

Organic Agriculture Tour of Cuba; February 2-9, 2003

Cuba is the first country to have made the transition from chemical-intensive farming to sustainable agriculture on a national scale.

According to Food First/The Institute for Food and Development Policy, a food policy think tank: "Cuba's transition from chemical-intensive to sustainable agriculture carried the island nation back from the brink of a national food crisis brought on by the 1990 collapse of trade relations with the former socialist bloc. This fascinating case demonstrates that organic agriculture could actually work as the basis of an entire nation's farming sector, putting the lie to the oft-repeated myth that "organic farming could never feed the world,"

"To understand Cuban agricultural development we must first look at the richness of detail in this volume. Then we have to step back and squint to capture the truly novel pathway of development that Cuba is pioneering. And then once again we have to focus in on the details, and glimpse the processes through which Cuba is creating something truly new and hopeful for all of humanity."

-Professor Richard Levins, Harvard University School of Public Health

In 2003, IBS hosted a tour of organic agriculture in Cuba. Below is a review of the tour.

Day 1:

Day one was consumed with travel due to flight delays. We arrived in Havana around 4:00 a.m. Despite the late hour and a mix up in hotel accommodations many of us felt energized by the new surroundings, the tropical heat and a few rounds of Cuban beer, Cuba Libras and Mojitos ! Hopefully everyone got a few hours sleep before starting out the next morning.

Day 2:

Our first stop on a tour was the National Botanical Gardens of Cuba. Here we were given a presentation on the many foods commonly grown and consumed in Cuba along with some

basic information on their nutritional and/or healthful properties. It was explained to us that because of Cuba's diverse heritage of European, African and Caribbean descent there is a very wide diversity of "native" foods, and that the good health of Cubans is often attributed to the fact that many eat a wide diversity and a little bit of everything.

Consumption of fresh fruits and vegetables (Kilograms per person):

Year	1995	1997	2000
Cuba	12.63	151.5	210
World	75	104	105

After the presentation we toured a portion of the gardens where it was explained to us that over the past 500 years many, many varieties of trees were brought to Cuba which today are now considered native. As a result, over 5% of the world's tree species grow in Cuba, many of which we saw; raising the consideration of many intriguing agro-forestry possibilities.

After touring the gardens we enjoyed a great vegetarian lunch at the Garden's Ecorestaurant. Eco restaurants are the Cuban government's answer to capitalist fast-food franchises. Rather than witnessing the expansion of denatured "junk foods," this project sets out to change eating habits and create healthy nutritional practices by encouraging the consumption of organic, vegetarian food. So far there are 10 ecorestaurants in Havana. They're cheaper than traditional restaurants; Cubans pay 18 pesos (50 cents usd); foreigners pay \$2.50-10.00 for a wonderful meal at one of these restaurants.

In the afternoon we visited the Institute for Fundamental Investigations of Tropical Agriculture, which is celebrating its 100th anniversary; making it the oldest agriculture research station in Latin America. It was explained to us that at first it was thought that the climate rather than the soil was responsible for the production of good tobacco and food in Cuba.

In the 1930's Cuba started to develop bio controls for citrus. In the 1980's when faced with the loss of imported fertilizers and pesticides they were forced to develop alternatives. At the same time, those scientists that were raising alternative ideas based upon "sustainable", "biological" or "organic" alternatives were given greater authority. Today they are becoming world innovators in research on developing bio fertilizers from soil organisms that help to release nutrients to the plants; and bio-pesticides which use plant extracts to control insects and disease.

Thirteen years ago there were only 3 neem trees in Cuba. Realizing the potential for its use as a bio pesticide, Cubans have planted over one million of these trees in the intervening years. Today, it appears to be the backbone of their insect spray control program. Other natural insect controls are also in evidence, including insect traps and natural chemical diversions.

Our hosts identified 5 main principles directing their research:

- #1. Food security through organic and/or sustainable production methods;
- #2. Identify foods that can be grown all year to displace the need for imports;
- #3. Produce their own seed to also displace the need for imports;
- #4. Replace imported chemical inputs with biological alternatives;
- #5. Develop urban agriculture for supplying abundant, high quality food near where people live, create employment and recycle organic wastes, and make it organic so chemicals are not sprayed near where people live.

In these respects Cuba is definitely still in a transition phase and it became apparent that the

move to organic was primarily motivated for food security rather than capturing premium prices in a global marketplace.

However, as organics continues to develop Cubans are realizing that organic citrus and coffee may outstrip sugar as a prime export commodity.

Since 1990 sugar production has been cut by 50% while the production of organic vegetables, fruits and coffee continues to rise. The re-education of these displaced farm workers is a source of great controversy in Cuba; not unlike the re-education of displaced Newfoundland fishers and is not being accomplished without some pain.

Day 3

First stop was an organoponica farm. One of many farms that makes an expanding greenbelt around the city of Havana. Here we met, Victor Cruz, the agronomist in charge of the farm whom shared with us the first hand experience of the relationship between scientists and producers. This mutually beneficial connection allows the scientist to see and report on results while the farmers gain information; and all see benefits to their country in the form of healthy, abundant food grown in their region.

The farm, approximately 1 hectare of raised beds and row crops, employees 11 people and produces 300 tonnes of produce per year. The primary crops we saw were Lettuce, tomatoes, onion, bok choy, basil, herbs, flowers and other perishable greens.

Farms like this in Cuba produced 3 million tonnes of produce in 2002 and are projected to produce 3.5 million tonnes in 2003. The land is leased to a co-op and equipment is given to the co-op farmers. In exchange they produce food for a local school. Any excess is sold at local markets; the income from which goes to the farm and the workers.

Cultivation is done with an oxen. In 1960, Cuba had over 1.5 million draft animals (oxen, horses or mules) but during the period of agribusiness expansion (1960-1990) their numbers dropped to less than 600,000. Between 1992-95 Cuba purchased or breed 300,000 new draft animals and today they continue to breed over 30,000/year to replace tractors which are dependent upon imported fuels.

This return to draft animals also required the break-up of the industrial scale farms to small land holdings which employ more people. In 1980, 70% of farms were state owned. Today, less than 30% are state controlled.

As we left the farm and headed for Pinar Del Rio we passed numerous plantations of Cuba's primary export crops: sugar, tobacco, coffee, citrus and banana. Few of these crops are "organic" due to the large mono cultural plantings and the lack of resources, organic and human, to make the conversion. However, export opportunities in organic coffee and citrus are driving a conversion to these crops to organic methods.

At night we held a short briefing session where we introduced ourselves to each other and were able to share our experiences and interests for coming to Cuba.

We then traveled into Vinales where the women in our group were a big hit at the local club and we all enjoyed a fun night of music, dancing and Cuban culture. A short walk through the town exposed us to two midwifery centres and a 24-hour all natural pharmacy.

Day 4

We left the unique mountains and the Vinales Valley in Pinar del Rio and headed for the Las Terrazas ("The Terraces") community in the Sierra del Rosario mountains. Las Terrazas is a model community with a planned economy based on the democratic socialist principles of: equity, health, education, culture, recreation and mutual aid for all.

After 200 years of oppression which saw this area bear the burden of forced slavery for coffee plantations, and clear cutting of the forest Cuba has had the area declared a UNESCO Biosphere Reserve (one of three in the country) and is undertaking an experiment in bioregional sustainability where the priority investment of income from foreign capital is bringing advanced technologies, education and services to the countryside. This community is the first of a pilot project. Its success is motivating the push for plans to develop other communities across the country just like it. It is one of many reasons, that we witnessed, for why Cuba received an A+ rating at the UN Earth Summit.

In 1980 Cuba started building Las Terraza and offered rural farmers and urban dwellers (70% of Cuba's population has become urbanized) the opportunity to move there.

One of the first tasks of the community members was to build over 2000 Km's of terraces to reforest the 5000 acres which have now been replanted with over six million trees.

Today over 1000 people live here; including 400 workers. An elegant and uniquely structured 24 room hotel for up to 100 tourists was constructed into the side of a hill, overlooking the village. Mature trees and a natural waterfall are part of the architecture within the building. It provides the community with an source of external income as well as a market for a portion of the food they grow.

During a tour of the farm which employs 6 people and produces 24 tonnes of produce a year we saw: i 2600 square feet of irrigated raised beds built one foot high with clay roofing tiles; i honey/molasses filled bamboo sticks, used for insect traps; i vermiculture (worm composting), to increase the nutrient availability of the compost; i 680 square metres Greenhouses used for shading, under which cucumbers and tomatoes were being grown, i Corn being grown in the raised beds, being a heavy feeder the corn is an indicator plant to warn the growers if the soil fertility is low before signs appear in the main crop. i Shade coffee, mango and bananas growing on the hillside with pastured pigs in the woods, caged rabbits and chickens running free range.

While the greenhouse production relied on compost and bio-fertility, the growers do resort to pesticides for fungus control. This realization underscored the reality that Cuba is still a region in transition to organic practices. The reality is that food security is the primary issue over organic certification and they cannot afford to risk losing a crop while they experiment with and learn to adopt organic practices. A second, larger farm is being developed but is not yet in production.

Angelic gardens surrounded the ruins and reconstructed buildings of previous inhabitants. A delicately flowing river with gentle rapids and swimming area made for a delightful respite where people have come for centuries to enjoy the reputed therapeutic properties of the high sulfur water.

Day 5

Day five began with an early morning flight to Island Cayo Coco. From there we transferred by bus to Turiguano to visit Cuba's largest cattle ranch. Here over 4000 head of Santa Gertrudis cattle (originally brought over from the King Ranch in Texas, USA in the early 20th century) and Quarter horses are being raised. The Santa Gertrudis are 3/8 Brahman and 5/8 Shorthorn.

They are particularly well suited for hot tropical climates however the Cubans are now breeding them with other strains to increase their tolerance for Cuban conditions. The cattle are grass fed, no steroids are used. Despite these hot tropics the animals gain, on average, 1.5#/day or 1500 lbs in 36 months.

While these cattle are raised solely for meat our host emphasized that the Cuban farmers are most interested in breeds that will produce milk as well as meat.

All Cuban people receive a monthly food ration in order to maintain good nutritional health.

Group Ration

Children 2-14 years Chicken, Beef

Adults Beef and Soy

Children 0-7 years Milk

Children 7-12 Soy Milk

Adults 60+ Milk

Rural farmers sell excess milk on the open market.

The quarter horses are also originally from the King Ranch and are still very much in use by the ranchers as we witnessed in an afternoon rodeo.

Next stop was a state farm making use of extensive greenhouses to protect crops from the rainy

season and intense summer heat. Cucumber, Tomatoes, Melons and Peppers are being cultivated in 120 day cycles. Seeds breed for heat tolerance and greenhouse production were originally purchased from Israel. They are now being produced in Cuba in order to displace the dependency of vulnerable outside sources which could be disrupted.

Irrigation systems both in the greenhouses and in the fields were developed in consultation with Israeli scientists who are familiar with the hot desert and tropical demands of plants and soils.

For fertility, bio-fertilizers and compost is used. Pest control is a combination of bio and chemical inputs to control fungus. While the greenhouses would not be considered "organic" since pesticides are still used in "emergency" situations, we were able to witness abundant numbers of lady bugs.

Vermiculture (worm composting) beds are just getting started which will improve nutrient availability as well as soil and plant health.

For lunch, our hosts treated us to a buffalo dinner. Afterwards a few from our group took off on horseback to explore the hills and back country while the rest of us were entertained with a rodeo demonstration.

The rodeo stadium where this event was held is apparently filled to capacity every weekend for cattle roping, bull riding and steer wrestling competitions. Sharing the pride of the cowboys, who performed these feats, with their friends who sat with us in the stadium was as much fun as the event itself!

In the late afternoon we settled into the Melia Cayo Coco Resort for a day of rest, relaxation and reflection of what we had taken in over the past few days.

Day 6

Many of us slept in and enjoyed a day of rest. Those of us that still had the energy participated in a morning seminar conducted by Michael Baltzer, on qualitative versus quantitative growth of food. Michael emphasized the requirement to recognize plants as both nutritional as well as spiritual being and the need to use science to evaluate more than just the chemical and physical components of plants.

Biodynamics is the management of qualitative life forces. Crystallization is a method used to create a picture of these life forces present in our foods. Through a series of photographs we were able to witness the stronger life force elements (the qualitative forces) that appear in organically grown versus conventionally grown, and open pollinated versus hybrid plants.

The afternoon was set aside for recreation and a chance to unwind. While the surroundings themselves were a bit "over the top" of what any of us had expected or may normally enjoy, the beaches, recreational activities, and multi-cultural surrounding of visitors from all over the

world underscored the financial importance of these state owned resorts as the economic engine that is driving reform across Cuba.

After the fall of the Soviet Union in 1990, Cuba lost its subsidized trade and access to most of its foreign aid. The international price of sugar collapsed leaving virtually nothing with which Cuba could continue to grow its economy. Turning to tourism, the world's fastest growing industry, provides foreign investment, finances the 250+ organic research stations across the country, provides income for tools and infrastructure, aids urban renewal, helps to build communities such as Las Terrazas and most importantly, provides an opportunity for millions of visitors to see Cuba first-hand as a safe, friendly and enjoyable place.

Nevertheless, it was the consensus opinion of our group that we would have preferred to use this time to make a direct physical or financial contribution to Cuba's organic movement and enjoy our relaxation period at a less luxurious facility; a recommendation which we will heed on future tours.

As Cuba's president, Fidel Castro said at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, 1992; "Make human life more rational. Build a just international economic order. Use all science for a more sustainable development that does not contaminate the environment. Pay the ecological debt not the external debt. Fight hunger, not people."

Day 7

We returned to Havana on an early morning flight and headed for the farmers markets. We visited two markets, one which is state controlled with generally lower prices. The second, an open market equally diverse and busy but with less price control. Each market offered foods of all kinds including meats, vegetables, fruits and herbs. Billboards at the state market identified both the nutritional and medicinal values of the foods available. Both were very busy and appeared to be the primary source for purchasing weekly food allotments and necessities.

After the market we visited an urban farm; one of hundreds in Havana City. The farm, which encompassed approximately 3/8 of an acre was comprised of 30 raised beds approximately 64 metres long and one metre wide. It employs 9 people and produces 30 tonnes of produce a year; mostly fresh greens for immediate consumption.

Older beds are constructed out of cinder blocks stacked two high. Newer beds are bordered with clay roofing tiles to allow for more growing space. Two lines of buried perforated plastic pipe run through each bed for irrigation.

Most of the produce is sold locally but if a local school or hospital is in need, food is given to these institutions.

After lunch we checked into our hotel and headed for the craft fair. A busy and exciting venue

where 100's of artisans, craftsmen and entrepreneurs sell their paintings, crafts, clothes and assorted items.

Day 8 We all had a free morning visiting Cuba's historic sites in 'Old Havana' before leaving for the airport and heading home. Havana is the oldest city in North America. While much of the city is in need of repair the Spanish architecture is impressive and those areas that have been restored reflect the pride and future potential of this great city.

During our week we met many new friends who are working to help Cuba continue its transformation from conventional to sustainable and "organic" agriculture.

Nancy and I will be back and will continue to document what we have seen. As we develop greater awareness of Cuba's successes and challenges we will ask more questions, visit new sites, increase our depth of knowledge and hopefully contribute to the on-going challenge of building an ecological society based on food self-reliance, equity and mutual aid.

We invite you all to return with us as the work has only just begun!

Hasta La Victoria Siempre! (Onward Ever to Victory!) - Che