any canning jars, lids or other equipment in the big market in Nicaragua. They learned later from a director of a non-profit that this equipment has to be shipped in from out of country and is not available locally. This will pose barriers to groups that hope to can their produce or develop value added products like jelly and salsas.

Recommendations:

- a. The participants need to see different types of dried fruits and vegetables in order to determine what their produce should look like and to help dispel the idea that dried, shriveled food is not tasty. Future volunteers may wish to bring a variety of samples of dried fruit, soups, and fruit leather.
- b. A FTF volunteer who can build solar dehydrators is needed. Leaving instructions for different kinds of solar food dehydrators as we did, is not likely to have much of an impact, but if

community members learned by making a solar food dehydrator it could be a very practical experience.

Results:

- a. Volunteers had to leave before the food was dry so it is difficult to determine if this workshop was successful or whether or not the food did indeed dry.
- b. It did appear that peoples' interest was sparked. One participant asked about dehydrating other kinds of food like meat and Julie shared some instructions and ideas for making jerky.
- c.

VALUE CHAIN OBSERVATIONS AND RECOMMENDATIONS

Production Link

Level of sophistication in production was highest at the National Potato Growers Association. Producers in this area clearly benefited from a stronger level of investment, finances, and technical expertise in vegetable production, as well as potatoes. The producers are on a larger scale than other sites visited, most all of the potential beneficiaries fall into the medium to large producer category. [Note: In a study entitled: "Análisis de la Cadena de Valor de Hortalizas de Terrabona y Darío en Nicaragua" <http://www.vecoma.org/files/docs/BIBLIOTECA/hortalizasFEM.pdf> the authors considered a "medium" sized producer as one with between 2 to five manzanas of land to work, "large" producers had over 5, small producers under two manzanas.] This area near Jinotega with many potato growers is home to primarily medium to large vegetable producers. Technical assistance provided to this area by future volunteers should take into consideration the more developed knowledge, equipment, existing technical assistance and supplies already in existence there. Much of the labor supplied for vegetable production was provided by men, as opposed to women. Average wages for one worker per day in the field was between \$3 to \$4.

There was great similarity to the challenges faced by the other sites we visited in the area of production. Most of the production labor was performed by women, with the exception of the cooperative effort at Vila de Carmen, where men were handling nearly all the manual labor. Vila de Carmen also reached a "medium" sized producer counting all the acreage being cultivated by the 16 member coop (12 men, 4 women). All of the sites had irrigation to varying degrees as noted in the site visit narratives provided earlier in this report. Controlling insect and fungal damage is a great concern. More intensive square foot gardening could also be of great benefit to the households. Most of the small producer sites used compost fertilizer, but few were using the square foot gardening method of planting directly into compost. The Pio XII site benefits from skills and knowledge of the cooperative's leader. Esquipulas and Pio XII sites exhibited the greatest variety of vegetables being grown, other sites could benefit from more variety. There was a well publicized national deficit of yellow onions during the time of this visit. The lack of local production was being replaced by imported onions, at a higher price. Many of the hosts we visited stressed onions did not do well in their areas.

Processing Link

There were no warehouses for collection of harvested vegetables. Harvesting, cleaning, and any processing work was shared by men and women alike. In the Potato Growers Association area some contracts were in place prior to harvest for selling their production (to a Salvadoran buyer, and lettuce going directly to local supermarkets).

Interest in methods of preserving vegetables for future consumption, or value adding was high among the producers and coops visited (except in the Potato Growers site). The costs of canning are prohibitive, but there is evidence that solar powered dehydrating should be explored using appropriate and inexpensive technologies.

Marketing Link

Only in one site, the Potato Growers, was there mention of purchase contracts or arrangements in place prior to harvest. In Esquipulas, however, because the diocese is a central coordinating point, the church in Esquipulas does serve as a site for a weekly farmers market for participants in that program to market directly.

For the majority of vegetables to be harvested the plan was the same, transport them as carefully as possible to large markets in the major nearby cities and sell to wholesalers. The wholesalers control completely the price given, and it is not unusual for a producer to be offered nothing on a particular day. Most production comes to harvest at the same time, essentially creating a glut of certain produce that affects all producers.

The most hopeful possible solution to this problem is discovering useful, cost effective processing/preserving methods. Diversification of production could also help.

Also, the amount and variety of vegetables consumed by the participating families must be stressed as a major benefit, for health and to some extent financially. Increasing families' knowledge of how to prepare and consume vegetable production, while not a marketing strategy, should be considered a valuable benefit of this project.

The Potato Growers site has a keen interest in technical assistance for conducting a marketing analysis and search for improved markets and marketing opportunities. They also have the capacity to contribute to cover the additional costs that new marketing ventures would incur

PERSONAL REFLECTIONS

Rob Burke: Farmer to Farmer I believe has done absolutely the right thing in moving forward with this vegetable production project. It can help families, children, farmers and local economies in significant ways. There is substantial knowledge and talent among many households and producers in these communities, they are a potential for great success to be seen in this project, and they are ready and willing to work with Farmer to Farmer. I admire their entrepreneurial spirit and energy.

Julie Keown-Bomar: The level of enthusiasm for growing and consuming food was evident in many of the communities this team visited. Most groups demonstrated a high level of organizational development, respect for the members of the group, as well as abundant leadership skills. Sustainability of gardening is quite dependent on getting over the barrier of seed availability.



Farmer to Farmer Program
Horticulture Project - Nicaragua



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Technical Assistance Required

Host	City	Primary Production	Post Harvest Processing (techniques, dehydration)	Soil Management	Pest Prevention & Control	Storage	Establishment of Plant Nursery & Transplant	Instructional Strengthening	Nutrition & Food Demonstration	Compost Production	Insect & Weed Prevention Control	Seed Production & Care	Labeling & Marketing	Processing & Product Diversification
Casa de la Mujer Nuestra Señora de Monserrat	Comosapa	X		X	X		X	X		X	X	X		
Proyecto de Producción y Comercialización Orgánica	Esquipulas			X	X	X	X				X		X	X
Proyecto de Nutrición	Esquipulas			X	X		X					X		
Cooperativa El Carmen	Villa El Carmen			X	X					X			X	
Unión de Cooperativas Agrícolas Las Brumas	Jinotega					X		X					X	X
Proyecto Seguridad Alimentaria Nicasalud-Compañeros de las Américas (Casa Materna)	Jinotega	X					X		X	X				
Asociación de Mujeres de La Bahía	Tapaturro, Rivas	X	X		X	X	X					X		
Cooperativa de Lácteos Nicaño	Rivas	X		X			X		X	X		X		
Pío XII	Nandasmo				X				X			X	X	X
Mayra Mendoza Mejía	Buenos Aires	X	X		X					X				
Miriam Ortiz Munguía	El Raizón	X		X	X					X				
Comisión Nacional de la Papa	Jinotega	X		X	X									
Centro de Aprendizaje El Chlamatillo		X							X	X	X	X		



John Ogonowski and Doug Bereuter *Farmer to Farmer* Program
Volunteer Trip Report Cover Sheet

Name of Volunteer: Arlen Albrecht, Robert Burke, Julie Keown-Bomar

Country of Service: Nicaragua Dates of Trip: January 15—January 30, 2011

# of Persons (formally) Trained ¹ – male	17		# of Persons Assisted in any way ² – male	76
# of Persons (formally) Trained – female	31		# of Persons Assisted in any way – female	81
# of Persons (formally) Trained – total:	48		# of Persons Assisted in any way – total	157

(please review footnotes for definitions of “persons trained” and “persons directly assisted”)

Recommendations Made by the Volunteer:³

Please summarize the recommendations you made to the people/groups/organizations you assisted. Details of the recommendations should be included in the trip report – this is a summary table only.

Recommendation	Host
Solar dehydration and other forms of appropriate technology for food preservation	Pio 12, Villa del Carmen
Seed saving, banking	All sites
Square Foot Gardens	All sites
Vegetable Consumption for Improved Nutrition	All sites
Insect and Disease Prevention Training	All sites

¹ **Persons (formally) Trained:** number of persons to whom you have provided technical/instructional training in a “formal” setting: classroom, workshop, institute/university or on-the-job setting with specific learning objectives and outcomes

² **Persons Assisted:** number of persons who receive **any type** of face-to-face or hands-on technical assistance, training or advice from the FTF volunteer, formal or informal, in any setting. *(please include those you listed under “persons trained” in this number)*

³ **Recommendations Made by the Volunteer:** The definition of “recommendation” is quite subjective, but might include an improved procedure, a technological or management innovation, a useful product or marketing tool, etc. Volunteers might make numerous detailed recommendations to a variety of hosts. Program/management suggestions for Partners staff should not be listed on the cover sheet but please do include them in your narrative report.