CARIBBEAN FOOD CROPS SOCIETY 44

Forty Fourth
Annual Meeting 2008

Miami, Florida, USA

Vol. XLIV – Number 2
Plenary Session and Oral Presentations

MEETING HOST:

UF UNIVERSITY of FLORIDA
IFAS

2008 Proceedings of the Caribbean Food Crops Society. 44(2):291-303. 2008

Organic Agriculture in Trinidad and Tobago: Approaches and Successes of Grassroots Networks and Governmental Policies

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ABSTRACT.
In response to mounting environmental, human health, social and economic problems in conventional agriculture, farmers and consumers in Trinidad and Tobago have started to support more organic farming. Within this movement, grassroots actions and networks have created more organic farming and marketing than have governmental policies. There is a lack of legislation regarding organic agriculture, despite the formulation of a draft policy document by a government-appointed committee. Without such legal framework, the definition, standards and methods remain open to interpretation. Between August 2007 and May 2008 the authors studied the development and philosophy of the local organic agriculture movement by conducting interviews, surveys, and engaging in participant observation. Several dispersed networks were identified, and included farmers, marketers, consumers, students, researchers, and policy-makers. Notably, there are opportunities to be certified organic through external certifiers, but the process is often too expensive for farmers selling nationally and there are no local certification alternatives. A few export-focused farms are going through the certification process, but currently there are no certified organic farms in Trinidad and Tobago. This research reveals a number of trends about successful farmer strategies, perceived motivations for organic farming, and obstacles facing this industry. Future recommendations for growth include coupling grassroots actions with formal policy measures. With a focus on public awareness and education, research and demonstration, policy intervention, and incentive creation, Trinidad and Tobago could move towards greater food security via organic food production.

KEYWORDS: Trinidad and Tobago, organic agriculture, legal framework

"We have all the potential to do amazing things. We have water, we have fertile land, but we just don't have the leadership and we're not working in the right direction."
- Tobago farmer who recently lost his organic farm to land tenure issues

INTRODUCTION

The two-island nation of Trinidad and Tobago lies at the southern tip of the Caribbean island chain. Trinidad's agricultural development was largely shaped by its colonial history under Spanish rule in the sixteenth century and under British rule in the seventeenth and eighteenth centuries (Tobago changed hands over twenty times and was not incorporated with Trinidad until 1889). Until the emancipation of slavery in 1838, the majority of agricultural land was in large plantations of crops grown for export, particularly sugar and cocoa. In the years directly following emancipation, the number of small land holdings dramatically increased, most of which were used to grow a variety of

crops for domestic markets. During this period, Trinidad and Tobago was exporting vast quantities of commodity crops while growing enough domestic crops to nearly maintain self-sufficiency in food.

In the early twentieth century, the discovery of oil in Trinidad "led to the decline of the relative importance of agriculture," wherein agricultural output was "inversely related to the performance of the oil sector: depressed during the oil boom, stimulated during oil's decline" (Dolly 2007, IICA 2005). Called the "Dutch disease" effect, the vast large oil and natural gas reserves off the coast of Trinidad drew workers and resources into this industry and out of the agricultural sector. The Dutch disease effect explains why the 1970s brought an oil boom and consequent drop in agricultural production (with Agriculture's share of GDP dropping from 6% in 1970 to 2% in 1980), and why during the 1980s oil decline the nation's economy "was led by strong performance of domestic agriculture, especially small-scale farming," (IICA 2005). Throughout the last decade there has been another oil boom, and a resulting exodus from agriculture, particularly domestic markets. Largely due to the lucrative oil and gas industry, many farmers and agricultural workers are leaving the industry, and agriculture today barely contributes to the gross domestic product.

In addition to the effects of Dutch disease, the decline of agriculture in Trinidad and Tobago was largely in response to international trade regimes. In the early 1990s, a government briefing explained that promoting self-sufficiency and food security "will cost the economy dearly and will impose excess investments," so they announced new policies for "development guided by free market regime," (Republic 1991). Yet with the benefit of hindsight a decade later, the government reflected upon the consequences of free market policy actions: "With respect to WTO rules, developed countries (in particular the USA and the EU) have significantly increased their support to agriculture since 1995 while developing countries are being pressured to reduce support…This imbalance has grown in recent years creating further distortions in trade and unfair competition against exports from developing countries" (Specialists 2004). The government has created many initiatives to diversify agriculture and reinvigorate farming for local and international markets, among which are a handful of organic agriculture programs. These top-down governmental projects have very different goals and values from the grassroots organic farming organizations and markets that have bloomed throughout the nation. While the organic farming practices in Trinidad and Tobago may seem similar at a glance, closer investigation reveals the differences in the various ways organic agriculture has grown.

This research aims to understand the complex history and current status of sustainable agriculture in Trinidad and Tobago. The authors posit that it is ideal for a grassroots organic agriculture movement to continue growing at the same time as a policy-driven movement. By describing the history and current state of organic farming networks, the authors illustrate the approaches, successes, and challenges of organic agriculture in Trinidad and Tobago. This manuscript contributes to the international discourse on organic agricultural movements, particularly at the intersection between global forces and local initiatives. Furthermore, what can be expected, or suggested, for the future of organic agriculture in Trinidad and Tobago?

MATERIALS AND METHODS

Between August 2007 to May 2008, through support of a US Student Fulbright Grant, Ms. Sticklen researched the development and current state of the local organic agriculture movement in collaboration with Dr. David Dolly at the University of the West Indies. The authors first reviewed the agricultural history and policies of Trinidad and Tobago. For the remainder of the grant period, the authors studied the history, values and practices of the organic agriculture movement in the field. Several principal networks were identified including farmers, marketers, consumers, students, researchers, and policy-makers.

The authors spent a great deal of time locating appropriate communities, which at times proved problematic as many organic agriculture groups were operating independently of one another, and little previous research had been done on the current state of local sustainable agriculture. They worked with four main organizations to develop case studies of sustainable agriculture networks. This included: 1. A group of organic farmers in a valley along the East-West Corridor (a densely populated and agriculturally fertile stretch of Trinidad) organized by an older Rasta farmer with a PhD in Horticulture; 2. A for-profit organic food business in Port of Spain (the capital city of Trinidad) that imported various organic items and organized delivery from organic farms in Trinidad and Tobago; 3. The Trinidad and Tobago Organic Agriculture Movement; and 4. A working organic research farm in Tobago, funded by an international agriculture organization.

Methods to understand the historical and political background included research in university and national libraries, and archival research with various professors and policy-makers. Field research methods included interviews and surveys, and most significantly spending weeks at a time with these communities, engaged in participant observation.

To disseminate the research findings, the authors organized a few networking events to discuss and share information about local sustainable agriculture and presented a paper at the Caribbean Food Crops Society's 2008 meeting. Pamphlets and informational flyers are being developed for distribution among members of these communities, and future ethnographic and participatory research is a promising possibility.

RESULTS AND DISCUSSION

Perceived incentives for local organic agriculture

The sweeping trends at the production and consumption ends of agriculture in Trinidad and Tobago mirror the patterns of free-market industrial agriculture throughout the developing world. On the production end, farms in Trinidad and Tobago became fewer and larger, and increasingly utilized green revolution technologies including mechanization and intensive use of synthetic chemicals. On the consumption end, cheaper imported foods have largely replaced the Trinidadian domestic products, and Trinidadian food preferences (and consequent health issues) are increasingly reflecting American diets. The growing awareness among Trinidadians about the various threats of industrial agriculture has lead to a number of grassroots sustainable agriculture organizations. Most small-scale producers selling to domestic markets do not have access

to governmental resources (including from TTOAM), and most have alternative sources of income to supplement their organic food sales.

The compounding of environmental problems provides many measurable reasons to move away from conventional agriculture. In a 2005 report from the Inter-American Institute for Cooperation on Agriculture (IICA), authors noted that many areas of Trinidad and Tobago that were fertile have been degraded due to "soil erosion, salinisation, and/or a general loss of soil fertility due to the pervasive use of agrochemicals," and furthermore, "[f]reshwater resources have been polluted or overexploited through intense use of agrochemicals and excessive irrigation, particularly in rice production" (IICA 2005). This has also been scientifically measured by CABI: "Over the past few decades, pesticide abuse has been increasing in many Caribbean countries particularly in short-term and high-value crops. This has had negative effects on farm family income, farmer and farm worker health, and consumer health…A socioeconomic survey of vegetable farmers' practices in Trinidad carried out by CAB International and the Ministry of Agriculture, Land and Marine Resources (MALMR) in 1995 on three short-term vegetable crops (cabbage, tomato, eggplant) documented excessive and unwarranted pesticide applications," (CABI 2004). Additionally, the prevalence of monocrop agriculture decreases biodiversity and leads to loss of important regional crop species as well as wildlife. Environmental concerns aside, conventional agriculture poses many risks to human health.

The government of Trinidad and Tobago has acknowledged that "[p]esticide abuse is an important issue because of its effects on the farmers who use the chemicals as well as on the consumers of the products. It is also of concern because pesticide residues in products can prevent access to export markets," (Ministry 1995-1997). In our field observations and conversations with farmers and extension workers, the authors found that most farmers use more than the recommended amounts of pesticides and fertilizers, assuming incorrectly that this will solve their various agricultural problems. A 2005 IICA report confirms the risks of heavy chemical usage, and warns that pesticide residues in drinking water is a large health risk to the health of farmers and consumers. (IICA 2005). Beyond chemical health risks, there are many health issues associated with diet. A 2003 report by the World Health Organization and the Food and Agriculture Organization outlines the high prevalence of diseases which could be prevented by better nutrition, including obesity; diabetes; cardiovascular diseases; cancers; osteoporosis and bone fractures; and dental disease" (Lang 2004). These diseases are becoming epidemics throughout the world, including in the population of Trinidad and Tobago, particularly children. The environmental and health concerns of conventional agriculture provide citizens in Trinidad and Tobago alarming reasons to seek healthier alternatives for food. The threats of conventional agriculture are motivation for many to join the organic food movement, but many others are drawn to the movement's economic and social benefits.

In Trinidad and Tobago, the government has outlined food security as a priority in their 2020 vision, and the imperative was highlighted during the food crisis in early 2008. One main incentive for the government to pursue organic agriculture is economics. According to a governmental report, agriculture has changed over the last 30 years and its relative importance in the economy has gone down. "Globalisation and international trade development pose a more recent challenge to the growth of the agricultural sector. Agricultural development in Trinidad and Tobago over the past 30 years highlight the

need for increased rates of productivity and competitiveness to maintain profitability and attract investment into the sector," (Ministry 2001). Organic agriculture is one way to strive towards competitiveness, because it is (on international markets) viewed as a niche commodity item. Beyond food security and economics, organic agriculture also creates a number of jobs. For example, organic farmers in the East-West Corridor are starting to utilize the government's Community Environmental Protection and Enhancement Programme workers, who usually do road maintenance, to work on organic farms. In doing so, these workers are gaining a lifelong skill and also reconnecting with the land. Organic production is a way to diversity agriculture that creates alternative markets and priority commodities. In this same farming community, many of the farmers are Rastas, and working on organic farms and eating organic food is just one more way to connect to the earth and each other and life an ital, or natural, lifestyle. Many consumers are drawn to the connectedness of a food system where they know where their food comes from, and in Trinidad and Tobago an organic store in the capital city promoted their local organic fresh fruits and vegetables, as well as prepared meals, to a wide variety of customers. The idea of local organic food is very appealing to many consumers, wherein they can contribute to their local economy and a healthy livelihood for a local farmer, while eating chemical-free food and promoting better environmental practices.

While the organic agriculture movement takes many forms in Trinidad and Tobago, its main goal is to achieve sustainability within and across environmental, human health, economic and social sectors.

Organic agriculture: Definitions and legal framework

While there has been a growing interest in organic food and farming in Trinidad and Tobago, there is still no legal definition or infrastructure to regulate and monitor the specific "organic" practices on farms and in processing. The authors researched the growth and obstacles of the organic movement's legal infrastructure in other nations and in Trinidad and Tobago.

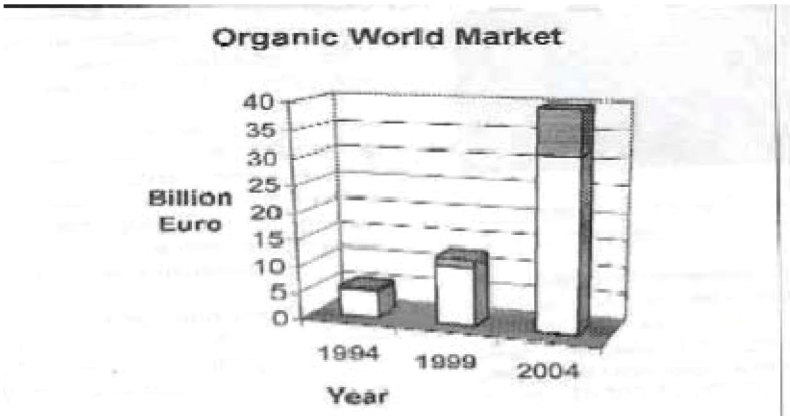
Many international organizations have sought to standardize and streamline the definition and processes of organic horticulture. The International Federation of Organic Agriculture Movements (IFOAM) developed the definition that many countries and organizations throughout the world have adopted: "a holistic production management system, which enhances agro-ecosystem health, utilizing both traditional and scientific knowledge. Organic agricultural systems rely on ecosystem management rather than external agricultural inputs," (IFOAM 2005). Similarly and more specifically, IICA describes "organic" as having a few major technical features: soil fertility, mulching, intercropping, and composting (IICA 2005). Each country has the option of defining the word legally and regulating the use of its labeling to ensure certain qualities. In the United States, the USDA launched these definitions with the 1990 Organic Food Productions Act, and in the 2002 National Organic Program. Similar legislative processes had begun in Trinidad and Tobago but have not yet been codified into law.

In 2002, Trinidad and Tobago's Ministry of Agriculture, Land and Marine Resources established a committee to develop a draft organic agriculture policy. This committee helped create the Trinidad and Tobago Organic Agriculture Movement (TTOAM), a branch of IFOAM. The main goal of this committee was to identify, assess and prioritize the socio-economic potential of organic agriculture to make Trinidad and

Tobago a regional leader in organic agriculture. To do this, the executives and members of TTOAM focused on defining "organic" and creating certification options for the exportation of large-scale commodity crops.

By 2006, TTOAM and the committee had written a Draft Sector Policy for Organic Agriculture. This included notably a definition of organic agriculture, a review of the local and global agriculture sector (see **Figure 1**), the costs of conventional agriculture and the benefits of organic agriculture, a proposed legal framework for certification and networking, and an ambitious action plan. Yet in 2006, after four years of deliberation, only seven of the ten committee members had signed the draft policy (Government 2006). As described by TTOAM's chairman and founder in February 2008, the draft policy was completed and awaiting legislative approval. As of May 2008, TTOAM's draft policy still had not been codified into law. Due to this lack of legislation, the definition, standards and methods of organic agriculture production and marketing remain open to interpretation in Trinidad and Tobago.

Figure 1. Import/Export vs domestic money spent on the world market for organic foods in 1994, 1999 and 2004. (Government 2006)



Grolink AB	1994	1999	2004
Import/Export	0,5	1,5	8
Domestic	5	11	32

During the development of the draft policy in 2005, IICA recommended a number of short- and long-term actions to create a viable organic sector. First and foremost they called for a national organic agriculture policy through legislation in a short timeframe (IICA 2005). Furthermore, they prompted the Ministry to establish an institutional platform, to appoint competent authorities within the government, to establish a clear legal framework, to network with organic sectors in other countries like Jamaica and the Dominican Republic, and finally to create "National Organic Agriculture Board" with members from official and private institutions (IICA 2005). Yet with the stagnation of this policy legislation, these suggestions as yet go unfulfilled.

The Ministry of Agriculture, Land, Marine Resources (MALMR) in May 2008 did not have a specific program on organic agriculture. Today, there is still no legal definition of organic agriculture in the country, nor is there a specifically regulated

certification procedure or governmentally-promoted organic infrastructure. Despite this legislative stagnation, there are a growing number of organic farmers in Trinidad and Tobago.

Figure 2: Obstacles facing organic farmers in Trinidad and Tobago

PROBLEMS	SOLUTIONS
1. Lack of physical & political infrastructure	Governmental policies, public awareness, partner with grassroots organizations
2. Contamination in the field	On-site monitoring, farmer awareness
3. Counterfeiting	Food testing, certification or farmer-buyer trust
4. Co-mingling	Market and transportation standards, farmer/transporter/marketer awareness
5. Lack of public awareness	Local media, educational programs in schools and communities
6. Labor issues and work ethic	Governmental programs, clear incentives, training
7. Extension, research and training	Partner with research institutions, farmer field schools, expand governmental courses, distribute information through markets
8. Lack of organic inputs	Locally produced compost, natural pesticides/insecticides/fungicides, seed-saving
9. Land tenure	Governmental policies, land trusts
10. Skepticism about organic farming	Public demonstration sites, education and media outreach
11. Access to credit and funding (loans and grants)	Governmental policies, tax breaks, partner with local and international institutions
12. Certification issues	Local certification options for domestic organic food and food destined for exportation
13. Lack of markets	Partner with existing markets, create specific organic markets
14. Praedial larceny	More farmstead land, better policing, clear disincentives for criminals
15. Lack of young farmers	Educational and governmental programs, clear incentives and demonstration

Trinidadian farmers who claim to be farming organically have many definitions of "organic," most of which are based on concepts of naturalness or defined by the absence of synthetic chemicals. When asked about organic agriculture, a worker on an organic farm in Trinidad said, "it's healthier to use for the farmers who work the land, and healthier for the family who eats the food too." On a different farm that promotes itself as organic, in reflecting on the government's involvement in the organic movement, one farmer said, "A lot is being said, but little is being done." He went on to explain that much more was happening at the grassroots level, that the bureaucratic process was only slowing the growth of the organic movement. This sentiment is echoed throughout the main actors in the local organic movement, particularly among farmers and market owners. Many farmers insisted that the government moves too slowly and wastes too

many resources, and generally privileges large-scale export-focused organic farms. While it is important to develop this infrastructure and standardize the techniques required to call a product "organic," the authors assert that the government should listen to the needs and obstacles of the farmers and consumers in the local small-scale organic network.

Organic Farms: Certification

For the purposes of this manuscript, the word "organic" generally refers to farms that claim to be organic, and the term is not limited to a legal definition. Yet in 2008, there were still no certified organic farms in Trinidad and Tobago. According to a 2005 report from IICA, there were "no support mechanisms for organic production at both the governmental and farm levels particularly in the production of the required inputs such as fertilizer, weed, disease and pest management, and the delivery of extension services," (IICA 2005). The IICA recommended that the first step in developing organic agriculture in Trinidad and Tobago would be creating the infrastructure for legal certification and to make organic inputs available to farmers.

In 2007, TTOAM began to receive training from TTOAM and from the International Organic Inspectors Association. TTOAM officials began to lay the groundwork for certification and inspections, which was a long process. In the certification options of 2007, farmers could choose an inspection agency and pay independent agents for inspection. This process entails keeping close records on their practices and their farms, profiling insects, mapping plots, and planning for future soil fertility. However, TTOAM's Technical Director said the annual certification costs can be extremely variable, and that certification is only necessary when the market is far away: "It could be expensive depending on how far it's going, so it's unnecessary for farmers who are selling to a local market." In other words, farmers selling to local markets would not find it profitable to seek organic certification. Many local farmers reflected this sentiment, agreeing that it was far too expensive for their income level. Of the farms seeking certification, the authors found that the farms seeking certification were all large-scale and export focused, or run by an international organization and intended to serve as a demonstration site. Interestingly, IFOAM statistics for 2005 claimed Trinidad and Tobago had 67 hectares under organic agricultural land, all in one organic farm, which accounted for 0.05% of total agricultural land (IFOAM 2008). Yet the authors of this manuscript could not account for this farm or the IFOAM method for measuring organic farms. During the conclusion of this research, a number of large-scale farms were transitioning to become certified. TTOAM's Chairmain told the authors that, "within six months, ten to fifteen inspected organic products will be on the market, including fresh produce." Yet in May 2008, there were no certified organic farms in Trinidad and Tobago.

Organic movement: Governmental resources and local organizations

There are a few governmental resources available to organic farmers and consumers. In 2007, MALMR held a short one-day workshop on organic agriculture, and in 2008 this was expanded to a two-day short course. The authors interviewed a number of the 2008 participants, and noted that most were not organic farmers selling to markets but rather home gardeners interested in growing organic food for the family. It is important to offer resources to home gardeners, but the government has not reached out

to many farmers wishing to transition to organic practices. Because many farmers do not have the ability to attend courses, many extension resources are available to conventional farmers. Yet unfortunately, in 2008 there were no organic specialists on staff in the state's extension department.

Organic farmers also have the option of utilizing the National Agriculture Marketing Development Corporation's (NAMDEVCO) farmers markets and marketing resources. In an interview, the Corporate Manager of Marketing said NAMDEVCO was "willing to make facilities in Debe and in Macoya available separate from the conventionally produced things in the market. But there was only one farmer in Macoya, and he backed down…" These false claims about the naturalness of organic food are not uncommon in Trinidad and Tobago. The authors observed two farms that were claiming to be organic, but continued using "salts," or conventional fertilizers, on many of their plants during certain stages of growth. Without codified procedures for certification or testing, many farmers who claim to be organic would not meet the requirements of many national standards for organic food.

CABI, an international organization, recommends various solutions to the technical problems facing organic farmers, particularly a Farmers Field School approach to educating farmers: "Farmer Participatory [FP] methods are widely recognised as key components for more sustainable and environmentally friendly approaches to crop production...FP approaches aim to build farmers' capacity to make their own crop management decisions based on a better understanding of the agroecology of their own field, and according to their own unique set of circumstances and priorities," (CABI 2004). In a valley in Trinidad's agriculturally fertile East-West Corridor, farmers participated in this methodology in 2003 to not only collectively gain technical knowledge about organic farming, but also to provide farmers with new skills and insights in ecological principles. Through these FP methods, farmers were more empowered and research became more farmer-driven. One of the main farmers in the valley is a Rasta man with a PhD in horticulture, and his value and passion for naturalness and the environment extends to his farming practices and into his community.

While the governmental resources regarding organic agriculture are limited, many groups of people have organized around these issues to create a local organic movement in Trinidad and Tobago. Some of these groups work through private funding, others are non-profits, and some are international organizations. Each group offers different resources, has a unique membership structure, and some groups have more success in creating and promoting organic farms than others.

TTOAM, as aforementioned, is the largest and most recognized organic organization in Trinidad and Tobago. This private organization funds all their expenses except attending conferences, which is paid through grant funding. In 2008, TTOAM had 120 members, including individuals and groups. While many farmers and local organizers question their closed membership structure, lack of open information, and slow speed of effecting change, this group has organized more organic legislation and action than any other group. They offer support services to organic farmers, and invite many conventional farmers to consider changing their practices and join the organic movement.

An organic shop in Trinidad's capital city, Port of Spain, was one of the main sites for this research. The store had been open for a few years and experienced

exponential growth and interest in organic food. In 2007 and 2008, this for-profit business was selling local and important organic products including dry goods, fresh fruits and vegetables, and prepared meals. The business also began a "box scheme" program in 2007 to organize a number of local organic farmers to provide enough food for customers to buy an entire box of local organic foods. Furthermore, the owner of the business hosted a number of events, discussions, and educational experiences to help raise public awareness about issues facing the organic movement.

A handful of other groups were working towards similar goals, particularly a permaculture organization, the Agricultural Society of Trinidad and Tobago, a number of farmers associations, and a student group on campus at the University of the West Indies, St. Augustine. Furthermore, international groups IICA, CARDI, and FAO worked in Trinidad and Tobago to provide educational, research, training and outreach resources.

Global and Local Organic Agriculture: Differences in Values

A 2007 CABI report explains the early organic farming movement "as an alternative to agribusiness as usual...this movement started out not to produce expensive niche-market foods for rich people, but rather to offer a model for all of agriculture…The real promise of organic agriculture is to provide credible production systems that can aid the world's poor and strengthen local food security" (CABI 2007). And yet it is clear that the global paradigm is that of a free market trade system, where the priority is the bottom dollar.

Laura T. Raynolds describes the early organic movement's "domestic and civic values of trust, place-based knowledge, ecological diversity, and social justice, upheld through networks involving small-scale organic farms, face-to-face exchanges, and conscientious consumers," (Raynolds 2004). As organic trade becomes more globalized, distancing production from consumption and farmers from consumers, these original values and networks have been increasingly replaced by free-market economic values of competition and control.

In an example from Mexico, where the organic agriculture infrastructure is older and more larger, the corporate agribusiness networks are taking control of the organic sector. Only 2% of Mexican certified organic producers in the nation are large private agroindustrial organic producers, but they are cultivating 16% of the certified organic farmland, on farms that average ten times larger than small certified organic producers, and gain 31% of the returns in the certified organic market (Tovar 2005). The authors of this study show how traditional economic forces privilege large-scale organic producers, who can "can capitalize on economies of scale and guaranteed contracts." This situation is becoming more common throughout the world, including in Trinidad and Tobago. However, there is an alternative movement within this new globalized organic agriculture movement.

Raynolds asserts that while the original social and environmental organic agriculture values are increasingly dominated by the global free-market trade of organic food, many alternatives would maintain these values. "To socially and environmentally re-embed agricultural production would thus appear to require not just alternative products, but alternative marketing links," (Raynolds 2000). Through this research in Trinidad and Tobago, the authors would posit that many organic farmers and consumers

have created these alternatives, with underlying values that are closely aligned with those of the original organic movement.

Local organic farmers: Problems and solutions

Through a series of interviews, claims of other organizations, and extensive participant observation, the authors noted a number of similar obstacles and a variety of solutions to these stumbling blocks. This list is summarized in **Figure 2**.

1. Lack of physical infrastructure including insufficient road access, water supply and adequate resources for organic farmers pose a large obstacle. Additionally, without any legislation regarding organic agriculture, there is a lack of political infrastructure necessary to support a vibrant organic sector. Solutions included on-site infrastructure (such as water collection and marketing), governmental policies (especially to provide adequate road access and resources to organic farmers and marketers), public awareness (through media, schools, and at markets), partner with grassroots organizations
2. Contamination in the field can be from pesticide drift from neighboring land, or from a mistake of a farmer who isn't aware of the regulations. Solutions include on-site monitoring and farmer awareness and education
3. Counterfeiting is false claims made at the marketplace. This can be due to lack of farmer understanding, from a blatant lie about the production of the organic food, or from poor communication during shipping. These issues can be overcome with food testing, certification standards (whether local or otherwise) or from trust between the farmer and consumer
4. Co-mingling (organic food being in contact with conventionally produced items) is not acceptable for most organic standards. Solutions include clear transportation and marketing standards as well as promoting farmer/transporter/marketer awareness
5. There is an overall lack of public awareness about organic agriculture. Public awareness can be raised through local media outlets and educational programs in schools and communities
6. Labor issues and work ethic are Governmental programs, clear incentives, training
7. Organic agriculture resources in extension, research and training are inadequate. To solve this, the authors recommend partnerships with research institutions, farmer field schools, expansion of governmental courses, distribution of information through markets
8. Lack of organic inputs can be solved with locally produced compost, natural pesticides, insecticides, fungicides, and local seed-saving
9. Land tenure issues can effectively be addressed with governmental policies and land trusts
10. Skepticism about organic farming is widespread, as many farmers in Trinidad and Tobago don't believe agriculture is viable without chemical use. This can be overcome with public demonstration farms as well as outreach and demonstration through various media (radio, internet, television, billboards) and schools
11. Access to credit and funding (loans and grants) creates a huge obstacle for organic farmers. This can be addressed with governmental policies, tax breaks, partner with local and international institutions

12. Certification issues mentioned above include the extremely high cost of certification for local producers. The authors recommend separate local certification options for domestic organic food (the word "organic" could be replaced), and organic certification for the foods destined for exportation
13. To address the lack of markets, the government and farmers could partner with existing markets and create specific organic markets
14. Praedial larceny, or agricultural theft, is becoming a huge problem that can be devastating to farmers. The authors propose more farmstead labor (living on the farm), better policing, and clear disincentives for criminals
15. Lack of young farmers is the biggest problem for the future of the organic movement in Trinidad and Tobago. To address this, the authors recommend more educational and governmental programs, outreach through schools including school gardens and mandatory agricultural education, clear incentives and appropriate demonstration

Future recommendations

Future recommendations for growth of the organic agriculture sector include coupling grassroots actions with formal policy measures. With a focus on public awareness and education, research and demonstration, policy intervention, and incentive creation, Trinidad and Tobago could move towards greater food security via local organic food production.

A number of problematic issues arose during this research that could be better explored in future investigations. In particular, most of the actors in this research who engaged in organic agriculture were financially secure from other funds or income sources. None of them were making their living 100% on organic agriculture. This poses a question of the viability of the sector, or how the farmers must engage in many activities to create viability. Furthermore, the consumers who regularly purchased organic food at the store in Port of Spain were generally mid-upper class Trinidadians, ex-patriots from America or Europe, and/or people with deep health/environmental/spiritual beliefs that guide their lifestyle and food choices. What implications does this have for the future of organic agriculture? How can the organic movement include people from lower economic backgrounds in the consumption and production end of farming? More research on these complex issues within organic farming in Trinidad and Tobago would contribute to the regional and global body of sustainable agriculture literature, but more importantly would support this important local movement in an increasingly globalized world.

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