

**Thomas D. Syverud, Organic Vegetable Garden Production
Nicaragua, April 17 to May 1, 2011**

Executive Summary

There have been a number of community or cooperative gardens established at FTF sites. Much of this represents the activity of previous FTF volunteers. The gardens looked good, however dry weather, seeding failures and late thinning has limited production. It is a very good beginning, but more needs to be done.

I was able, with the FTF Field Officer Elisa Esrada, to visit eight out of a scheduled 10 sites, plus two additional sites were visited. A formal workshop was held in Jinotega for 22 women. An additional 87 people were reached through less formal garden trainings and demonstrations.

I recommend that the project continue with an emphasis on improving the existing knowledge base of the active gardeners. At the minimum, composting, seeding and garden management improvement is needed. Additionally more potential gardeners could be trained and there is a need for advanced training assignments in selected areas, as outlined later in the report.

Background

There is great potential for vegetable production to improve the nutrition and income of rural families in Nicaragua. My assignment was to understand and recognize the potential and the abilities of individuals, and to assist them in understanding the steps in successful vegetable production. Given my background I was able to share experiences and information about on-going garden production activities. I was to assess potential problems limiting production and to provide technical assistance to achieve improvements. These areas of production included garden management, making compost, integrated pest management and transplanting and seeding.

The problems I identified in order of importance are; 1). Soil amendments are not being added to the garden; such as compost and/or manure, 2). Seeding failures due to improper seeding techniques, 3) The lack of timely thinning or plant to achieve optimum growth, 4) The need to make more compost, 6). Not watering often enough or watering shallowly and not deeply less often, and 7) Being given seeds they are not familiar with.

Activities

One formal workshop (three hours) was held in Jinotega; 22 women.

One in-formal workshop and garden discussion/demonstration (three hours) was held in Rivas at the Learning Center La Bahia; 10 women and 8 men. A technical hired to assist the center participants was also trained and given a soil testing lit.

Five garden discussion/demonstrations (two hours) were given at the following sites;
Pio XII; 1 women, 3 men and 1 girl. In addition, the community leader was trained to use and left with a soil testing kit. She intended to test other area garden plots.
Community La Trinchera, Camaopa; 6 women, 1 man, 2 girls, 1 boy.
Community Sarrigo, Camaopa; 4 women teachers, 4 other women and 1 man.
Barrio San Martin, Camaopa; 6 women, 2 men.
Community Matamba, Camaopa; 8 women, 1 man.

One garden installation/discussion (5 hours) was held at the Cooperativa Nicarao, Rivas; 4 men, 2 women.

One field discussion (3 hours) was with cooperative producers in Buenos Aires; 3 men, 1 woman.

Two garden visits (two hours) were held in Pio XII; 2 woman and 3 man.

Summary

Most of the discussions were held in the gardens. One more formal workshop held in Jinotega was done using a PowerPoint presentation. The information below was usually covered; the amount of detail depended upon the time allowed, whether a previous volunteer has visited the site and whether a garden was already established.

Most of the workshops begin with a discussion of the three most important plant nutrients including Nitrogen, Phosphorus and Potassium. This leads to discussing a common local fertilizer, such as 15-15-15; then most people understand the value of these nutrients in garden produce production. Next the nutrient values on compost and various manures are listed to provide Nicaraguans the way to supply organic plant nutrients. The discussion of making compost and a soil testing demonstration may be included, depending upon time.

A discussion of Square Meter Gardening includes; why the design includes dividing the area into nine equal squares, how the size of the planted vegetable at maturity determines how seeds are planted per square, and when a different plant family is re-planted after harvesting, that natural crop rotation is achieved.

Hosts

Erenda Lopez at Pio XII
Sra. Lilliam Reyes at the Learning Center La Bahia, Rivas
Mayra Mendosa in Buenos Aires,
Lester Canales, Cooperative Nicarco, Rivas
Melba Hernandez and Hayde Rodriguez, Cooperativa de Mujeres Las Brumas, Jinotega
Community La Trinchera, Camaopa
Community Sarrigo, Camaopa
Community Matamba, Camaopa
Barrio San Martin, Camaopa

Community Mombacho, Camoapa
Farm San Isidro, Camoapa

Scope of Work

Not much changed under the heading of the assignment 'Organic Vegetable Production'. I tried to cover the following topics;

Essential plant nutrients: What are they, what their function in the plant is, how we can supply them and what the signs of nutrient deficiencies look like.

Composting: How to do it, alternative approaches, potential problems and how to utilize compost most effectively.

Square Meter Garden: The design, why and how but also how to manage individual vegetables for the highest return.

Transplanting: How to do it without creating extra damage to the plant.

Seeding: Tips and techniques for success in hot and dry conditions.

Potential Disease Problems: This is mostly the tomato leaf fungus diseases. The best approach is to remove the lower leaves and branches early, stake and tie the plant up and never ever water the top of the plant only at the base. The disease really comes from old plant debris left in the soil.

The schedule was adjusted several times. Instead of two days at the Cooperative Nicarco in Rivas, we spent one long day there. The reasons were many, they had no garden land prepared, it was the first day after the holiday, everyone was late coming back to work, no seeds, and unfortunately the main contact had had an accident a few weeks ago.

Observations

When a volunteer brings seeds for future assignments, I would recommend bringing open-pollinated varieties and the most commonly grown vegetables. Some vegetables such as kale, kohlrabi, Swiss chard, peas and several kinds of winter squash were not known and people did not know when to harvest and how to use the vegetable. The following seeds are favorites; beets, carrots, broccoli, red and white cabbage, radishes, spinach, tomatoes (but not cherry tomatoes), onions (red are preferred), Romaine or Cos lettuce, peppers especially hot peppers, okra, eggplant, cauliflower in the cooler parts of Nicaragua, watermelon and sweet melons, basil and parsley.

Recommendations

In the US, we have many standards and regulations regarding organic vegetable production. In rural Nicaragua I believe we can recommend the use of fresh manure in the vegetable garden, if it is incorporated before planting. What is called fresh is old and dried out by our standards. Under these conditions I fear that much of the nutrient value is lost or at least being underutilized.

There will continue to be a need for information on making compost. Compost will maintain and improve soil fertility and soil structure, the organic matter level and moisture-holding capacity of the soil. These last benefits should also be a factor in poor seed germination.

One limiting factor in garden production is the care of the young plants. They are not thinned early to allow the best plant growth, they are not watered deeply and consistently, and they would benefit from being fertilized with a compost tea or manure tea. Extra care at this early stage would, I believe give a large return in the long run.

Mulching will also aid in water management and improve seed germination. I did not see mulching practiced anywhere, although when demonstrated people knew very well what it was for.

I would recommend that future volunteers in the horticulture project visit at least some of the Camoapa area sites. They are cooperative groups, show a real interest, are willing to work, and have already demonstrated more progress than I have seen most of my previous FTF assignments.

Results

At several locations it was apparent that the gardens that had been established with previous volunteers were successful. Indeed, some community groups had plans for expansion and were making compost.

Next Steps

Elisa and I spent a lot of time with people in the gardens; she is well qualified to follow-up on the garden activities. Much of the following is in the FTF daily reports I left with Elisa. I would recommend to the gardeners that they;

- 1). Continue to make and use the compost on individual plants at planting and as a dilute compost tea (or manure tea) included when watering every other week.
- 2). Make sure to thin the young seedlings back to the healthiest plant, according to the planting design.
- 3). Water well at planting and water deeply to ensure deep rooting of the vegetable plants. They will do better in dry weather.
- 4). Harvest the vegetables at a young stage for better nutrition, add compost to the garden bed, and re-plant immediately. This will ensure a long and productive garden.
- 5). As I have said before, and regretfully I have not followed through on it, I need to make cds of my material and photos for distribution.

Future Volunteer Needs

- 1). A volunteer with irrigation experience including with drip systems, using fertilizer in the system and larger scale irrigated vegetable production.
- 2). A disease specialist. After the initial easy problems in starting a garden are solved; such as proper seeding and watering, the major issue is disease control. The common diseases are; tomato leaf funguses, viruses and root rots; cabbage funguses and viruses and blossom end rot. Aphids and white flies are the common insect vectors of the viruses.
- 3). A volunteer with seed-saving experience. Knowledge would include open pollinated varieties, growing techniques, and the harvesting, curing and storing of the seeds.
- 4). Several people were asking for more information on canned, making jellies and what are other ways to store and preserve produce. Information is also needed on the nutritional value of different vegetables and how to best prepare them.
- 5). Continue with the small garden project. It is showing real progress now.

Personal Observations

It has been six years since my last assignment in Nicaragua. Although I did not return to all the same places, I sense an improvement in the knowledge level and interest in small-scale vegetable garden production. I think there is still and probably will always be a place for SMG assignments to expand the base or number of people having a productive small garden, like a SMG.

However I do think there is also a need for more 'advanced' assignments in the area of vegetable production, such as the recent potato specialist. I would recommend that FTF continue to look for those opportunities.

Actually, I think the whole country has shown improvement; the roads, the building, the stores, the restaurants and the airport. The streets are cleaner in most areas, although there are examples of the worst kind. On the new road to Jinotega, just at the top of the pass, where it should be a beautiful view, the people have choose to make it a roadside dump, even with the signs saying trash disposal is against the law. The economy in general is better too, although there are still many unemployed, under-employed and poor people. Abuse of all kinds continues under these conditions. Nicaraguans however, are a friendly, resilient people and I believe will continue to make progress.