

IICA



PROCEEDINGS

ROUND TABLE MEETING ON ORGANIC FARMING

EDITED BY: Barry Borland and Jerry La Gra

June 8, 1989

EXCELSIOR HOTEL

CANEFIELD, DOMINICA

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ISSN 0253-4746

IICA



Project: Strengthening farmer organizations in the OECS

IICA
BIBLIOTECA VENEZUELANA
28 NOV. 2007

Centro Interamericano de
Documentación e
Información Agrícola
2 9 OCT 1992
IICA — CIDA

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**Reports, Results and Recommendations
from Technical Events Series**

**ISSN 0253-4746
A2/DM-90-001**

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**February 1990
Canefield, Dominica**

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Cooperation on Agriculture**

TABLE OF CONTENTS

	<u>Page</u>
Opening comments, Collin Bully.....	1
Small farmers and organic farming: the role of farmer organizations, Jerry La Gra.....	3
Introduction to organic farming, Joseph Dunsmoor.....	9
Existing farming systems and problems, Errol Harris.....	15
Requirements and alternatives under organic farming, Joseph Dunsmoor.....	18
Marketing and postharvest handling: the existing marketing system, Hannah Clarendon.....	24
Postharvest handling of plantains, ginger and melons, Norris Charles.....	26
Postharvest handling of citrus, S.J. Anselm.....	29
Transportation from Dominica, Charlesworth Charles.....	30
Market opportunity for organic produce, George Kalogridis....	31
Plant protection and quarantine, Eric White.....	35
General questions/answers.....	37



OVERVIEW

As part of its project to Strengthen Farmer Organisations in the OECS, the Inter-american Institute for Cooperation on Agriculture (IICA) is attempting to identify niche markets where the produce grown by small farmers of the Sub-region will have comparative advantage. As a result of the recent dramatic increase in demand for organic food in European, USA, and Canadian markets the decision was taken by IICA and the Division of Agriculture in Dominica to organize a Round Table Meeting on Organic Farming.

As special speakers to this Round Table, IICA invited Joseph Dunsmoor, Chief Executive Officer of Organic Farms, and George C. Kalogridis, Director of Florida Operations of Organic Farms Ltd., the largest distributor of organic foods in the USA. These two specialists spent four days in Dominica visiting farms, agro-processing installations and meeting with farmers and public sector officials.

The Round Table Meeting was held at the Excelsior Hotel in Roseau on June 8, 1989. More than 40 participants were welcomed by Urban Martin, Coordinator of the IICA Office in Dominica. Collin Bully, Chief Agricultural Officer, acted as Chairman of the Round Table, initiating proceedings by explaining to the guests the objectives of the meeting and how organic farming fits in with Dominica's national goals - economic development and diversification, while protecting the environment. He emphasized that these same goals are true for the other agricultural islands within the OECS. Jerry La Gra, IICA Marketing and Rural Development Specialist, provided background on the organization of the meeting and the potential role for farmer organizations in organic farming.

The participants showed their enthusiasm for the subject material by their intense concentration on each word of the key note speaker - Joseph Dunsmoor. Mr. Dunsmoor initiated his talk by pointing out how his US\$20 million dollar organic food distribution business got started in 1980, in a garage behind a food store. The principle problem today, he said, is in getting sufficient supply of organically grown produce to meet the rapidly growing demand around the world. He stressed that organic farming is not simply going back to traditional forms of agriculture but is a science which builds on traditional cultural practices. Mr. Dunsmoor pointed out that organic farming is based on the concept of developing a balanced system between soil and plants. He stressed that pest and disease problems are symptoms of an imbalance in the production system.

In reference to the social impact, Dunsmoor said that by switching to organic farming small farmers can increase their

profits, improve their families nutrition and stimulate the creation of new jobs, while reducing pollution of the environment. Joseph Dunsmoor mentioned that fraud was a constant threat and the principal means of assuring consumers with food free of synthetic chemicals was by the certification of farm lands where produce is grown. Certification identifies those farmlands which have been free of petroleum-based chemicals for at least three years. Mr. Dunsmoor mentioned that the certification process includes:

- identification of farmers who are interested in growing organically and who have at least one plot of land free of synthetic chemicals;
- having farms certified by representatives of internationally recognized certifying organizations, and
- establishment of local chapters of organic farmers who can monitor the farming practices of individual farmers.

The rest of the meeting was divided into two sections: the first dealing with production and harvest and the second with marketing and postharvest handling of organic produce. For each section, national professionals provided descriptive information as to how existing commodity systems operate. Errol Harris, Deputy Chief Agricultural Officer, gave an overview of existing production systems; Hannah Clarendon, Manager of DEXIA, described marketing systems; Norris Charles, Manager of CATCO, described postharvest handling of miscellaneous fruits and vegetables; Samuel J. Anselm, Manager Citrus Packing Plant, described the postharvest handling and marketing of citrus, and Charlesworth Charles, DEXIA, described the transportation systems and constraints.

Following the respective presentations on production/harvest and postharvest/marketing, the two specialists from Organic Farms Ltd. described in detail the production and marketing of organic produce.

As a final wrapup to the Round Table Meeting it was concluded that the market for organic food looks very favourable and OECs countries may have comparative advantages in production due to their fertile lands, small size of farms and existing traditional cultural practices. However, given the lack of modern expertise in organic farming and the lack of information on available natural fertilizers and pesticides, there is a need for further training and research on this subject. It was suggested that IICA continue to coordinate with Organic Farms, MOA, CARDI and other relevant institutions in the development of this market opportunity. It was recommended that IICA organize a one week workshop on Organic Farming to analyze problems and opportunities in more detail.

OPENING COMMENTS

Collin Bully

I want to welcome you here today to this round table meeting on organic farm production, focusing most specifically on citrus production. I want to welcome especially our overseas visitors, from Antigua, St. Lucia, St. Vincent, and of course, those from the United States.

We are here to share information and experiences on organic farming. I think we will zero in most specifically on crops like grapefruit that may have potential for marketing overseas, either in the U.S.A. or in Europe, as organically grown produce. We will investigate the possibilities for us to participate in what we understand is a growing market in the United States, that is, a market for organically grown produce.

Clearly, we will need today to get a clear definition of what is considered to be "organic" and what procedures are to be followed for produce to qualify as organically grown. I understand that organic farming itself involves certain techniques, cultures and procedures that we may want to familiarize ourselves with. It's not new to us I should point out, in that we have perhaps a very good example of an organic farmer with us in Mr. Andrew Royer, who has insisted on the organic approach to farming. In fact, his farm goes by the name of "Andrew Royer's Natural Farm." So, we do have some experience, and Mr Royer has been training young persons in the organic approach as well.

Most important for us, is to know whether certification in organic farming pertains to the system of growing or to the product that is grown. I think today we will have to get this very clear. If organic production involves a new system of growing then there is a need for a radical change in what we are doing. If a product with no identifiable chemicals in it is required, we need to be clear on that.

We understand that there are growing markets in the U.S., not only in terms of the health food chains, but in the normal supermarkets as well, where consumers are looking for "non-contaminated food." They are looking for food that appears to be non-contaminated from chemicals even though it may be blemished.

Some consumers may even use the presence of blemishes as an indication that fruits or vegetables are organically grown. Whereas in the past, produce was required to be blemish free, we are now told that "we don't mind a little blemish here and there. It shows us that the fruit has not been over-treated."

Today, I want us to explore these things, to make sure that we understand what the market trends are, and find out if we can come up with a product that could meet the test, whatever that test will be. We will be informed as to what those tests are and how we can penetrate the organic markets.

We have a number of problems with the U.S. market, and I think we should start out by understanding this. The U.S. uses a very interesting way of blocking fresh fruit products into the U.S. by their USDA certification as to what can and cannot get in. Before, countries were cleared by authorities from the USDA. Now the onus for clearance is on the country exporting the produce. This is not unlike our own situation in the Caribbean.

We have been unable to export our mangoes to Barbados, because we have the mango seed weevil. One would suspect that Barbados also has the mango seed weevil, and when we checked, we found that they do have that problem. They have now said that they will not allow our mangoes in because we have not certified ourselves free of fruit fly. So they have put up a new barrier. They are going to accept our grapefruit but they aren't going to accept our mangoes.

Today, we will go through an exercise and make decisions that will allow us effective penetration of the target market. And, if we are going to penetrate that market we must be sure that the USDA regulations will allow us to get our products into that market. I don't think we should limit ourselves only to the question of the fresh produce, but consider processed products as well. The product can be labelled as organically grown and this also makes it attractive to the consumer.

We welcome here this morning our friends from America who have initiated this meeting. I think they have shown by their presence their interest in working with us and informing us. I would like that we honestly share our thoughts with them. I believe that they will be able to give us a clear perception of what is going on in the North American markets, what the opportunities are and how we can work with them to build something that will be of mutual benefit.

These are my opening remarks. We will keep the meeting very tight and make sure that we express our ideas honestly and openly. At the end of the day we can come up with some definite strategy for what we can do within this region to develop our organically produced fruit and vegetables for the North American markets.

SMALL FARMERS AND ORGANIC FARMING:

THE ROLE OF FARMER ORGANIZATIONS

Jerry La Gra

I want to give you a little background as to how we got to this point. Our institution, the Inter-American Institute for Cooperation on Agriculture (IICA), operates in most of the islands in the OECS, plus nearly all the countries in Central and South America. Our base of operation for the OECS is in St. Lucia. For the past three years we have been working with the OECS countries in the diversification effort. As all of you know, we can not have diversification without a market. So, we are in the process of trying to identify niche markets for OECS grown produce.

We work closely with Governments and Ministries of Agriculture as well as farmer organizations. We would like to see farmer organizations more actively involved in marketing, so there is a need to strengthen them. With the idea of identifying potential markets I had the opportunity to be in Miami, Florida several months ago. As a friend and I walked through an organic food store we saw a number 60 grapefruit on a shelf that was selling for US\$1.00. We asked why it was so expensive and were told, "its organic."

It was at that point that we began thinking that grapefruit in Dominica might be suitable for this niche market since they are basically organic by default. That experience led us to a number of different companies involved in buying and distributing organic foods. We met George Kalogridis, and later, Joseph Dunsmoor, both of Organic Farms Ltd. Shortly after that the USA market underwent the scare from the chemical "Alar," used on apples, which I am sure you have all heard about. Not much later, cyanide was found on some grapes imported into the U.S.A. from Chile.

The cyanide scare froze the fruit industry from Chile overnight, for a period of about five days. During that period the Chilean fruit industry lost many millions of dollars. One importer in Florida dumped US\$400,000 worth of fruit because of that scare, and there were many other instances similar to that.

These events helped to stimulate the interest of the U.S.A. consumer in organic food. In the United States there is now a tremendous demand and a growing consciousness of the need for safer food. There is presently, however, a limited supply and companies throughout the U.S. are searching for farmers who have the capacity to produce for this new market.

In the month of April (1989) I read an article in the Christian Science Monitor about a particular group of farmers in Baja California, a peninsula of Mexico, 2,000 miles south of San Francisco. Three organic farmers from California went to a little town in Baja California called Del Cabo and there they found a group of farmers working on an agrarian reform project (Ejido). This Ejido had about 250 members, growing primarily corn and beans and using traditional methods of crop production.

The Californians introduced organic agriculture to this group and provided them with technical assistance. They found that of the 250 farmers in Del Cabo, 12 were willing to take the risk of not using chemicals. They started three years ago by growing tomatoes, basil, eggplant and sweet peas. The farmers were provided a guaranteed market and were supplied with packaging materials and seeds. The 12 local farmers had a very successful crop the first year and in the following year, 52 farmers began growing produce organically. These farmers anticipate gross returns of US\$1,000,000 in 1989.

One of the things I found interesting about this experience was that the Del Cabo farmers were said to have a comparative advantage for organic farming because they were small farmers. This is contrary to most cases where small farmers are considered to be at a disadvantage relative to large farmers for commercial enterprises.

In the literature on conventional agriculture, there are numerous references to the difficulties of working with small farmers. One of these is getting small farmers to use proper cultural practices, particularly the intensive use of synthetic chemicals. In the case of organic farming, growing without synthetic chemicals is a positive aspect. Since many of the Del Cabo farmers were unaccustomed to using chemicals, it was less difficult to teach them organic practices.

In modern conventional agriculture, the non-use of synthetic chemicals is considered a negative aspect. Farmers who do not use modern technology (pesticides, herbicides, fungicides and artificial fertilizers) are considered to be inefficient. Not using synthetic chemicals is an obvious benefit for growing organically.

As you all know, in the Eastern Caribbean the majority of farmers are small farmers. Many, if not most, of these do not use chemicals intensively, except in the case of bananas. This indicates that it may be relatively easy for these farmers to adopt organic farming techniques and methods.

Another characteristic of organic farming is the tendency to grow a diversity of crops on a few acres to reduce the risk of pests and diseases. Most farmers in the Eastern Caribbean already

raise a number of crops on their small farms. This diversity of crops is an advantage for organic farming.

When one begins analyzing organic farming in detail, one finds that a lot of the requirements, in general, seem to fit closely with the existing farming systems in the Eastern Caribbean. While true that a lot of farmers are now using synthetic chemicals in growing bananas, most still have a tradition of not using synthetic chemicals on non-banana crops. If economically viable it is quite likely that many of the farmers in this sub-region would willingly adopt organic farming practices.

In general, we know that organically grown food in the U.S.A. sells for from 20 to 30 percent more than conventionally grown food. Over time, the organic farmers investments in farm inputs are most likely to decline while the production costs for conventional farming increase. With that in mind, organic farming in the Eastern Caribbean may well be the niche market we are looking for.

If we identify a commodity with a guaranteed market, that can be sold at a higher price and is less costly to grow, that is like a dream come true. Its just what we have been looking for. Of course, we know that nothing is ever as easy as it first appears.

The purpose of organizing this meeting was to bring together experts in the field of organic farming and marketing with regional persons interested in this "new" area. With the proper chemistry many of our uncertainties can hopefully be overcome.

One of the other advantages of the project in Mexico was that the farmers were organized into an association (Ejido). Here in the Eastern Caribbean, when we talk of small farmers we must think farmer organization. I am sure that as the discussion goes on the importance of farmer organizations for facilitating production and marketing services will become obvious.

This Round Table has been organized by the IICA/MOA project to Strengthen Farmer Organizations in Dominica. The decision was made to bring in experts who can provide answers to the many questions we all have on the feasibility of developing organic farming in this part of the world. We hope that this discussion will provide the necessary guidelines for future activities in this same area and will lead to the development of niche markets which can be exploited through farmer organizations.

Chairman:

Mr. La Gra has indicated that with organic farming there is a niche market with a fairly good price. He also indicated that the farming systems of the Caribbean lend themselves to organic farming. What we need to know is how much modification needs to be done to make our farmers fully organic. What crops need to be targeted? What volumes are required? What are the requirements of the market?

As you have noted on the agenda, after this introduction we will get into the basics of organic farming. In addition to the presentations from our visitors from the USA, we will also have a series of presentations by local professionals. We will begin by looking at the local characteristics of production and harvesting and follow on through to postharvest handling, transportation and marketing. While we have the responsibility to inform our guests from abroad as to the realities here in Dominica, they will enlighten us with information about what is actually happening in organic farming in the USA and elsewhere. We will get a clear definition of the organic farming approach and what would qualify as organically grown produce. We will also receive some information about how Organic Farms operates, which will give us some broad ideas about the organic produce business.

INTRODUCTION TO ORGANIC FARMING

Joseph Dunsmoor

I started in organic agriculture about 20 years ago when I was a construction worker in Ohio. I made some wine from grapes growing behind the office where I worked. I added a little sugar just before I bottled the wine and it went through a secondary fermentation and became like a champagne. It was a very exciting drink and it really opened my eyes to the fact that what we get today in our society is what we are given. I realized that tree ripened fruit or different varieties of fresh fruit are just not available to the average North American consumer. The USA market is best characterized by McDonald's and most other products which are mass marketed.

I came to the conclusion that I wanted to be a farmer. I wanted a small farm where I could raise my own fruits. At the same time, I started to realize how exciting it would be to raise fruits and vegetables without the use of agricultural chemicals. If you look at what is going on today, especially in the United States, you will see that everything you buy has been sprayed with something. So you get a constant barrage of agricultural chemicals in the water you drink, the air you breathe and the food you eat.

It seems that when you do not die immediately, people conclude that chemicals do not harm you. But I think, especially when you are working with mutanogenic pesticides, the problem is not so much for us as for our grandchildren. I think we have a real concern here for the future.

I started raising honeybees and got a job offer to move to Belize. I started a farm there, raising bees. In 1973 I realized, as did many others, how energy and food production are tied together. Any fluctuation in the price of energy has a drastic impact on the cost of food production and the distribution system.

I lived in Belize for seven years, then moved back to Beltsville, Maryland, which is the headquarters for the United States Department of Agriculture. I wanted to go back into farming but decided the best thing would be to create a market for organically grown food.

I started Organic Farms, which is a wholesale distributor of organically grown food. We started out very humbly, in a garage behind a little food store where I worked. We supplied the Washington D.C. and Baltimore markets. At that time, in 1980, the demand was fairly light. We started expanding because we needed a company with certain economies of scale. We needed to be able to fill trucks and maximize the use of our facilities.

We started delivering to Philadelphia and then to New York City, Connecticut, Boston and up to Montreal. Then we expanded south to North Carolina, Georgia and Florida. Right now, we distribute to all the major metropolitan areas of the east coast of the United States.

Still, it did not seem that we were moving sufficient volume so we created a production department in California and to help move the produce we created a brokerage company in southern California. That company supplies four major supermarket chains and all the distributors on the west coast. We basically supply the area from San Diego to British Columbia.

Things are still moving along fairly well. The first year we were in business we had almost US\$2,000,000 in sales and every year since we have grown from 50 to 100 percent. Last year we had \$15,000,000 in sales and this year we expect sales on the order of \$23,000,000.

We always try to keep a balance between supply and demand, or production and sales. We have a severe production constraint right now. We have 60 to 80 million consumers in the U.S. who want organic food. We have a tremendous market potential, all we have to do is produce it, get it to the customer in an acceptable condition, and do the proper merchandising. At the same time, as a result of all the catastrophes that have occurred in Europe (Sevin plant blowing up in Bopal and the Sandoz plant that burned and dumped into the Rhine), the European market is actually far ahead of the United States in its demand for organically grown produce.

The demand in Europe is far superior to that in the USA. The next market will be Japan where consumers are very concerned about pollution and the quality of food, not only with regard to flavor but with regard to chemicals also. What we are seeing is a tremendous surge in demand for organically grown food. We are seeing a complete change in people's eating habits.

People are eating more fresh fruit and vegetables. They are more concerned about sugar, fat, heart disease, high blood pressure and cholesterol levels. Everyone wants to be slim. What we are seeing is a real turnaround in people's eating habits which lends itself to organic agriculture, because organic agriculture provides more natural and healthier food.

In answer to the question as to whether organic agriculture is a system, yes, it is a system. My definition of organic agriculture is that it is a carbon based, mineralized, biological system. In that system, the soil is the primary factor, so what we try to create is carbon based organic matter, with balanced minerals and nutrients and minor trace elements.

The key to the organic system is the biological activity involving microbes; the introduction of beneficial microbes and the colonization of beneficial microbes, both in the soil and on the plant surface.

We really have to understand that organic agriculture is not going backward (organic farming today is not the same as the organic farming practiced prior to WWII), although we try to utilize systems that prove to be common sense agriculture, for example, crop rotation, use of cover crops and waste materials.

Organic agriculture is also a science that has tremendous potential, especially when you start understanding the physiology of plants. In the organic system, it's been proven that insects and disease are symptoms and the cause of those symptoms are imbalance. An organic system is constantly trying to create balance.

There is another aspect of the system which I feel is extremely useful and just as important as the soil itself. That is the social impact of organic agriculture, much as we were talking earlier about small farms and crop diversification. A lot of small farmers eat what they grow and it is a good opportunity for people to diversify their diets to include more fruits and vegetables in their diets. It is an opportunity to take land where you are growing low priced crops such as corn and beans and grow high value crops that enable you to increase your income from the land. It is an opportunity to include the community in the supply of labor required for the farm.

Other positive social aspects are the utilization of wastes as fertilizers and soil builders. To me, organic agriculture is an opportunity to learn more about your environment. An organic farmer is a manager of his environment. He knows what insects are pests, how to identify those insects, how to interpret what they mean and how to control them by using whatever process he chooses, either a mechanical trapping system or even fertilization as a means of controlling pests.

I think it is important that we get a little bit of definition about what the U.S. market place is expecting when we call something organically grown. What we have in the U.S. is a system that alleviates and controls fraud by selling food that is certified as being organically grown. We use several international certifying agents such as Farm Verified Organic and the Organic Crop Improvement Association, to certify that the food we are buying is in truth grown organically.

In the certification process we certify not only what has not been used as inputs, but what has been used, because it is very important that we be able to see and build sustainable, long-term agricultural systems. Sustainable systems are just as important

to us as food grown without the use of agricultural chemical inputs.

One of the most important aspects of this system of organic growing is that no synthetic agricultural chemicals (fertilizers, herbicides, miticides, fungicides, or nematicides) can be used on the land for three years before food from that land can be sold as organically grown. What we certify is the soil. We certify a block of land as free of synthetic chemicals and keep that block as organic and certify it every year.

There are reasons for the three year period of no synthetic agricultural chemicals. One is related to chemical residue in the soil and another is that it takes three years to get the digestive quality of the soil up to satisfactory levels through the addition of carbon based materials and trace minerals. When you use synthetic agricultural chemicals you kill a lot of your beneficial microbes, your microbizing fungus and a lot of nitrogen fixing bacteria. The three year rule on agricultural chemicals allows the soil to be regenerated.

We try to get all the growers together at one time for certification, to get all the paperwork done and then bring in a certification agent, usually agents we have been using. For anything south of the United States, we have two people who certify our products.

We do extensive certification work. At the time that we certify that a product is organically grown, we also set up to monitor the productivity of the system. We keep yearly soil tests to measure increases in soil fertility and correlate the increase in soil fertility with productivity of the system. What we have found is that the more fertile the soil, the higher the yields, the greater the sugar content of the produce and the higher the returns to the grower.

That is basically a quick summary of the system of certification.

As a result of the strong demand for organic food the prices paid to farmers for some crops have increased by as much as 300 percent. The amount of increase in price has depended on the variety of the crop and its availability.

In the current situation, the market will accept some blemishes on fruit as long as they are not severe. Nobody wants to pay for something that is ugly. What we have created at Organic Farms is a system where we pack all the number one fruit and process the number two fruit. By processing, I mean juices, jellies, fruit juice concentrates, dried fruits, dried vegetables and vegetable juices. We do anything that you can do with a fruit

and a vegetable to process it into a marketable product as a part of our line.

Organic Farms sells a full line of dairy products that include cheese from cows that are fed organically grown feed and who have not been given hormones or antibiotics. We sell a full line of grain including wheat, rice, rye and corn. We sell corn chips, nuts, baked goods, sugar from organically grown cane, whole wheat flour and other products.

As part of our marketing strategy in the USA, we do not promote the absence of agricultural chemicals. Rather we promote the farmer who grows the food free of chemicals and the region where the food is grown. We push the fact that our fruit is tree ripened and flavorful. We also do a lot of work with the education of the consumer to get them to understand recipes and different things like that.

As far as agricultural chemicals are concerned, we do not play up the negatives. We are very colorful and very upscale in our marketing and advertising. We try to leave behind the hippy image for the upscale, Madison Avenue type image.

In speaking to all the major supermarket buyers in the USA, everyone says that organic food is the future. They are all very excited about starting to buy and sell organic food. If they had the opportunity, they would only sell organically grown food. But, until the availability of organic food increases and prices drop to an acceptable level, they will limit their purchases to whatever products are available on a regular basis and at a competitive price. A lot of supermarket chains, for example Safeway and Kroger, are all ready to start buying organic food.

Question: What is your definition of marketing?

Response:

You will get a different definition of marketing from every person you ask. To me, marketing is not simply sales nor is it all that happens after leaving the farm gate. It is creating a demand for a product. In any kind of food or other product, there has to be a demand and then there is the facilitation of the sale, that is the quality control, packaging and merchandising. Then there is the actual sale of the product.

You have to create a demand for a product. Marketing is creating the demand. The more demand you can create, the more leverage you have regarding the amount of money that will be paid for the product, the payment terms, and so forth. Now, in the West Indies, I would see marketing as promoting the West Indies products. For instance, we can learn from Florida and California. They create very high standards for what can be shipped out of

those states. Marketing Departments do not want poor quality fruit to leave the state, thereby decreasing their advantage in the marketplace.

Marketing is creating demand for a product. That is where marketers must step out and work with buyers and sellers to create this demand at the consumer level, the ultimate buyer.

In my company we only buy what the consumers want. The more I can educate my consumers, the more I can convince them that the products grown in the West Indies are superior to those grown in other regions. In this way I create a demand for products grown in the West Indies. Thus I make it easier to sell those products and at a higher price since I can offer something my competitors cannot.

When you sell a product on a consignment basis, that generally means that you are selling a product that usually sells based on price. What we prefer to do is add value to the product and sell on the basis of value rather than on price. If you have a particular product that people want then you can sell it for a higher price. Anytime you have to sell based on price you stand a much greater chance of losing. For example, if your selling the same type of product that most of your competitors are selling then you can only expect the market price. If your product is in some way special, e.g. organic, then you are in a much stronger bargaining position and will receive a higher price based on a higher perceived value to a certain group of consumers.

My definition of marketing is therefore the creating of a demand for a product. Merchandising is presenting the product and everything else is facilitation of the sale.

EXISTING FARMING SYSTEMS AND PROBLEMS

Errol Harris

My task this morning is not a difficult one. It is to tell you about existing farming systems and problems. It seems that every new set of consultants that comes through Dominica to do some work for us, comes up with different ways of looking at the systems of farming in Dominica. Not too long ago the University of the West Indies also identified some systems while working with our people in the north of the island.

The primary farming systems identified thus far are the banana-based, coconut-based, vegetable-based and citrus-based systems. Today, we are going to look for a brief moment at the systems that relate to bananas and citrus.

One of the groups who studied Dominican farming systems mentioned in their report that it was very clear that the citrus growing system did not involve the use of fertilizers and there was no chemical treatment of citrus. Citrus in Dominica gets fertilizer when the Division of Agriculture provides it. The last time that was done was fifteen to twenty years ago.

Citrus trees get sprayed in certain areas when the Division of Agriculture finds that these trees have built up a tremendous population of pests. We sprayed two years ago, but before that spraying had not been done for more than ten years. What we do at certain times is clean up the trees.

The citrus fruit on Dominica by and large is produced without fertilizer. However, there is a citrus and banana combination that does get some fertilizer. In this case citrus gets fertilizer that is applied to the banana crop. It inadvertently gets sprayed as well with orchard oil. We use orchard oil for controlling cercospora in bananas and the citrus-banana combination would get treated with orchard oil and a fungicide. Of course, it would be possible to do the spraying without the fungicide.

Another system that is worthwhile looking at is the livestock and citrus combination. The work being done by CARDI with biomethane production provides processed manure that can go back on some of the fields. This combination of livestock and citrus would be acceptable for organic production, I would imagine.

The citrus and root crop production combination has developed recently. The only chemical that has gone into this combination is probably a fungicide when planting tannias. We do use a fungicide when planting tannias. If you have a citrus and root crop combination and the root crop happens to be tannias, then a

fungicide soil treatment is likely to be used. Inadvertently the citrus may come in contact with the fungicide.

The banana combinations are quite different. The bananas are treated with fertilizer and also orchard oil and fungicide, nematicide and insecticide. In the case of bananas you do have these chemicals applied. However, there are farmers who apply fertilizer and other farmers who do not. There are farmers who use very little fertilizer in the virgin forest areas. The only chemicals they apply are orchard oil and fungicides. They must treat for cercospora in order to get a banana crop.

There are also banana and livestock combinations. Unfortunately, there are very few of them. By banana and livestock combinations I mean a banana system which uses pen manure as fertilizer. There are very few farmers using this combination. In fact, they are limited to the plots of bananas close to their pig pens or cattle pens.

I would imagine that in some areas, particularly in the marginal banana producing areas like Giraudel, there is very little use of chemical fertilizer. Farmers in these areas will use rabbit manure, pen manure, compost material from their vegetables and other organic material rather than chemical fertilizers. In those areas, you also get bananas produced without any orchard oil at all. The volume of production in these areas is not large. At present, the amounts grown are mainly for home use and for the Roseau market.

I do not think there are any other systems in Dominica to discuss as far as citrus and bananas are concerned. What I would say that deserves mention is that up to maybe fifteen years ago many farmers in Dominica used pen manure in their citrus and banana cultivations. I remember that even in Giraudel there were fellows like Clem Dupigney who used only pen manure for their banana cultivations and in many other areas of the island they have done that.

The Division of Agriculture has been pushing the use of livestock in the farming systems and resettling farmers on individual holdings closer to their homes. Living on the land makes it convenient for farmers to start rearing livestock. The moment you start rearing livestock you have a surplus of pen manure for fertilizer. Unfortunately, none of these operations are large enough to produce significant amounts of pen manure to support any export programmes at the moment.

Miss Clarendon was reminding me that we have the integrated pest management system, using biological controls. This has been used in Dominica on a wide basis when we were cooperating with the University of the West Indies about fifteen years ago.

We definitely have not gone toward large scale use of chemicals. The Government of Dominica has ensured that we have in place a Pesticide Control Board where we license the chemicals that are imported.

We are using pyrethroids where we can get them. Where we have to allow the more potent chemicals to come in, they are allowed entrance only under license. They can only come in to the pesticide control organizations on the island which have to sign guarantees that they use the chemicals themselves specifically for treating households. If we find them breaking that regulation they would probably lose their license. So they ca not take that chance.

REQUIREMENTS AND ALTERNATIVES UNDER ORGANIC FARMING

Joseph Dunsmoor

I am going to give you some information that is going to be extremely valuable for you. I have given this information also at major universities in the United States, to the United States Department of Agriculture and to many State Departments of Agriculture. I am going to define for you very clearly what the organic system is. Any agronomist or entomologist will understand what I am talking about, but I think basically it is very simple and everyone should understand it.

There are two approaches to any physical health problem. We can either try to prevent it or we can cure the problem after we have it. In organic agriculture we are preventing problems, not necessarily providing a solution to the problem or treating the symptoms of the problem.

The organic system is extremely high tech, but extremely simple at the same time. The foundation of organic agriculture is the soil. Fertility of the soil is defined as a balance of organic matter, minerals, nutrient availability and biological activity.

We can look at the soil as performing many of the same functions as the stomach in the human body. Everyone knows that our stomachs use acids, enzymes and bacteria to digest food for the human body. The soil also digests food for plants. It uses acids such as humic acids, which derive from the breakdown of organic matter, as well as enzymes and bacteria. The key to organic fertility is to constantly develop the soil as a stomach and develop its capacity and its ability to digest nutrients.

Every soil has a tremendous amount of nutrients in reserve that are locked up. The only way that we can unlock these nutrients is to digest them in the soil again using either the acids, the enzymes or the bacteria. When you apply agricultural chemicals such as pesticides and herbicides, you destroy the digestive quality of the soil, making it necessary for plants to have salt and chlorine based fertilizers.

There are similarities between plants and human beings. I compare soils with chlorine based fertilizers with human beings who only eat bread and skim milk. These people will live, but will always be unhealthy, frequently going to the doctor for an infection, cold or other virus. Another human being who eats fresh fruits and vegetables, whole grain cereals and dairy and vegetable proteins, grows to be strong, and very seldom has a health problem.

Plants which have a healthy and balanced diet are also going to be healthy. The biggest causes of damage to plants from insects

and disease is an NPK fertilizer. This fertilizer inhibits the uptake of nutrients by the plant. For instance, salt based fertilizers will inhibit the uptake of potash. The salts and chlorine kill the microlife in the soil, including the fungal mycelium and bacteria cells. These organisms are responsible for releasing phosphate, nitrogen and other nutrients to the plant.

When you apply nitrogen to the soil, the plant develops an elongated cell with a very thin wall. When you apply a fungicide to that plant you kill all the beneficial microbes on the leaves of the plant which leave it open to pathogens to colonize on the leaf surface. Therefore, a lot of the controls that we use are actually the causes of our problems.

Many people say herbicides do not hurt the plant, but the plant goes through a shock when these chemicals are used. Anytime you stress or shock a plant, it responds by putting up a vapor of ammonia. The vibration of the vapor of ammonia is what attracts insects. That is the big signal that is put off by the plant that stimulates the process called natural selection. Insects are drawn to plants because they are imbalanced and therefore unhealthy.

We have to understand that God did not create insects just to make our life miserable. There also is a reason for disease and a cause of disease. There also are reasons for weeds. Weeds are tremendously valuable to help regenerate the soil. They can also be a very good diagnostic tool to tell us about the quality of the soil. Certain weeds are found only in soils with certain characteristics. The presence of specific weeds can then tell us about the soil they grow in.

On an island like this one, when you cut the trees down you make a big difference in the system. Trees have roots that take minerals from the soil and bring them up to the leaf surface. The leaf takes carbon dioxide from the air and the sun basically catches the carbon out of the carbon dioxide. The leaves eventually fall down to the soil, the bacteria in the soil digest the leaves and the minerals stay in the soil. These minerals usually stay in the top six inches of the soil where most of the root system is.

What happens in this process is the rain, which is soft water, locks up minerals and the minerals start to percolate through the soil. The roots then capture them and bring them back up to the leaves. The leaves eventually fall, and the process is repeated over and over. That is the natural process. Without it this island would be a desert because all the minerals in the soil would have been washed out of the top soil long ago.

If you cut down the forest, how do you reclaim the minerals? You can have a forest for a thousand years and when you cut down the trees weeds come up. Where did the weeds come from? For all

these years they were in that soil. They are there because that is nature's way of keeping those minerals on the top six inches of the soil. Those weeds are important, and depending on the mineral balance of that soil, you are going to get different kinds of weeds.

Later, if the land is abandoned, you start to get scrub trees and they will develop and eventually the forest will return. That is nature's way of reclaiming and keeping the minerals at the top of the soil. Without weeds we would lose all those valuable minerals that are going to wash out of the root zone. The purpose of agriculture should be to take nature's system and work with it, not against it. It is a tool and we have to understand the natural process and work with that process.

There are many things happening here in the soil. Along the roots of the plants are many beneficial fungi and bacteria that create a relationship that we call a symbiotic relationship, meaning that each one benefits from the other. These bacteria and fungi are creating nutrients for that plant and are also creating nitrogen for that plant.

The air is full of nitrogen and also carbon in the form of carbon dioxide. The key to an island's economy is not to import nitrogen, but to utilize all this nitrogen in the air which is free. To utilize all the carbon which is in the air and free.

To take the free nitrogen and free carbon you have to create symbiosis. In the soil are bacteria. These bacteria need oxygen and the soil breathes just like our lungs breathe. They breathe night or day, in all temperatures and under all kinds of atmospheric pressure. The deeper you take oxygen into your soil the more nutrients are released. Carbon dioxide is transformed by plants into living tissue. Carbohydrates, proteins and fats are decomposed by soil organisms, thereby replenishing the supply of carbon dioxide in the air. That is the symbiosis involving the bacteria and the plant.

In the USA the factor that inhibits yields of corn and small grains the most, is the lack of carbon dioxide - not a lack of nutrients, or a lack of water, but a lack of carbon dioxide. The only way we could get that carbon dioxide is to increase our soil bacteria and soil life.

Also affecting the symbiosis between plants and soil bacteria are the nitrogen fixing bacteria that take the nitrogen from the soil and make it available to the plant roots. These are the azotobactors; the rhizobia bacteria. People tend not to realize what chemical residue it takes to kill these bacteria. They are free and for us. To go about indiscriminately killing them and then relying on petrochemical inputs - "modern agriculture" - is

what I would call not very smart agriculture. It is a form of agriculture that somebody did a very good job of selling.

The system of symbiosis is to me extremely exciting. The plant leaf is totally able to absorb nutrients and carbon from carbon dioxide. We also try to colonize the leaf surface with beneficial microbes. A tremendous amount of research has been done in the United States, mostly on using bacteria as a postharvest control for brown rot and black rot.

We can colonize the leaf surface with different types of bacteria. What we try to do is feed these bacteria and keep them alive. One of the major nutrients that we use to keep these bacteria alive is molasses, because its carbon, minerals and simpler sugars are food for these bacteria.

In colonizing bacteria we keep pathogenic bacteria and fungi from colonizing on the leaf. We are able to do some simple chelation processes and we can take nitrogen from the air and put it into the leaves.

Nitrogen is a very abused input. What I have found is that when you increase the soil's microbial activity, you increase protein and amino acids from the dead bodies of these microbes. The plants really need proteins and amino acids as a form of protein. I first learned this in about 1971 from an old German farmer in Belize, where he used milk, actually yogurt, as a foliar fertilizer. The reason he used yogurt was that the bacterial cultures digest the protein into amino acids. He sprayed the yogurt in very small amounts, usually about 1/2 gallon to a gallon per acre and colonized these bacteria on his leaves and also in the soil. I also know a cherry grower who uses milk for amino acids to feed his cherry trees. We also use fish waste and we can use an enzyme digestion process to break up the protein into amino acids and then apply them foliarly.

Nematodes can be a problem, but why do we have nematodes? In what kind of environment will nematodes thrive? About five years ago I went to a World Food Day in Beltsville, Maryland, which is the headquarters of the USDA. I went to the head nematologist there and asked him what is the best control for nematodes. He said that the best control was the use of green cover crops.

Nematodes will not thrive in a biologically active soil with a high level of organic matter. There are other ways to control nematodes. For instance, crab shrimp and fish waste are excellent controls. Simple process crab waste and fish waste are high in katin, which provides an unhealthy environment for nematodes.

As you can see, the organic system is a very simple system. What we are utilizing is natural products and natural systems. In the United States we use a lot of ryania for killing worms and

other insects and we get ryania from Trinidad. Trinidad seems to have the best variety of ryania, which is a scrubby plant that is very specific to predatory insects.

There are other plants beside ryania that have insecticidal properties. There also are a number of predatory insects on the island now that could be developed or cultivated. Different birds that eat insects can also be encouraged to live on the farm and protect crops.

There are a number of controls already here. There is no reason to bring in or import oil products when natural products such as coconut oil are plentiful and effective. There is plenty of fat here that can be used to protect our crops.

Sea water contains a tremendous amount of nutrients. It is also a very good fungicide and has very strong antiseptic qualities. The market for seaweed right now is tremendous. It not only is a good mineral source, it also has growth hormones. Again, we need to find out when is the best time to harvest the seaweed to get the highest content of growth hormones. Tremendous increases in yields of tomatoes and fruit have been obtained with the use of seaweed as a fertilizer. The sea is an excellent source of nutrients.

These ideas may help your minds to start clicking about the possibilities of being able to grow food organically without using petrochemical inputs. In every island I am sure there are geologic deposits of marine life, potash and calcium. Generally, they have been overlooked because they have a low analysis. But, deposits like phosphate are very high in calcium and these soils are leached out of calcium. There are probably humate or humic acid deposits also.

In the United States we have a large amount of deposits that we use for acids. We apply humic acid to the field to release and help stimulate the digestion of the already existing nutrients in the soil.

Organic agriculture, to me, offers the true potential of using new sciences with some of the traditional production techniques. I then start to realize that in reality agriculture has infinite possibilities in yields and quality. It takes a lot of commitment and I think what has to happen is that people have to catch the fever. They have to get excited about all the possibilities and the potential of the system.

We should have fun in agriculture it should be enjoyed. When I was in Greece two years ago I saw a vase and on it was a harvest scene. This scene showed people going out to harvest and there were musicians going out with them. I realized that there is a

real joy in the harvest. Farming should be a real joy. It should be fun to grow food and harvest food for people to eat.

Farmers are stewards of the earth, trying to create a legacy for our children and their children. Farmers are not thinking only about today, but tomorrow as well and the real opportunity is to have fun in agriculture, creating fertile soil and making money.

MARKETING AND POSTHARVEST HANDLING:

THE EXISTING MARKETING SYSTEM

Hannah Clarendon

There are a few points that I would like to make concerning the production and marketing of organic fruits and vegetables. I find the possibilities of marketing organic produce to be worth exploring, but there are a few questions I would like to ask and a few points that I would like to make.

First, agricultural producers are involved in production either as individuals or as members of a group. Some farmers prefer to operate by themselves, while others prefer to operate as a part of a group. Groups help marketers to market large volumes on a regular basis. The organization of organic producers into groups will definitely facilitate marketing.

Secondly, agriculture as agribusiness is either petrochemical or organic. Organic production is not new to Dominica. A number of farmers have been producing organically for a number of years and have considerable experience as organic producers.

Because there have always been organic producers in Dominica, we have had this technology to offer to others. However, Dominicans who talked about organic production were ridiculed by our Northern neighbors who believed strongly in petrochemical fertilizers and other inputs. Now that organic farming is in vogue, it is alright for us to talk about it. One has to ask the question: "Is it the source of information that is relevant, or is it the information itself that is relevant?"

Another comment I would like to make pertains to the current market for organic produce. Presently organic farming is geared to a rich market segment that is small and limited. Produce on that market enjoys high prices because it is an elite market. However, as more people demand organic food, and as more producers comply with organic standards of production, the amount of organic produce on the market will increase. Increased competition will eventually bring the price of organic produce down, so that the price advantages which are apparent today may not be apparent in the future. We can take advantage of the high prices available on the organic market, but we should recognize that there may be a time limit on premium prices for organic produce.

There is a need for research and development on organic methods of production. Without pesticides and fungicides traditionally used by farmers, new methods of pest and disease control will have to be developed. In the Caribbean we need to come up with our own ideas in order to avoid dependence on

expensive, imported inputs. Yes, we can get a higher price for organic produce than for conventionally grown produce. However, are our costs of production going to be greater? Do we have adequate means of controlling pests and diseases if we discard our traditional methods of control, which may have included petroleum based chemicals? Is the technology available for the production of new, organic inputs? Are these inputs available to us and can we afford to produce these inputs?

The promise of selling organic produce at premium prices has attracted our attention. This possibility seems to be worth exploring. There are a number of questions we need to ask about such things as the stability of the organic produce market, the availability of organic inputs, and the cost of these inputs. When we are satisfied that organic production is not a fad and that we can grow organic produce efficiently, then we can devote our resources and our energies to the production of organic fruits and vegetables.

**POSTHARVEST HANDLING OF
PLANTAINS, GINGER AND MELONS**

Norris Charles

Briefly, I would like to give you some information about our postharvest handling of plantains, ginger and melons. Plantains are one of our main products. CATCO exports a lot of plantains from the Southeast District of Dominica. The farmers there organized a group called the South East District Plantain Association. They were informed about the quality of plantains required by the market and we started off by exporting small amounts of plantains to Barbados. As production increased, we concentrated on the market in the United Kingdom. At the moment, 80 to 90 percent of our plantains go to the United Kingdom.

Basically, our plantains are field packed into banana type cartons. We pack them with 27 pounds, net weight, 30 pounds gross weight. The grade is 3/4 full for the Barbados market and for the U.K. market we prefer a slight 3/4 grade. The reason is that the journey to the United Kingdom is long and market demands green rather than ripe plantains. As a result, we try our best to ship high quality green plantains.

The plantains we ship are treated for crown rot. We use Benlate primarily, but we also use a Clorox solution occasionally for treating crown rot. Plantains are washed before packing and we prevent bruising as much as possible.

We market the common "maiden" plantain. It is very different from the "horse" type of plantain which is not grown in large quantities in Dominica. We ship about 12 tons of plantains each month. Generally, the farmers are short of the market on a weekly basis.

Shipments are made by Geest when we know there will be available space, the farmers are informed that we can take their plantains. The only problem we have in marketing plantains to the U.K. is being sure that there will be space on the ship for them.

Ginger is being shipped as part of a pilot project started two years ago. We have established ourselves on the U.K. market because of the quality of ginger produced on the Geneva Estate under the management of the Integrated Rural Development Project. The ginger production methods used in this project are very good and the quality is very satisfactory for the market.

The ginger is packed in banana cartons. We are trying to improve our packing because we believe we will get a premium price

if we do so. I think that ginger will be a big crop for Dominica in the coming years.

The large variety of ginger is the type produced here and it is very clean. We intend to increase the volume of ginger marketed from Dominica because of the high demand for our locally grown product.

The variety of watermelon we export is the Sugar Baby. Shipping began on a trial basis last year and was successful. We all know that we can grow watermelons in Dominica. We were unsure about exporting them by sea. We shipped about 18 tons this year and found that the main problems were the handling and the storage on the ship. To ensure that melons reach the market in good condition, they must have proper storage or the entire shipment will be spoiled.

The melons are packed in banana cartons also, but this packaging needs to be improved. A carton will be designed for watermelons by next year. The maximum size of melon we export is 11 pounds. That is a problem for the farmers because about 10 to 15 percent of their crop is over 11 pounds. To the farmer, the larger melons are the best, but we can not take them.

We intend to improve our packaging and educate the farmers on the crops they are growing. The system we have adopted is to organize farmers in specific areas, inform them about the quality the market demands and the packaging required. The farmers then work together to supply the product on an F.O.B. basis, with supervision from CATCO.

With the system in use, farmers get a better price than the farm gate price and they are involved in the entire marketing system. We report to the farmers regularly concerning the condition of their produce on arrival in the market and how it is accepted there. With this system, we build the farmer's confidence in his ability to produce a high quality product that will do well on the market.

Questions for Mr Charles:

Question: What happens if a hand of bananas or plantains is bruised or damaged or is overly large?

Response: The hand is rejected if it is the wrong size or has bruises. These rejects are consumed by the farmers' families or they are fed to their livestock. Sometimes they may be left in the field to rot.

Question: Is there a large volume of bananas rejected in each harvest period?

Response: It can be quite high at times.

Question: What happens to any rejected ginger?

Response: It is used as planting material.

Question: Has work been done to come up with a better variety of watermelon?

Response: Some work has been done by the Taiwanese, but we have not come up with a better variety than the Sugar Baby. The farmers now sell their smaller melons through CATCO and sell the melons that are too large for CATCO through the Roseau Market. Farmers might also be able to solve the problem of large melons by providing them with less water or by establishing honeybees to increase the pollination rate in their melon fields.

POSTHARVEST HANDLING OF CITRUS

S.J. Anselm

The Citrus Packing Plant is divided into three sections, the reception point, the degreening room and the packing line. Farmers bring grapefruit in field crates to the reception point where we wash the fruit, clean it and remove molds. One gallon of washing solution to 17 gallons of water is used.

For the market in the United Kingdom we degreen the fruit because it is not fully mature. It goes into the degreening room and the degreening process changes the color, but not the inside of the fruit. The fruit goes in looking green or partly green and comes out looking yellow. At this point in time we are using ethylene for the degreening process.

The ethylene goes into a generator which produces a gas. This chemical is also used for ripening bananas but with grapefruit the color of the fruit is changed without changing the fruit itself. The time spent in the degreening room is about 72 hours. If the fruit has not changed color after 72 hours it will never change.

Beyond the degreening room fruit goes into the packing line operation. There is very tight selection at this point because the market requires the best fruit and this is what we want to provide.

We do an application of a water based wax on the packing line to give the fruit a high gloss finish and give it a longer shelf life and help it through the rigorous conditions of shipping. Along with the wax we use a fungicide called thiabendazole to control mold. After the wax and thiabendazole are applied, the fruit passes through a dryer where the wax is dried before it is graded and packed in a 17 kilo carton.

Farmers play a vital role in the citrus operation by bringing in only high quality fruit. In the past few years our rejection rate has been less than five percent of the fruit brought in.

During the past year, we were able to access a new market with the help of DEXIA. This new market is a fresh fruit juice market and we wash the fruit and pack it without waxing or degreening.

TRANSPORTATION FROM DOMINICA

Charlesworth Charles

I am handing out a document that I think is very complete in terms of an explanation of transportation facilities available from Dominica. This document contains an explanation of the air and sea transportation alternatives.

Since Dominica does not have an airport for large aircraft, the primary air transportation link for exports is LIAT, to Antigua. From Antigua, British West Indies Airlines (BWIA) and American Airlines (AA) are the principal carriers. Freight rates for these airlines are included in this document. BVI operates flights five days a week out of Melville Hall airport. Regal Airfreight, Eagle Wings and Nature Island Express all operate charter flights out of Dominica.

Freight can be moved by sea from Dominica in refrigerated containers by Trans Marine Trailer Lines (TMT). TMT is the line serving Dominica that provides the most regular and frequent service for refrigerated containers.

Twenty foot refrigerated containers are available from TMT only for shipments to Miami. Forty foot containers must be used for all other ports in the United States. The 40 foot container can also be used for shipment to Miami.

WISCO also has service to Miami, through Jamaica. Freight rates from WISCO are higher than for TMT Lines, and the service from Dominica is not as regular.

Question: Why are the prices for WISCO so much more than for TMT Lines? Is the TMT Line reliable?

Response: The TMT Line is much larger and they handle much larger volumes. Economies of scale allow them to charge lower rates than WISCO. It is very reliable and trustworthy. They have good equipment and they will bring a container one week to be picked up two weeks later. WISCO seems to be unable to keep a regular schedule.

MARKET OPPORTUNITIES FOR ORGANIC PRODUCE

George Kalogridis

In the packet I have handed out there is a form to be used for the certification of a farm, published by the Farm Verified Organic organization. This provides a sketch of what farmers can and can not use in growing crops organically. This form tells you that such things as artificial fertilizers, chemical controls for insects and artificial soil amendments can not be used.

Acceptable practices for organic growing are also included in this form. If in your growing operations you follow these guidelines, you will be able to sell your crops as organically grown. This is a good place to begin, with this list of acceptable and unacceptable practices. Everyone seems to want to know just what it takes to grow organically. So you can see that a lot of fungicides and other chemicals used for citrus can not be used if you grow organically.

Mr Dunsmoor has given you a lot of good information about marketing. There also is some information about marketing in your packet. Articles included there give good examples of what we call marketing pieces.

In our marketing efforts we talk to the public about what products are organically grown, how they are grown, and we also talk about the farmers who grow them. If we were to promote produce from Dominica we would do things to make sure that the American consumer knows about the commodities grown in the West Indies, like citrus, coconuts and mangoes. We would make sure that American consumers begin to look for West Indian products when they go into the supermarket.

In the West Indies you have certain advantages. Citrus here is ripe in December, but in Florida, it still has a lot of acid in December. People pay a good price for it in December, then pour sugar on it and try to eat it.

If we can get a reliable source of organic citrus that is ripe in December from this area, then we can send a better product to our customers. Once we develop the market each December, people will look for West Indian grapefruit because they know it is ripe and you do not have to add sugar to it. In essence, you can create a consumer demand by providing a better product.

People tell me that before Hurricane David, Dominica was packing 135,000 cartons of grapefruit per year. I would love to see you get back to the point where you are packing the same volume for me. In December, when it is ripe, you would not have to gas

it or add fungicides to it because you would be shipping it to people who want to eat ripe fruit.

We would buy citrus in such a way that you would not pick a little here and a little there. You would go in and clean trees off. This would give you a better crop the following year.

I do not want watermelons this time of year because I can get all that I can handle from Florida. If you can ship watermelons to me in the very early Spring, we can do business. April and May would be the best months to ship watermelons, because the consumer is looking for a nice fresh fruit as they think about summertime. In the summertime, everyone grows watermelons, but in the Spring, we can market them from Dominica.

If we start bringing melons in April and inform the consumer that these melons were grown in the West Indies, maybe people will start coming to the store and asking for those good organic melons from the West Indies. This is how you begin to develop a market.

I do not think your concern should be about trying to change the standards for organic produce. There are a lot of consumers who believe in them. Instead, you should be growing according to the organic standards and provide the product at the time of year when it is best for you.

We had a project with a local television show three months ago. We took people from the television station to an organic farm and to a doctor who treats people who are poisoned by agricultural chemicals. We also took them to a store that sells organic produce. They developed a story about organic farming. As a result of that story, the farmer is selling more food and the store is selling three times as much food as it did before, because people now know that it is available.

People want pure food and that is a fact, it is what we should all be trying to provide. Someone told me that when the United States sneezes the Caribbean catches cold. Whatever happens in the United States affects this area. Right now, the U.S. is going to re-register all pesticides on the market. They have to go through the entire procedure of registry all over again. It will take nine or ten years for this process.

Already, several petrochemical based pesticides have been dropped from production because the companies do not want to take them through the registry process again because they do not believe they can meet the requirements.

More and more we will be seeing pesticides and herbicides banned from use in the United States. This means that these products, like Alar, can be sold outside the USA but not in the USA. In two or three years, however, it is likely that laws will

be passed that will make it illegal to import food if unregistered chemicals like Alar were used in the production of that food. This will mean that countries interested in exporting their produce will have to closely monitor chemicals used in production which can and cannot be introduced into different markets.

If you become accustomed to using chemicals that are going to be banned you are going to have the same problem that some U.S. farmers are having in trying to grow crops without them. Now is the time to begin thinking of production without dependence upon petrochemical pesticides and herbicides.

Questions for G. Kalogridis

Question: How would you promote the West Indies products?

Response: I would spend a lot of time talking to the buyers from large supermarkets. Right now, buyers from these supermarkets are looking for produce which will be available in September and October that we can provide. We would tell them about the climate, the water and the farmers of the West Indies and the purity of your area. We would help them to promote your area. We would work with our advertising department to develop a story about the West Indies and go to television shows that feature cooking and food and tell them about the fruit that we get from the West Indies. This is what marketing is all about.

Question: How much are you willing to pay for produce that has no chemicals? How soon do you pay the farmer for his fruit or vegetables?

Response: We try to keep the price of organic products at 15 to 20 percent above the price for conventionally grown produce. This is our goal. When you hear about one grapefruit selling for a dollar, the traffic in the store selling that grapefruit was perhaps 200 people each day. In a U.S. supermarket, several thousand customers go through in a day. We are making a move away from the small store to the large supermarkets.

One large citrus grower could provide all the citrus moved through the small stores up and down the east coast. To put hundreds of thousands of cartons of citrus on the market you have to sell in the larger supermarkets. If a conventional grapefruit is priced low and an organic grapefruit is priced much higher, the organic grapefruit is not going to sell. If we can keep the price down we will sell a lot of grapefruit, oranges, mangoes and watermelon.

As far as payment is concerned, we pay our farmers 14 days after delivery. I assume that we will do the same thing here; pay

14 days after it gets to the port. We do contract and we can sit down and work out a price with you. We can work it any way you want, but we have to be able to go back to our supermarkets and tell them we can provide them with a specific product, at a specific time, at a specific price. If it is reasonable for them they will do business with us.

Question: What kinds of chemicals or substances can be used on organic foods?

Response: Petrochemical based insecticides or waxes cannot be used. Vegetable waxes and other organic products can be used.

Question: What port would you have fruit shipped to?

Response: Right now it looks like Jacksonville.

PLANT PROTECTION AND QUARANTINE

Eric White

I work for the United States Department of Agriculture's Plant Protection and Quarantine Unit. Our mission is to protect United States agriculture from foreign diseases and pests. Certain things can be allowed into the United States as long as they do not have diseases or pests. There is a list of commodities admissable to the United States from Dominica and the list tells what conditions must be met in order for them to be admitted. The Government of Dominica has that list and it can also be obtained from the Fruit Fly Survey Office.

The first and most important rule is that if you import fruits and vegetables on a commercial basis, you need an import permit. This permit must be held by the importer in the United States. With a few exceptions, like bananas, every fruit and vegetable needs an import permit, regardless of the volume you bring in.

There was some confusion about whether grapefruit and oranges can come into the United States. At the moment they can come into all ports as commercial shipments. Everything that comes into a United States port is subject to inspection regardless of whether it requires an import permit. The plant protection officers here should inspect the shipment before it leaves to make certain that it has no diseases, pests, seeds or anything else that could cause it to fail an inspection.

The importer in the United States is responsible for the import permit. The exporter from Dominica is responsible for making sure that the shipment is clean.

There are other things that the exporter should be concerned about. When you ship your fruit or vegetables, be sure to accurately describe the contents of the shipment on the phytosanitary certificate. Do not try to sneak a sample of something in for someone else. Be accurate in all your reporting.

Certain processed products can come into the United States quite easily. Dried fruits, vegetables and herbs can all enter very easily, and the inspection is usually cursory. Cut flowers and ornamental flowers can also come in, but there are regulations for these goods and they do require an import permit. The permit will tell you under what conditions these things can come into the United States.

I am working in Dominica on a fruit fly trapping program. This program is going on in St Lucia also. Depending on the outcome of this program, certain changes in the import regulations may be made. If these islands are certified as fruit fly free, it will be easier to export fruit and vegetables from here. For

example, if we do not find fruit fly larvae in passion fruit, fresh passion fruit will be able to go to the USA.

So far, fruit flies have been found in West Indian cherries, mangoes and guavas. The two species of fruit fly found on this island are also found in Florida. There may be certain areas in Dominica that are fruit fly free. Those areas could then grow guavas and mangoes for export to the United States.

Another part of this program is to build up the plant quarantine services of Dominica. This serves two purposes. First, it helps the U.S. with the certification of fruits and vegetables. Second, it helps Dominica by developing a more professional unit that will gain more cooperation from the USDA.

GENERAL DISCUSSION

Question for Mr Dunsmoor: What is the brix/acid ratio that is acceptable for citrus entering the U.S.?

Response: Right now, organic and conventionally grown produce do not have the same requirements, which means that organic produce will not be subject to the same rules as conventionally grown produce. There will be more definite information about this in late July. There will be hearings in July to set up certification standards for organic produce.

Question for Mr. Kalogridis: Are there any tests to prove whether grapefruit are organically grown?

Response: Yes, there are residue tests that can find illegal substances in fruits and vegetables. They can determine parts of chemicals per billion units in these goods. We do random testing. In the certification process, we rely a lot on neighbors looking over their fences at their other neighbors.

Question for Mr Dunsmoor: Does certification of a farm involve an inspection of the farm?

Response: Yes. After the required forms are completed, an inspector from the certifying organization will come to your farm to interview you, test your soil and look at your farm. Then, as the process continues, more visits would be made. We also do random testing of the fruits and vegetables you grow.

Question for Mr Dunsmoor: Is there a good market for passion fruit?

Response: Every year we sell a lot of passion fruit, guava and Barbados cherries. Just about anything you can produce can be sold, like soursop, sugar apple and sapodilla. All are popular in the major cities.

When you were talking about the brix/acid ratio it occurred to me that you should be more concerned about what you would allow to be shipped than what the U.S. will allow to be imported. If you are trying to build a reputation for quality of fruit, you should be concerned about the quality of fruit that leaves your ports.

Question for Mr Dunsmoor: What is the minimum volume you will purchase?

Response: An important aspect of every business venture is an economy of scale. The minimum quantity would be the smallest

volume you can ship economically. I would not want to ship a 40 foot container that is only half-filled. Probably a 20 foot container is the smallest volume.

There is a real opportunity here for manufacturers also. One thing people have to understand is that it is very important that you add value to the product regionally. What you want to do, whenever possible, is to process the fruit in the region where it is grown and add the value there.

It is very important that you put your product in a package that can tell a story about the product. For any product we develop here, we will try to tell the story behind it. Even on fresh products we have stickers and labels and stem tags so that people can read about the product, become interested and excited about it and then buy the product. That is something that adds value to the product.

Question for Mr Dunsmoor: What kind of problems have you had with postharvest handling? Are you able to market ripened fruits? How do you define "tree ripened?"

Response: Speed is very important in marketing fresh organic produce. We tend to be very fast. When we do things we try to not get caught up in bureaucracy. I met with Safeway buyers a few years ago, to market our tree-ripened peach. They said they had tried it before and it didn't sell. They agreed to try our product, however, and it worked because we got it into the stores fast when it was at just the right stage. When people came back to the store they said they would buy it again because it was so good.

Tree-ripened means the stage where the fruit is at its optimum quality but where it can still get to the market place at that optimum quality.

Question for Mr Dunsmoor: Can bananas be allowed to ripen before shipping?

Response: There is a certain stage even in a banana where it can be allowed to ripen on the tree and still be shipped.

Question for Mr Dunsmoor: How do you know what condition the fruit will be in when you receive it?

Response: We set the specifications on the condition in which the fruit must arrive in port.

Annex 1

ROUND TABLE MEETING ON ORGANIC FARMING

June 8, 1989

General Objective: Discuss the feasibility of producing organic produce in Dominica for export to the USA market.

Specific Objectives:

1. Evaluate the potential for the export of Dominican grapefruit and other produce to the USA.
2. Inform participants of certification procedures required to penetrate the USA market.
3. Transfer technology for the production and marketing of organic foods to the Eastern Caribbean.
4. Exchange experiences in organic food production between farmer organizations in the OECS.

AGENDA FOR ROUND TABLE

June 8, 1989

- 9:00 Welcome of participants; Urban Martin, IICA Coordinator.
- 9:05 Purpose of meeting and presentation of participants; Collin Bully, Chief Technical Officer, Chairman.
- 9:15 Small farmers and organic farming - the role of farmer organizations; Jerry La Gra, Marketing Consultant, IICA.
- 9:25 Introduction to organic farming; Joseph Dunsmoor, Chief Executive Officer, Organic Farms, Inc..
- 9:45 - Existing farming systems and problems; Errol Harris, Deputy Chief Agricultural Officer.
- 9:55 - Requirements and alternatives under organic farming; Joseph Dunsmoor.
- 10:10 - Round table discussion on production/harvest.
- 11:00 - Existing system and problems; Hannah Clarendon, General Manager, DEXIA.

agenda continued:

- 11:10 - Postharvest handling of bananas, plantains, ginger and melons; Norris Charles, Manager, CATCO.
- 11:20 - Postharvest handling of citrus; S.J. Anselm, Manager, Citrus Packing Plant.
- 11:30 - Transportation from Dominica; Charlesworth Charles, DEXIA.
- 11:35 - Requirements, alternatives and guidelines for postharvest handling of organic produce; George Kalogridis, Organic Farms, Inc..
- 11:50 - Round table discussion on marketing/postharvest/transportation.
- 12:30 - Specific problems/needs/questions: Antigua, Dominica, St.Lucia and St.Vincent.
- 12:50 - Conclusions and recommendations for followup.

PROGRAMME OF VISITS FOR VISITORS FROM ORGANIC FARMS

June 7, 1989:

- Co-operative Citrus Growers packing plant;
- ABC box factory;
- Selected farms of local citrus growers;

June 8, 1989:

- Deep water harbor;
- Dominica Agro-Industries;

June 9, 1989:

- Soufriere lime growers;
- Bellevue farming community

Annex 2

PRESENTORS AND PARTICIPANTS

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Hannah Clarendon	General Manager Dominica Export Import Agency Charles Avenue Goodwill, Dominica
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FECHA DE DEVOLUCION			
10 JUN. 1996			
15 MAR. 1997			
14 JUN. 1999			
5 MAR. 2001			

IICA-PRRET-A2/DM-90-01

Autor: Proceedings round table

Título: meeting on organic farming

Fecha Devolución	Nombre del solicitante
10 JUN. 1996	A. M. Ariza
15 MAR. 1997	G. Vajla
14 JUN. 1999	[Signature]
5 MAR. 2001	Rafael



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