AGROECOLOGICAL REVOLUTION

The Farmer-to-Farmer Movement of the ANAP in Cuba

[For farmers, seeing is believing]

Braulio Machín Sosa, Adilén María Roque Jaime,
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Agroecological Revolution: The Farmer-to-Farmer Movement of the ANAP in Cuba

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INDEX

Acknowledgements / 9

Prologue by ANAP - Orlando Lugo Fonte (ANAP-Cuba) / 11

Prologue by La Vía Campesina - Joao Pedro Stedile (MST-Brazil) / 14

Prologue by Oxfam - Beat Schmid (Oxfam-Cuba) / 18

Executive Summary / 21

Introduction / 29

Chapter 1. The process of transforming Cuban agriculture / 41
• Roots of Cuban agriculture
• Land tenure, large estates, North American capital
• Campesino agriculture
• Agrarian Reform: origins of change
• Period of diversification of national agriculture and food self-sufficiency (1959-1965)
• Social structure of production
• Heyday of the Green Revolution in Cuba
• The Green Revolution begins to decline
• Other consequences of the conventional agricultural model
• Campesino agriculture and the end of the Green Revolution

Chapter 2. Setting the stage for Campesino to Campesino: the start of the Special Period (1990 -1997) / 53
• External dependence: chronicle of a crisis foretold
• Special Period: rescuing campesino agriculture, and scientific advances
• Science as an ally
• Taking on the challenge through input substitution
• Animal traction: back to the future?
• Back to the land
• Facing the crisis: re-organizing production
• Methodological resources for the technological transition

Chapter 3. The beginning of Campesino to Campesino in Cuba (1997-2000) / 67
• A new methodology reaches Cuba
• The beginning of Campesino to Campesino
• Horizontal communication vs. conventional extension
• Principles guiding the Campesino to Campesino program
• Key activities of the Campesino to Campesino methodology
• Final thoughts on the initial stage of Campesino to Campesino

Chapter 4. Birth of a national movement (2000-2003) / 85
• The beginning of a national movement
• Taking advantage of the structure of ANAP
• Brief survey of advances during this period
• Conclusions for this period

Chapter 5. From hurricanes to world crises: the Campesino to Campesino Agroecology Movement in recent years (2004-2009) / 105
• Influence of MACAC and agroecology
• Generalizing an experience in order to advance more quickly: the Banes method
• Classification of farms to promote learning from role models
• Agroecology advances in Agricultural Production Cooperatives (CPAs)
• Resilience to Climate change
• A necessary supplement: two examples which illustrate this story
• Campesino experimentation and innovation
• Training and forming cadres
• Conclusions

Chapter 6. The rural family and agro-ecology / 135
• Crisis of the rural family
• Diversifying agro-ecology diversifies roles
• Generational turnover: a vital need
• Women in Cuba, in ANAP, and in MACAC
• Perspectives for the future

Chapter 7. Other factors to advancing rapidly / 153
• National programs
• Environmental policy
• Downsizing and diversifying the sugarcane sector
• Distribution of land in usufruct
• Other programs of ANAP and its allies
• Making use of the mass media
• A variety of allies

Chapter 8. Conclusions: "The land is there waiting for us. There's nothing left to do but make it produce" / 161
• The solution is in our hands
• The urgent need for food sovereignty
• For those who don't believe in agroecology
• Decision-makers: a call for reflection
• Contribution to the debate over the future of farming in Cuba and other countries

Bibliography Consulted / 173

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At the successful conclusion of this documentation process, the authors wish to extend their thanks to all who made this possible.

First, to the Cuban Revolution, for honoring the lives of rural men and women: it has given them land and the resources needed to farm, it taught them to read and write, and it has given them medical care. The revolution has, over 50 years, improved the living conditions in all rural areas, day by day. All of this has enabled these rural men and women to develop ecological farming methods and contribute significantly to the food sovereignty of their people.

To ANAP, an organization that has brought rural Cubans together, and which has contributed to implementing the Farmer to Farmer method. We especially thank ANAP president Orlando Lugo Fonte, who has believed from the beginning in the potential of ecological agriculture. Regarding it as an essential strategy to defend the Revolution, he helped transform it into a movement. Thanks to him also, for encouraging and giving a significant role to this process of documentation, believing it will be useful to the future of the Agroecological Movement within the association he leads. We give a special thanks to two key ANAP collaborators: Debora La O Calaña, the national coordinator of the

Agroecological Movement, and Mario La O Sosa, the Director of International Relations.

Thanks to Bread for the World (BFTW) and the Catholic Committee against Hunger and for Development (CCFD), who helped fund the original Agroecology Campaign of Farmer-to-Farmer. Also, thanks to Oxfam, which, in addition to working with the Movement financially, has facilitated the documentation process, focusing on the progress of the research and the shape of the final document. And thanks to the FOCAD program of the Basque Government, which has made it possible to publish editions in other countries and languages.

To the coordinators, facilitators, and promoters, who, with modesty and clarity, provided their views and experiences with agroecology and the promotion of Farmer-to-Farmer methodology. Their work is critical to this document.

To all of the farmers and rural women and men, who opened their farms to visits and exchanges, and who, with their humility and dignity, shared their intriguing experiences with, and knowledge about, agroecology.

Thanks to the Sustainable Peasant Agriculture Commission of La Via Campesina (LVC), and to all the rural and indigenous families of the LVC organizations worldwide. We hope the Cuban experience serves as an inspirational example and source of ideas in your struggle to reclaim your systems of production and at the same time, transform them, for the sake of our Mother Earth, and in the construction of food sovereignty.

We are infinitely grateful to all who made this documentation process possible. It has been one of the most meaningful tasks we could have hoped to undertake.

Globalize the struggle! Globalize hope!
(slogan of La Vía Campesina)

With sincere thanks,

Braulio Machín Sosa, ANAP
Adilén Maria Roque Jaime, ANAP
Dana Rocio Ávila Lozano, MST-Brazil and IALA-Venezuela
Peter Michael Rosset, LVC International

United we advance

Prologue by ANAP

This book documents the experiences encountered during the implementation of agroecology and sustainable agriculture in rural economies and cooperatives in Cuba. It is offered for reflection and learning.

I believe that our achievements speak for themselves. However, we are aware that we have only just begun the journey towards making Cuban agriculture more sustainable, ensuring the food security of the people, and reaffirming our sovereignty over the most essential of human needs: food.

When we began to work with noble intentions, we knew only that our needs were many, and that the obstacles were countless. During the difficult years of the 1990's, we were looking for alternative solutions, through the turmoil, economic, political, and environmental threats, which became even more brutal under the tightening of the US embargo, which is now approaching 50 bitter years of existence. These circumstances imposed on Cuban peasants, as on all of the Cuban people, a difficult trial: to tolerate the embargo in order to preserve the achievements of the Cuban Revolution.

In my experience there is something very clear, so much that it is almost a conviction. Above all of the difficulties, we Cubans have strengthened our resolve to prevail. Our main weapon has been the

fierce unity of the people and Revolutionary institutions, as well as the solidarity with and recognition of our efforts by other individuals and organizations that believe in progress and justice.

During the most difficult years of the Special Period, our farmers and agricultural science researchers discovered countless creative solutions. Our priority was to recover our agricultural systems and produce enough to feed ourselves. However, we lacked integrative and archetypal concepts to guide us in making changes. We found them in agro-ecology. At the same time, we needed to strengthen and adapt our strategies with greater social commitment, in order to accelerate innovation in the countryside and transmit the highest quality of knowledge among peasants. The Farmer-to-Farmer method contributed to this process.

We understood the importance of these factors and recognized that peasants were quite receptive to these ideas. We decided to bring them together to develop a national movement of agroecological producers. This involved new challenges: how to mobilize and inform rural men and women on a nationwide, mass scale. However, due to the message, and the broad reach and enduring nature of our goals, we have been able to work as allies with important programs that were being developed across the country, and communicate our activities with other institutions interested in these issues.

After a little more than eleven years of work, the results have been tangible and encouraging. More than 100,000 families have become involved, thousands of acres have been protected through various conservation measures, and the production of organic fertilizers is now a common and extensive practice among our farmers. For example, every single cooperative in the country already produces worm compost. Launched during the difficult years of the Special Period, this constant diversification continues to grow, saving and validating traditional farming practices while integrating them with scientific knowledge.

Our progress has been swift and continuous. We are convinced that the Cuban Revolution has been the most important factor in this process. It has guaranteed land ownership and provided educational, technical, and social development. It has instilled in us values of collectivism, cooperation, and solidarity. Above all, it has honored rural men and women and transformed them not only into owners of their plot of land, but also into citizens conscious of their responsibility to feed the people and protect the environment, so that future generations of Cubans may also eat healthy food and live on restored farmland.

I believe that the Farmer-to-Farmer Agroecological Movement (MACAC) has even greater challenges today, and is in the position to achieve much higher goals. I will mention just three: incorporate all rural families and cooperatives; integrate new content that is qualitatively superior and therefore allows MACAC to achieve the objectives of the scientific and technical development needed for sustainable agriculture in Cuba; and lastly, increase agricultural production with the aim of achieving food security and reasserting food sovereignty, in harmony with nature.

Photo taken in Manati, Las Tunas. "The number one patriotic duty of the Cuban peasantry is to produce for the people".

I am deeply satisfied with the results in this book –both the positive results and the difficulties and shortcomings that have been overcome, and those that are still present. I hope that they can serve other organizations and individuals interested in the most pressing human activities that we can take on at the beginning of this century: ending hunger and protecting the environment.

In the spirit of solidarity and fraternal duty that characterizes the Cuban people, I once again express our gratitude to all who have made these solutions possible. I make a revolutionary commitment to live up to the hope and inspiration disseminated through this book. United, we move forward together.

Orlando Lugo Fonte
President of the ANAP
Cuba

Globalize the struggle, hope and the knowledge of the campesino

Prologue of La Vía Campesina

This book comes at a time that is not only important but also critical in the worldwide struggle of the peasantry and all who persistently struggle for food sovereignty and the defense of our natural resources.

We are witness to the grave consequences of the capitalist mode of production in agriculture. The FAO recently announced that for the first time in the history of humanity, there are one billion people every day that experience hunger. Assaults on nature are generating climate change, which affects not only those living in the countryside, but also those living in cities, on all continents. Water, for example, has become a commodity that capitalists use to gain more profits. Today, Coca Cola makes more money selling water than soft drinks: one liter of potable water is more expensive than one liter of gasoline. All of this tells us that life on our planet is in grave danger, especially that of humans, unless urgent action is taken. This is not paranoia or lunacy of environmentalists. Everyday we see the disastrous consequences of this model of production (and consumption).

This is happening because –as described by our authors in the introduction– two models of agricultural production are in global dispute with each other, now that neoliberalism has globalized the capitalist form of exploitation in agriculture.

On one hand, we have the agri-business model: the domination of capital over nature and the production of goods. That is, production organized under the criterion of maximum profit. To achieve this, its proponents' quotidian aim is to increase the scale of production, expanding the ever greater area of land under monocultures. The viability of this project relies on large amounts of machinery and pesticides. Brazil, for example, has become the largest consumer of agro-chemicals in the world, applying 713 million liters per year. This translates to 3 thousand liters of agro-toxics per person, and 6 thousand liters per cultivated hectare. This model of production violates the environment. It is not sustainable and displaces the labor force; in this sense it is anti-social. Additionally, it only produces contaminated food. Worse yet, this model doesn't produce food: it produces commodities, it produces merchandise, and it produces dollars. Its priority, as one can see, is not to generate food for people.

On the other hand, we have the proposition of family and peasant farming, which has been developed throughout human history. This model of agriculture is based in crop diversification, avoiding the use of agro-chemicals, and on the harmony between all of nature's living beings.

This model of agriculture is the only one that can produce safe and healthy foods, and develop a policy of food sovereignty, where each people –all peoples– can and must produce their own food. And as José Martí warns us, "a people that cannot produce its own food is a people enslaved". He was correct, because the people that do not produce food will always depend on others for survival.

Around the world, our peasant agriculture faces great challenges to be able to develop and survive the hegemony of capital. First, we must be able to produce healthy food for the entire population, without using agro-toxics: undoubtedly an impressive challenge. Also, to be environmentally sustainable, we must develop techniques of agricultural production, which, while increasing labor productivity and the physical productivity of cultivated areas, do not desecrate the environment. Lastly, we must develop a production system that guarantees increased incomes to farmers and farm workers so that they may have a better life, and we must generate non-agricultural work alternatives in rural areas for our youth.

The challenges are extensive, and in the long run the answers will come. But those answers will determine the future of humanity.

To meet these challenges, the global peasant movement must look for the answers that humanity has accumulated through the centuries, for use in each different biome, en each natural system where people live. This is to say, the movement must appeal to science, for what is scientific knowledge but the systematization of knowledge about the physical existence of nature. At the same time, it requires a people's organization of peasants, with unity and purpose and persistence in its objectives.

The revolutionary history of the 19th century in Cuba has allowed the Cuban peasantry to gather many experiences. Despite having gone through the Green Revolution, they have kept the people's Revolution alive and have resisted the aggressions of imperialism for over fifty years. They are, therefore, the peasant sector most prepared, both ideologically and scientifically, to help all us rural men and women of the world, to confront the challenges imposed by capital.

The tremendous significance of this book, as a synthesis of the Cuban peasant's experience and documentation of this vanguard movement, can be used and adopted by peasant organizations around the world.

I congratulate the authors for this enormous documentation effort, which turns them into truly organic intellectuals of the Cuban peasantry. With this work, they also contribute to the growth of collective theorizing, as a method of recovering the rich historical experience of a people.

Further, I send a warm embrace to all the peasants of Cuba, who have resisted for so long. Now, with humility, we offer up your experiences so

that in all countries of the world, preserving our specific natural biomes and our social idiosyncrasies, our peasant movements can benefit from your knowledge to generate new solutions and syntheses in this ongoing struggle against the domination of capital over food and nature.

With gratitude,

João Pedro Stédile
Member of the National Coordination
of La Vía Campesina-Brazil
and the Landless Peasant's Movement (MST).

Sharing new experiences with the world

Prologue of Oxfam

Oxfam has been present in Cuba for more than fifteen years, and considers one of the main reasons of their work on the island to be gaining knowledge about valuable experiences, aid in documenting and disseminating them, both within Cuba and around the world. We are convinced that for many countries and organizations, the Cuban experience with agroecology, urban agriculture, prevention and observation of natural disasters, advocacy of women's rights, and attention to HIV-AIDS, among others, can be valuable instruments in their practices and policies, of course, according to the specific circumstances of each context.

The authors that have documented the Cuban experience that is presented in this book, come from a range of disciplines. From Braulio Machin, ANAP's veteran leader from the central province of Santi Spiritus, to Adilén Roque, a professor with her feet firmly planted on the ground, from the ANAP National Training Center. Also, Dana Rocío Ávila from the 'Paolo Freire' Latin American Institute of Agro-ecology (IALA) – where she works as a representative of the Landless Peasants Movement of Brazil, and all the way to Peter Rosset, a known activist and researcher of these subjects. In this book you will find local and global visions, practices, and pedagogy. It also demonstrates the inspiration that the authors found during their numberous interviews and meetings with rural families and agroecologists, local leaders, activists and decision-makers. They are the true protagonists of this work, and for this we owe them our most profound gratitude.

This book takes on the difficult task of connecting with a wide audience, from female agroecological farmers in Cuba, to the leader of a peasant organization, or even an interested politician in any country of the Global North or South. In our opinion, this will be achieved in this document, thanks to the way testimonies and data complement the framing of ongoing challenges that are presented alongside a critical analysis of the past.

During the process of documentation carried out by this study, we have confirmed the importance of the Cuban experience with agroecology based in the Farmer-to-Farmer method. This massive experiment has involved more than 110,000 families, who by participating in the Agro-ecologcial Movement have given it life.

Moreover, by linking the practical with the political, the book also illustrates the antagonism between the agro-ecological model of respectful coexistence with the environment that is based on the family farm, and the grim logic of the Green Revolution. Surprisingly, the latter has surpassed even ideological barriers, and continues receiving substantial public subsidies in many regions. It is in pursuit of short-term benefits for the few, at a high cost to the very basis of our survival: soil, water, and biodiversity.

The authors have been given the task of explaining the particularities of the Cuban context and experience. But not only that. They have also made it clear that in this model, as they say, *hay para todos/as*, or, "there is something for everyone". In practically any given context there is the possibility to introduce agro-ecological methods, with minimum external inputs and a lot of effort, creativity, and personal and political will.

It is also remarkable to chronicle how the Agroecological Movement has achieved so many changes in attitude and vision among the Cuban peasantry in so little time. To put forth an example: twenty years ago, vermiculture was little more than a pilot program in Cuban research institutes. Today, however, it is a daily practice valued across the country, and it is a national policy, thanks to the conviction of producers and decision-makers. This confirms that these processes, although not easy, are indeed possible.

As an international organization of cooperation, Oxfam is grateful for the opportunity to have been a partner in this process, and to the Agroecology Movement, in many different ways. Therefore, we hope that this publication contributes to strengthen the presence of agroecology in Cuba and many other countries, through the Farmer-to-Farmer method. We hope it will be used as an instrument in the struggle to have a more just world, with a better quality of life for all: a struggle that we share with organizations such as ANAP and La Vía Campesina.

Beat Schmid
Coordinator of Oxfam-Cuba

EXECUTIVE SUMMARY

The Agroecology Revolution: The Campesino to Campesino Movement of ANAP in Cuba

"For the Farmer, Seeing is Believing"

Braulio Machin Sosa
Adilen María Roque Jaime
Dana Rocío Ávila Lozano
Peter Michael Rosset

March, 2010, Havana, Cuba

This book describes the more than ten years of experience of the Farmer to Farmer Agroecology Movement (MACAC) in Cuba. This is a grassroots movement inside of the Cuban National Association of Small Farmers (ANAP), which is a member of the international peasant movement, La Via Campesina.[1]

MACAC is a mass-based movement in which the *campesino* (peasant farmer) members of ANAP have been transforming their productive systems by applying the principals of agroecology. Through MACAC, the small farm sector in Cuba is achieving ever higher levels of production with lower costs, particularly foreign exchange costs, as compared to conventional chemical-intensive monoculture farming systems. This sector is contributing an increasing proportion of total national food production, and is better able withstand the adverse effects of climate change (such as hurricanes) as well as the U.S. economic blockade against the island.

The History of Cuban Agriculture: The Colony, the Cuban Revolution, and the Special Period

In order to better understand the agroecology movement in Cuba, the authors first review the history of agriculture on the island since colonial

1. www.viacampesina.org

times (chapter 1). This section begins with the pre-Cuban Revolution period, and continues with the early revolutionary period, the peak years of the Green Revolution and its subsequent decline, the collapse the Socialist Bloc in Europe, and the ensuing crisis known as the Special Period. The collapse of trade relations with socialist countries essentially put an end to Cuba's foreign trade relations. With drastically reduced trade, problems inherent to the conventional agricultural production model became manifest –especially Cuba's high level of dependence on imports.

During the Special Period, the government and farm families, ANAP, and Cuban scientists promoted and implemented a series of measures to maintain agricultural production in the absence of imported chemicals and machine parts. These included the recovery of traditional farming practices with low levels of external inputs, as well as the use of ecological methods developed by Cuban researchers (chapter 2).

While by that point no true agroecological transformation had occurred, Cuba managed to survive the hardest times through the return of the people to the land, the use of animal traction, biological pest control methods, and input substitution, in which alternative inputs are substituted for farm chemicals.

At the same time, important changes were put in place with respect to land tenure and the organization of farmer cooperatives. By the end of this period, though Cuba was surviving, ANAP still saw the need for to go farther into agroecological farming with greater diversification and integration of ecological practices. However, it was clear that widespread transformation would be impossible without a methodology to build a social process to accelerate adoption of agroecology. Though agroecological techniques abounded, Cuba needed to develop a process by which to better disseminate them and foment their adoption among the nation's farm families. Thus, during the Special Period, the stage was set for the arrival of the *Campesino to Campesino* method (CAC) from Central America to Cuba (chapter 3).

CAC is a dynamic methodology which treats the campesino family as protagonists of their own destiny. Unlike conventional agricultural extension, which disempowers campesinos by force-feeding them pre-fabricated techniques in a top-down fashion, this new method unleashed rural people's creativity in solving their own problems.

From Campesino to Campesino, to an Agroecology Movement

The Cuban crisis did not allow for the luxury of slowly implementing the Campesino to Campesino method, yet the project cycles of external donors are by nature slow to respond to changing circumstances. That is why ANAP decided in 2001 to reduce its dependence on external financing and technical advisers, and transformed CAC into a *movement* among the organization's members. ANAP assumed the task of building a mass movement on a largely self-financed (or in many cases, un-financed) basis, with some partial support from international agencies such as Oxfam, Bread for the World, and the Catholic Committee Against Hunger. This decision was the turning point; from then on, the movement rapidly spread to every corner of the island, growing much bigger and faster than it had earlier in Central America (Chapter 4).

Certain characteristics of ANAP favored the generation of a mass movement, particularly its highly organized membership base, many of whom had a high level of political-ideological preparation. At this point, the entire structure, leadership and cadre of ANAP began to work toward the development and implementation of an agroecological vision and practice among the campesino membership. This was achieved with a great deal of success; since 1997, more than 100,000 families – over a third of all Cuban farmers - have joined the agroecology movement and are transforming their production systems (see Figure 1).

MACAC is based on the horizontal transmission and collective construction of knowledge, practices, and methods. It tries to

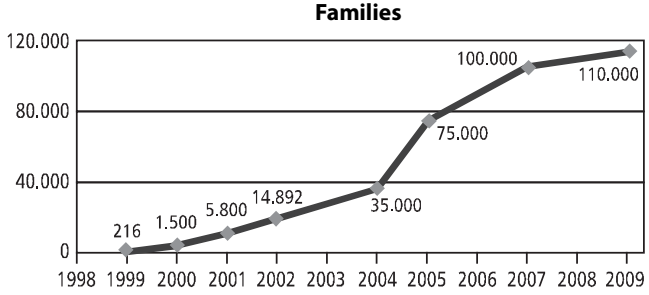


FIGURE 1. Growth of the number of campesino families in MACAC.

Source: data from the cooperatives.

blend traditional peasant knowledge and farmer innovation together with the science of agroecology. This process has stimulated the rapid generation, diffusion, and adoption of agroecological practices at the farm level (chapter 5).

Agroecological integration means building systems with synergy among the components (between crops and livestock, among complementary crops, etc). When farmers increase their level of agroecological integration, production levels rise – both per unit of land area and per amount of labor invested. Figure 2 shows productivity levels for farms classified on a scale of 1 - lower levels of agroecological integration, to 3 - greater levels of agroecological integration.

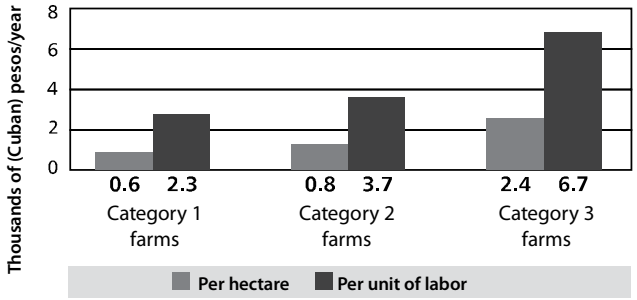


FIGURE 2. Values for agricultural products sold and invoiced in 2008 – per hectare and per worker – of a sample of 33 farms with varying levels of agroecological integration. Note that these values do not take into account the family or cooperative's production for self-provisioning. These farms belong to a variety of Credit and Service Cooperatives (CCS) in the municipalities of Fomento, Cabaiguan, Trinidad, Santi Spiritus, and Taguasco, in Santi Spiritus province. The farms are classified according to level of agroecological integration, on a scale of 1 (lesser) to 3 (greater).

Source: data from the cooperatives.

Production Increases

The rapid growth of the number of families who participate in MACAC partially explains the continual increase of both the absolute and the relative contribution of the peasant sector to the nation's total total food production, which is shown in Figure 3.

Figure 4 contains data on chemical use and food production in Cuba before the Special Period and more recently (2008). It reveals a drop in

production in 1994, a critical year during the Special Period, as a result of the drastic decrease in availability of imported inputs required for conventional agriculture. Since that time, the campesino sector has greatly recovered productive levels, due to the consolidation of agroecology, as can be seen for the largely campesino-produced food items in the graph. This has been possible despite a massive reduction in agrochemical use from 1988 levels, when the Green Revolution was at its peak. The data is telling with respect to sugar cane, a crop that is still largely cultivated in Cuba according to the precepts of the Green Revolution, and which is not known as a campesino crop, for which yields have been continually decreasing.

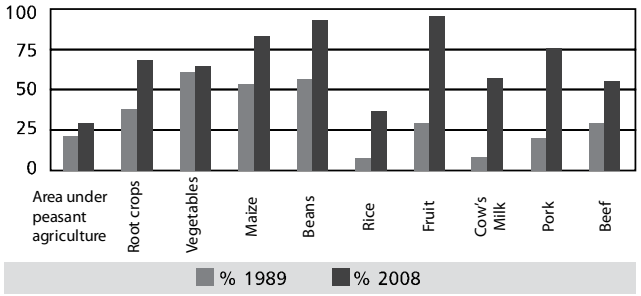


FIGURE 3. Percentage contribution of peasant agriculture to total national production for several food items, and the proportion of Cuba's agricultural land area under peasant agriculture in 1989 and 2008.

Source: data from the cooperatives.

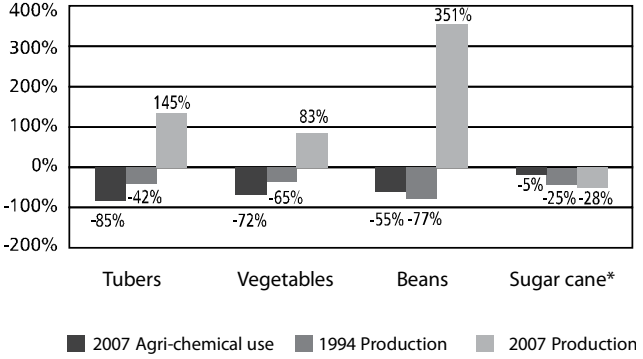


FIGURE 4. Dynamics of agrochemical use (compared to 1988) and production of sugarcane and other basic foods in 1994 and 2007. Data for sugar cane represent yield, not production.

Source: data from the cooperatives.

Factors behind the consolidation of MACAC

The years from 2004 to 2009 have been marked by the consolidation and strengthening of MACAC. This may be attributed to a variety of factors (chapter 5), among which the most important has been its transformation into a mass movement that is constantly forming new cadres. Furthermore, Cuban farmers have developed methodological innovations. For example, the Banes Method classifies farms according to their level of agroecological integration (as mentioned in Figure 2; also see chapter 5 for further explanation). It offers a way to rapidly identify new practices and potential promoters, and efficiently direct and coordinate exchanges and trainings. It is also designed to highlight the most successful agroecological farms as role models for other farmers.

Throughout its history, MACAC has grown more rapidly in Cuba's Credit and Service Cooperatives (CCS), where land is farmed on an individual family basis, than in the Agricultural Production Cooperatives (CPA), where land is farmed collectively. It has been difficult to integrate agroecology into the CPA for a variety of reasons discussed in this book. However, ANAP has now successfully incorporated a number of innovative practices which facilitate the functioning of MACAC in CPAs.

The greater biological and human resilience of agroecological systems to the effects of climate change is, without a doubt, another important factor to the success of MACAC. Resilience is the capability of an agroecosystem to maintain productivity when subject to perturbation.

Due to Cuba's geography, it is susceptible to declines in agricultural production as a result of constant natural disasters. Therefore, resilience is a particularly important factor for the island. Cuban farmers have already witnessed the benefits of agroecology in the face of hurricanes: farms with a greater level of agroecological integration have suffered less in the face of such phenomena. This may be partially explained by the fact that agroecological systems suffer less from erosion and landslides due to greater implementation of soil conservation practices (contour planting, gulley control, greater use of cover crops, etc.). Fewer crops are lost when multiple strata of vegetation exist (chapter 5).

Aside from the fact that agroecological farm losses in the face of hurricanes (unlike those of conventional monoculture) are not total, farms with greater levels of agroecological integration recover much more quickly. Furthermore, the movement has stimulated farmers' ability to constantly innovate and experiment; once their creativity was unleashed, they began to show results.

Agroecology and the Peasant family

Rural areas of all countries have confronted the disintegration and atomization of the peasant family. Traditional monocultures do not offer interesting roles which remunerate family members other than the man. Thus, they reinforce a patriarchal structure.

By contrast, agroecological diversification as promoted by MACAC in turn diversifies the roles available to the entire family. Agricultural work becomes more interesting and pleasurable, captivating the imagination and offering opportunities for all family members. As a result, a greater number of youth remain in rural areas, and other extended family members return to the family farm. This undoubtedly contributes to retaining young people on the farm - key to generational sustainability of farming, and reduces the exclusive power of the man within the family unit.

Furthermore, ANAP's ambitious gender strategy permeates the movement's structure. MACAC generates spaces for women to participate as promoters, facilitators, and coordinators. Nevertheless, the movement has a way to go to achieve true gender equality (chapter 6).

Alliances

Part of MACAC's success in Cuba lies in the fact that ANAP has managed to build an effective strategy of alliances. For example, it has taken advantage of and influenced governmental policies and programs, while also working with a variety of external actors, without sacrificing campesino protagonism (chapter 7).

Furthermore, the movement has generated programs with multiplier effects and effectively exploits educational opportunities offered by exposure in the mass media.

MACAC: a path to food sovereignty

In sum, through MACAC's farmer families, agroecology offers Cuba a more efficient way to produce its food than conventional monocrop agriculture – per unit of land area as well as per worker. Furthermore,

it does not depend on imported inputs, which are costly and toxic to people and the environment. Finally, agroecology better resists droughts and hurricanes, not to mention other internal and external factors which should be taken into account, such as depletion of natural resources, particularly soil degradation, which affects 70% of Cuba's agricultural land. While conventional agriculture further contributes to land deterioration –threatening future food sovereignty of the Cuban people– agroecological systems have demonstrated their ability to restore fertility to degraded soils. It is likely that what today is invested in toxic agrochemicals tomorrow will be paid in negative health effects. Agroecology produces healthy food without toxic agrochemicals.

The increase in food prices in the international market, as well as the price of inputs indispensable to conventional agriculture, obliges us to consider an alternative model which creates less dependency. It's not a matter of academic arguments in favor of this or that agricultural model, but rather of sustainability and sovereignty. Agroecology does not depend on imports. It is sovereign and sustainable.

Despite adverse economic and climatic conditions, in just over a decade, the campesino family which practices agroecology has attained the greatest levels of productivity and sustainability in Cuba. Agroecology has achieved what the conventional model has never accomplished in Cuba or any other country: more production from less (less foreign exchange, fewer inputs, and less investment).

In summary, compared to the conventional model, agroecology offers Cuba food sustainability, sovereignty, and security, assuring:

- *Greater resilience in the face of climatic adversities which are frequent to the island (hurricanes, droughts, floods, etc.),*
- *Restoration of soils degraded by intensive agrochemical use,*
- *Healthy food,*
- *Greater productivity,*
- *Savings in foreign exchange, inputs, and investments.*

Throughout the documentation process, we have seen how agroecology and MACAC offer the path to food sovereignty in Cuba, while also providing an example, source of ideas, and inspiration for other countries. This represents a true agroecological revolution.

INTRODUCTION

How a movement grew, driven by the conviction of rural farmers

This is a book about an island where the faith and hope of rural farmers has blossomed into a movement. It is the story of those people, families, cooperatives, and communities, and about their struggle to achieve food sovereignty and security for their people in Cuba. It will also portray the experiences encountered during the development of the Farmer-to-Farmer Agroecology Movement, and the help of efforts of the National Association of Small Farmers (ANAP).

In Cuba, the Agroecological Movement was initiated and advanced by the ANAP in 1997, over a decade ago. In this short time, the movement has succeeded in bringing together more than 100,000 farming families across the island, representing a third of the more than 250,000 Cuban private family farms. By adopting agro-ecological methods, these families have significantly transformed their production systems.

The results of this documentation have demonstrated that agroecology has been the most viable and enduring option for rural agriculture in Cuba. Even amid unfavorable economic and environmental conditions of the island. Moreover, the fundamental sustainability of the systems of traditional peasant agriculture have proven not only to be advantageous alternatives, but also strategic lines of resistance. The viability of this model has been put to the test even against the acute crisis of the 'Special

Period' of the 1990's in Cuba, when trade relations with the countries of Eastern Europe disappeared, and the US economic embargo tightened.

The Special Period allowed Cuba to lay the groundwork for a more sustainable agricultural system. Specifically, it allowed strategies of resistance to develop locally and nationally, against the new economic and social conditions in Cuba. The objective was aimed at strengthening food security and security. As Orlando Lugo Fonte, the president of the ANAP, has said: "necessity gave birth to a new consciousness".

For the people of rural Cuba, this book is a way to recount and unravel the story of how far they have come, to understand it and see the best in themselves. This is also a source of inspiration for peasant and farmer organizations around the world. It is a source of inspiration, which demonstrates that ownership of the production process is perfectly possible. Moreover, that ownership contributes to better management and to local autonomy, through the transformation of both concepts and technologies that we have seen in Cuba, vis-à-vis the adoption of agro-ecology and organic farming.

Furthermore, this paper focuses on the fortification and sustainability of the changes in Cuban peasant agriculture, and the many questions that arise. Is it merely a a temporary tactic used to confront a crisis? Are we just one step further towards input substitution, which may move forward but could also slip back into chemical farming? This study

Some key concepts…

Agroecology: For many, agroecology is a science, which studies and attempts to explain the functioning of agroecosystems. For others, the word agroecology refers to the principles, rather than specific recipes, that guide farming practices that allow for the production of food and fiber without the use of pesticides. According to Altieri (1999), its main principles are:

- Increase the recycling of biomass and achieve a balance in the flow of nutrients.
- Secure favorable soil conditions, high in organic matter and with a diverse soil biology.
- Minimize the loss of nutrients from the system.
- Promote genetic and species diversification, at the farm and landscape level.
- Increase biological interactions and synergisms between components of the agroecosystem.

For the social movements that compose La Vía Campesina, the concept of agroecology goes beyond ecological and productive principles. Other social, cultural, and political goals are incorporated into the agroecological vision. For example, in this view, the concepts of agroecology and a large land estate or plantation, or *latifundio*, are incompatible. This view would not allow for the production of 'biofuels' for cars in the place of food or other products for humans. For us, agroecology is a fundamental pillar in the construction of food sovereignty and security.

Ecological agriculture: This describes a kind of agriculture that does not degrade the environment, and which uses agroecological practices in place of agro-toxics.

Agroecological practices: These are practices that include biological control, crop association, integration crops with livestock, composting, etc. It allows production without the use or with reduced usage of agro-toxics.

Agroecological integration: This kind of integration goes beyond the mere substitution of chemical products for certain practices and alternative materials that are non-toxic.

The more complex and integrated systems, for example, strategically incorporate crops, trees, animals, and other parts of the ecosystem. The interactions and synergy between the various components of the agro-ecosystem take the place of much of the daily maintenance needed on conventional farms, such as soil fertility and the maintenance of pest populations. The results have been a consistently higher of overall productivity per unit area and, with minimal dependence on external inputs and decreasing dependence on labor and investment (Monzote et al., 2001).

provides possible answers that speak not only to policies and strategies, but also to a gradual transformation, also profound and irreversible, based on the awareness and responsibility of farmers, consumers, technicians, managers, and decision makers in the country.

This book also reveals how rural farming families in Cuba are engaged in a process of recovery, validation, and dissemination of traditional agricultural practices, as well as in the development of new agroecological technologies and concepts. It is this very process which allows them to achieve higher production rates per unit area than monoculture systems. In addition, costs are lower, especially those in foreign currency, which is scarce on the island, and farmers are able to avoid contaminating the environment and the humans who are a part of it. Moreover, during the severe hurricane that struck the island in 2008, it was found that biologically diverse agroecological systems suffered much less damage and fewer losses, compared with industrialized systems, and recuperated much more quickly and completely.

The examples and lessons that come from this experience are an invaluable contribution to our ability to reflect on the future of agriculture and livestock systems in Cuba. For people and movements in other countries that are struggling to change the dominant paradigm of transnational corporations and conventional agriculture, which work to the detriment of the people and the environment, this book offers valuable lessons.

Conflicting models on a global scale

Everyone in the world is affected by the conflict between two opposing agricultural models: conventional and agroecological. What this book wishes to convey –both within Cuba and in other countries– is a response to that conflict.

Conventional agriculture promotes large-scale, industrialized monocultures, which require large quantities of agro-toxics and commercial seeds. With the only exception being Cuba, this type of agriculture in most of the world entails large estates and agri-business. It is an agriculture that does not support biodiversity, and abandons rural labor for the higher profits of free trade and transnational corporations. It also happens to be called –without slander– the "model of death," a term that applies not only to the agricultural field, but also to many economic, social, cultural and even affective aspects of human society.

La Vía Campesina and the ANAP

The ANAP is a member organization of La Vía Campesina (www.viacampesina.org), which is a movement or a global alliance of peasants, rural, and family farmers and workers, rural youth and women, indigenous communities, and landless people.

Currently, the ANAP coordinates the International Working Committee for Sustainable Rural Agriculture of La Via Campesina. The purpose of this committee is to develop strategies of resistance and defense of family farming. They also work to construct real alternatives within the food sovereignty model both locally and nationally, as a way of defending the peasant model worldwide.

A particularly important task of the committee is to encourage cooperative interaction between the various member organizations of La Via Campesina, in developing and promoting techniques based both on the principles of agroecology and the traditional knowledge of rural farmers and indigenous peoples. One part of this task is to document and systematize the most successful agroecological experiences among these groups in order to publicize them and facilitate a horizontal learning process between organizations and countries.

This book is the first in what is proposed to be a series of such documentations and systematizations. Thus it speaks not only to the Cuban reality, but also to the reality of rural farmers and workers worldwide.

The agroecological model of rural farmers stands in stark contrast to conventional agriculture. Agroecology exists in rural areas, where farmers, families, and communities work with their diverse biological environments to produce healthy food for people, both local and national. Thus, this model may be referred to as the "model of life", because it is in favor of protecting these things at all costs.

The purpose of rural family farming is to produce food. In any country around the world, peasants and family farmers are under-represented in terms of land ownership, yet produce the majority of the world's food.

Food Sovereignty

The peasant and farmers' organizations around the world which make up the international movement, La Via Campesina, have proposed food sovereignty as the solution to the systematic crisis in the world today. Food sovereignty is the right of each people or nation to define their own agricultural policies, and to protect and regulate domestic agricultural production and the domestic market in order to achieve sustainable human development.

Considering the current conditions of the global food market, it is now more important than ever to protect national production capacities and protect them from the volatility of global market prices. In most cases, sharp increases in prices do not benefit peasant farmers, but rather the companies that speculate on the price of food.

Under the food sovereignty model, food should be produced through diversified, agroecological, community-based systems. To secure and preserve peoples food, and ensure food security, governments should adopt and implement policies that foster sustainable domestic production. These policies would support family farm production rather than the industrial –high input, export-oriented– model. Agroecology is fundamental to food sovereignty, because it ensures breaking the link between oil prices and food. It also requires land reform and the protection of domestic markets from the effects of the international market.

In September of 2001, the World Forum on Food Sovereignty took place at the Palace of Conventions in Havana, Cuba. This was a milestone in the history of MACAC in Cuba. During the forum, MACAC participants talked about the successes of the movement, and the final declaration of the Forum was strongly influenced by their accounts. In the closing ceremony, twenty rural farmers and advocates of the movement were honored before hundreds of delegates from Latin America and other parts of the world.

Fidel Castro also gave a speech at the closing of the forum. Soon after, he spent three days with the presidents of ANAP cooperatives from all around Cuba, debating topics. This led to several policy changes which paved the way for the future development of MACAC.

Participatory Plant Breeding Project of the Biodviersity Fair in Pinar del Rio Province.

Although the peasantry controls much less than half of the land, they produce more than half of the food consumed in the world.

Agribusiness, with its industrialized monocultures, has the singular goal of producing goods for export and, increasingly, agro-fuels, which provide more nourishment for bank accounts and automobiles than for human beings. The problem is that the growth of this 'model of death,' or agribusiness, is displacing peasant agriculture and family farming around the world, and destroying the food-producing abilities of many countries. There are few countries left in the world today in which the majority of the food consumed by the population is nationally grown. This is the true cause of the global food crisis.

Faced with this dilemma, the peasant organizations around the world affiliated with La Vía Campesina are demanding that peoples and nations reclaim control over their agricultural systems and over the production of food. They have called this 'food sovereignty', of which agroecology is a fundamental aspect.

In the struggle for food sovereignty, rural farming organizations are facing the need to take control of production processes, an act associated

in many cases with the quest for autonomy. In this process, it has become increasingly clear that mereland ownership is not enough. Truly transforming production requires abandoning reliance on toxic inputs produced by transnational corporations, and to thus cease threatening the health of people and the environment.

Agents of their own destiny

Today, the great majority of the member organizations of La Vía Campesina around the world, already have or are in the process of creating internal procedures to advocate and facilitate the agro-ecological transition in their various locations. In this conjuncture, there is a widespread search for methodologies to guide these processes.

The conventional top-down method of agricultural extension through the public sector, input supply companies, and governmental and non-governmental projects, places a technician, deemed the expert in the field, as the active subject. This techno-centric model is incompatible with a philosophy and organizational policy that seeks to place the peasant or rural family as the active and central agent in the transformation of its own reality and its own destiny. The conventional agricultural extension model depends on the precise application of recipes, rather than the principles of the agroecological method, which incorporate the local context of each farm and cooperative. These principles require and engage the creativity, knowledge, innovation and intelligence of the peasant family. They may be adapted and adopted anywhere. Vertical methods, on the other hand, are self-limited by both the number of technical experts and the number of families that each technical expert can visit.

La Vía Campesina has concluded that farmers' organizations need liberating methodologies, which enable people to take control of their production processes and be the agents of their own destinies; methods that trigger dynamic and creative processes. They should also enhance the capacity for collective action and mobilization, which will be needed both for the reclamation and transformation of production processes, as well as for the challenging political struggles ahead.

The Farmer-to-Farmer method requires that the actor be the rural farmer or peasant, rather than the technical expert. This is fundamental to the method, though not the only secret to its success. As they say in the countryside, "the campesino believes in what the other campesino does, more than what the technician says." *(El campesino cree más en lo que hace otro campesino, que en lo que dice un técnico.)* Lastly, the Farmer-to-Farmer method is a dynamic process, which by allowing people to move at their own pace, goes much further in less time than top-down methods of agricultural extension.

"We love the revolution not because it gave us land, but because it gave us dignity": sign in a cooperative in Las Tunas.

The MACAC, and this book, speak more to social process than specific technologies. La Via Campesina has found that there is no real need for agroecology to promote specific techniques of food production. There are already many good practices available. The problem is that in most cases, the dissemination and adoption of sustainable practices are limited by methodological shortcomings. What Farmer-to-Farmer offers, are solutions precisely for these shortcomings.

Farmer-to-Farmer in Cuba: a beacon for agroecology

Cuba provides an example, a beacon illuminating the way to necessary social and productive processes. The way in which Cuba, especially its rural families that are organized in the ANAP, have faced down a profound crisis with the Farmer-to-Farmer Agroecology Movement (MACAC), offers many lessons to other countries and organizations that are looking for a way out of the life or death situations that their farming family constituents are faced with daily.

The Farmer-to-Farmer method was not invented in Cuba or in Central America. Around the world, rural families have always experimented with various methods of planting and production. They gather knowledge, which they then share with neighbors. The dispossession and displacement of local and traditional knowledge that accompanied the Green Revolution was a brutal act of modernization. This displacement of traditional knowledge for the thoughts and practices of modernity, has led to the virtual abandonment of many important

farming traditions. Luckily, some remaining knowledge has survived in collective memory. The methods of Farmer-to-Farmer are built around these memories.

The Farmer-to-Farmer method arrived in Cuba in 1997 after two decades of success, principally in Guatemala, Mexico, Honduras, and Nicaragua (Holt-Gimenez, 2008). It would be in Cuba, however, where the Famer-to-Farmer method would get wider acceptance. Throughout Mesoamerica, Farmer-to-Farmer has reached some 30 thousand families over the last 30 years, while in Cuba it was able to reach over 100 thousand families in just one decade. The question then, is why has it grown more, and faster, in Cuba? As this book discusses, the answer is complex.

It is certainly related to a greater sense of urgency and necessity felt throughout the country, which allowed the ANAP and Cuba to grant more intentionality towards the implementation of the method. It also has to do with the degree of organization already extant in the ANAP, for the ANAP was able to coordinate the methods of Farmer-to-Farmer more systematically and with less spontaneity than in other countries. Perhaps the most important factor in its impressive growth in Cuba, is that a Farmer-to-Farmer Movement grew within the already-existing ANAP.

With only a decade of life in Cuba, the Farmer-to-Farmer movement has been strongly influenced by values inherent in socialism: resistance, struggle, autonomy, solidarity, horizontal cooperation, and concepts such as ecology and environmentalism. The ecological values of MACAC, for example, are clearly illustrated in its forceful critique of the impacts of the Green Revolution, and with its conscious construction of alternatives. The MACAC should be a true inspiration to farmers' organizations around the world.

About this book

In preparing this book, an international team of four authors was formed. Two of the authors are members of the ANAP (one from MACAC, and the other a professor of the Niceto Perez National Peasant Training School). Another author is an agroecologist from the Sustainable Agriculture Committee of La Vía Campesina International, who resides in Mexico. The final author is an agroecology professor from the Coordination of the "Paolo Freire" Latin American Agroecology University Institute (IALA), which is co-administered by La Vía Campesina, in Venezuela.

She is also a *técnico-militante* of the Landless Peasants Movement (MST) of Brazil.

The team reviewed all existing documentation and statistics on MACAC at ANAP. In addition, they sought out complementary information in other Cuban institutions. Lastly, they took two tours around the country, in order to have direct contact with farming families, in 13 of the 14 provinces of Cuba. During those tours, they took part in participatory workshops, farm visits, exchanges with producers, meetings with the Directorate of ANAP in various levels, and conducted interviews with allies and other stakeholders.

One of the fundamental reasons for creating this book, and for the effort put into the documentation of the experiences involved, is to extract useful lessons for other rural and farming organizations in other countries.

We also hope that the analytical history provided, will be useful to the ANAP, and to Cuba, to evaluate the path they have taken. We would like the information shared here, to be taken into account for the important decisions of the current situation, both about the future direction and development of MACAC, as a movement that exists within and outside of ANAP, and on the future of agriculture in the country. Thus, this book is ammunition for the battle of ideas, in Cuba and the world, about how societies should organize the production of food.

This book also constitutes a pause along the way, which is necessary to analyze the experiences and results that have been achieved, and thus serves as a tool for designing the future. Organizing this information facilitates the exchange of knowledge, while enabling learning from the experiences of others, and from new knowledge that has been built by and for everyone.

It is essential to put this knowledge in use for the good of all. It is the most human and accessible way to contribute to a better world, for those who dream and for those who fight. We hope this project helps to achieve this goal.

CHAPTER 1

The Process of Transforming Cuban Agriculture

• Colonial legacy • U.S. Capital • Revolution and Agrarian Reform • Rise and Fall of the Green Revolution

Prior to the Cuban Revolution, Cuba's agricultural practices and models were the result of two particular circumstances: the colonial legacy, and the arrival of US capital. These two conditions led to the typical forms of capitalist exploitation of the land. First, we will discuss the historical roots of Cuban agriculture, and later, we will discuss the bright and dark side of agriculture in Cuba post-revolution.

During the conquest of the island, the colonization and displacement of the indigenous population led to the formation of large landholdings (*latifundios),* which were initially dedicated to livestock. Using slave labor, early settlers turned these properties into plantations for sugar and coffee. In the best of circumstances, some land was turned over to poor people in order to promote settlement and devote some land to food production for the island population.

Thus small, conceded land holdings coexisted with large estates. The population of smallholders resulting from this coexistence came to form

the Cuban peasantry. This population had, since that time, been subjected to capitalist relations of production alongside feudalistic components of rent and sharecropping, constituting a lack of rights or security of land tenure. Throughout the colonial era, the work of the peasantry provided for the dietary sustenance of the new settlements. The peasantry also participated, with considerable input, in the production of sugar cane and in the emerging trade in tobacco and coffee, which sustained the colony economically.

Agriculture in Cuba remained under these conditions until the late nineteenth century, until independence was ultimately declared. However, although freed from European rule, Cuba was still far from being truly independent.

Since the U.S. intervention in the Cuban War for Independence, dependence of the island on the U.S. was increasing. This is not surprising, as four years following independence the U.S. occupied Cuba, setting up a dependent bourgeois republic. To the detriment of Cuba, certain capitalist relations typical to a dependent country were firmly established.

Land tenure, *Latifundios*, and North American capital

By the late 1950's, *latifundios* occupied the majority of land, and the best land, in the country. More than 73 per cent of land was in the lands of just 9.4 per cent of Cuba's landowners. Foreign capital controlled 25 per cent of Cuban agricultural land. Ninety per cent of smallholders held just over 26 per cent of all land in Cuba (Nova, 2001), and 85 per cent of them worked the land under lease, sharecropping, or unauthorized occupation (Regalado, 1979 and Castro, 1953).

The national oligarchy and foreign capital, and large agricultural export enterprises dominated and controlled the agricultural economy and the land, through the production of sugar cane, tobacco, and lifestock. The monocultural model of farming in the country, coupled with seasonality, gave rise to a large army of more than 600 thousand rural workers who were victims of unemployment and underemployment. By 1958, these workers made up 33.5 per cent of the active labor force in Cuba (Castro 1953, Nova 2001).

Social indicators for rural Cuba showed instability. Illiteracy in rural areas exceeded 41 per cent. Eighty five per cent of rural households were in bad condition. Ninety six per cent of the rural population suffered from poor nutrition. Two telling indicators of health demonstrate the poor level of health care: infant mortality was at a rate of 60 per 1000 births, and there was a life expectancy of just 61.8 years.

Additionally, the rapid expansion of tobacco and sugar cane plantations and livestock, produced mainly for export to the United States, devastated forests. While these monocultures exploited 80 per cent of the land, forest cover was reduced to just 13 per cent of the land area of the country. This phenomenon, combined with an underdeveloped agricultural economy, impacted negatively the quality of soils, and reduced forest cover and water availability.

Rural and peasant agriculture

The peasantry made up the other face of rural life in pre-revolutionary Cuba. As a consequence of *latifundismo*, and all that came with it, peasants and rural workers faced exclusion, lack of rights, and permanent threats of eviction from the land. Statistics from the time record that 143 thousand peasant farms existed on landholdings under 64 hectares. Over 70 per cent of these were on plots of less than 24 hectares (Regalado 1979).

Moreover, the dominance of capitalism, which was still expanding, in rural areas meant that over 85 per cent of smallholder farmers did not have the right to land ownership. These conditions of exploitation and exclusion took various forms:

- *Lease: periodic payment of a sum of money to land owner*
- *Sublease: when the above was done on a farm already leased*
- *Sharecropping: periodic payment in kind, of a certain portion of the harvest*
- *Sharecropping partnership: those who pay an in kind rent with a part of the harvest and shared equipment and other means of production with the owner.*
- *Squatting: occupation and land use without any legal protection, which accounted for 8.6 per cent of all farms.*

The lack of property rights for rural families meant that they were under constant threat of eviction or displacement. In fact, it was a common practice during the time, and would take the form of violent occupation of family farms, and the destruction of homes, equipment, and crops. In the period between 1898 and 1959, according to a report by Antero Regalado (1979) called *Las luchas campesinas en Cuba* (*Peasant*

struggles in Cuba), land-grabbing estate owners and U.S. companies displaced approximately 40 thousand rural families.

In addition, credit for farmers was granted by moneylenders and traders at usurious interest rates of up to 50 per cent. Meanwhile, merchants, brokers, large landowners, and those in control of agro-industrial or commercial capital controlled the market. As such, the farmer was unable to participate on equal terms, in either the determination of prices, or the quality and conditions of sale.

Peasant agriculture in the period before the Revolution is characterized by the low use of modern technologies, due to lack of financial and technical assistance. Fortunately, some of these practices of traditional land management still prevail today, as shown in Table 1.1.

TABLE 1.1
Agroecological practices in use before 1959

- Manual weed control.
- Animal traction.
- Use of tobacco extract and stems.
- Mulching.
- Seed saving.
- Incorporation of crop residue into soil.
- Planting by lunar phases.
- Animal and crop diversity.
- Use of manure as fertilizer.
- Living fences.
- Biodiversity.
- Intercropping.
- Minimum tillage.
- Animal quarantine.

Source: Collective interview with prometers, facilitators, and coordinators of MACAC, during a Documentation Workshop, Santa Clara, November 25, 2008.

The critical situation in which Cuban farmers livev was caused by the lingering injustices of *latifundismo*, which was denounced by Fidel Castro (1953) in his defense statement, later published under the title "History Will Absolve Me." The hope of improving their own living conditions motivated many rural farmers and workers in the mountains to offer their help to the revolutionaries, as they sympathized with the young rebels.

Agrarian Reform: The birth of a transformation

Only four months after the revolution triumphed, the Agrarian Reform Law was passed, on May 17, 1959. This liquidated the large land estates, presenting land titles to over 100 thousand peasants, who had worked without owning the land, and rescued hundreds of thousands of acres of land, making them public. This law received broad support from rural families, workers, students and the general Cuban public.

The backlash of the remaining displaced oligarchy and their supporters inside and outside the country necessitated the radicalization of the political struggle, and the implementation of a Second Agrarian Reform Law, which was signed on October 3, 1963. This law:

- *Radically and definitively eliminated latifundismo and capitalist exploitation of the land.*
- *Reduced maximum ownership to 67 hectares, and made public 1.2 million hectares.*
- *Strengthened the state agricultural sector to include 70 per cent of arable land in the country.*
- *Defined the two pillars of agricultural development in the nation: the state and the rural sector.*

1959-1965: Diversifying national agriculture and striving for food self-sufficiency

In the period between 1959 and 1965, the new revolutionary government undertook a program of economic development that began with fomenting industry and diversifying domestic agriculture. This strategy was driven by efforts to nationalize and exercise sovereignty over the resources of the country.

More than 1.2 million hectares were put into production by over 100 thousand rural families. New policies favored peasant agriculture, and provided the material and technical support promised by the Agrarian Reform. With this support, and by embracing naturally diversified production systems, many increased their production.

Forty per cent of the land that had been nationalized was put under harvest, with the help of 400 thousand farm workers, who, given permanent employment and just remuneration, were left with a greater sense of belonging. These are the factors that have most greatly impacted the increased land use, productivity, and agricultural production.

From 1959 to 1960, the revolutionary government invested 286.4 million pesos in the agricultural sector. It also engaged in extensive development programs, including one called the "Hydraulic Willpower" program. This program stood out, as it allowed a 100-fold increase in

water stored for various uses, during the first 15 years of the revolution. The result was that irrigated farmland grew by 3.6 times its previous level, as the Report of the First Congress of the Communist Party of Cuba stated in 1975.

For the first time in Cuba, the changes put into effect in agriculture and the vision for the development of agriculture in the country, were linked to national interests, and supported by the masses of workers and peasants. The following results were found:

- *Agricultural production grew from 1959 to 1960: rice – 28%, maize – 26%, beans – 39%, potatoes – 21%, and tomatoes – 108%. While between 1958 and 1961, compared to the 1950's, the increase in the processing of raw agricultural materials was 16% for sugar, and 14% for tobacco. (Rodriguez, 1990).*
- *Livestock production was diversified, with very encouraging results in the years following. The cattle population grew 75%, reaching 7 millions head in 1967. Meanwhile, egg production increased 6-fold, poultry production quadrupled, and pork production tripled.*
- *In 1975, the Congress of the Party noted that during the first 15 years of the revolution, acreage under production had doubled. Also, areas planted with citrus grew nine times, and rice – 4.6 times.*

These examples portray this as a period that started a kind of break with the pre-revolutionary colonial capitalist model. It also laid the groundwork for the transformations of Cuban agriculture that are happening today, such as diversification and increasing food sovereignty and security for the Cuban people.

The organization of production

During the 1960's, Cuban agriculture underwent deep structural changes. The old *latifundios* were transformed into large state enterprises, which were highly specialized, and varied in size depending on the type of activity and geographic location. Also, as a result of the Agrarian Reform, small producers were granted definitive land ownership. This opened possibilities for creating farming cooperatives, which still exist to this day, as a new form of productive organization.

Initially, in the rural sector, peasant associations were created as simple

Identifying with Revolution

Given the precarious situation in which peasants and workers lived, who together shared the experiences of poverty and exclusion, we all dreamed of improving our situation. When we heard about the assault on Moncada Barracks and Fidel Castro's struggle in the mountains, we immediately identified with them, and began to fight with one common goal: the possibility of a year-round job with which to honorably earn our daily bread.

Heriberto de Armas Perez
Retired peasant leader

organizational structures, with the purpose of obtaining political and social representation, while receiving guidance. At the same time, Credit and Service Cooperatives (CCS) were formed, which were intended to facilitate the principle services available to producers. In the CCS, each family owns and works it's own farm individually, rather than collectively.

The second half of the 1970's saw the creation of Agricultural Production Cooperatives (CPA's), which were formed by small farmers who pooled their labor, land, and resources to form a singular socialist economic entity. These cooperatives helped shape the values of collectivism and cooperation during the height of the Cuban peasant movement. Land is farmed collictevely in CPAs.

In 1989, 78 per cent of cultivated land was in the State's hands, 10 per cent belonged to CPA's, and the remaining 12 per cent belonged to the CCS's and other individual farmers. The large state enterprises and the CPA's were the fundamental adherents of conventional agriculture. Rural farming families, despite the strong influence of this model,

retained traditional forms of production, which included elements of sustainability.

Splendor of the Green Revolution in Cuba

The 1970's and 80's were marked by the so-called 'Green Revolution,' that is, the massive introduction of tractors, combines, chemical fertilizers, pesticides, large-scale irrigation systems, hybrid seeds and a renewed emphasis on large areas of monocultures.

This period coincided with other profound changes within Cuban society, resulting from the revolution. The goal of these changes was to achieve social justice and material well-being, atop a foundational economic development of the country's agricultural base. This implied raising technological support in the field for mechanization and industrialization of agriculture.

However, the popular and progressive nature of the revolutionary process aroused the hostility of a powerful Northern neighbor. The alternative appeared for the emerging revolution to establish political and commercial relations with the (now former) Socialist Bloc, composed of countries who boasted greater industrial development. These countries also followed the conventional agricultural model, and thus proposed specialized production, and trade with the island within the framework of the international socialist division of labor, by mutual agreement.

This agreement favored the implementation of an intensive agricultural model that was both highly specialized and highly dependent – typical of the Green Revolution. This period affected the main agricultural sectors and economic forms of production, in both state enterprises and rural cooperatives.

This complex dependence of national Cuban agriculture during this period is corroborated by data provided by the Ministry of Agriculture (Oxfam, June 2011). This data shows that over 17,000 tons of herbicides and pesticides were applied annually, along with 1.3 million tons of chemical fertilizers, which averages over 192 kilograms of fertilizer per hectare of farmed land. In addition, Cuba imported more than 600 thousand tons of concentrated food for livestock, and the use of mechanical harvesters and tractors increased to an average of 2.4 units per 100 hectares of cropland –the highest in Latin America and the Caribbean.

The Green Revolution begins to fall

Cuba did experience growth in agricultural production through the

Green Revolution. However, analysis of the performance of the agricultural sector at that time shows that despite large investments made (25.7 per cent of total investments in the country between 1959 and 1988), the benefits did not correspond. Rodriguez (1990) has put for some economic arguments that call for reflection on the effects of the conventional agricultural model under the Green Revolution in Cuba.

The following data show the average annual growth rates for gross value of agricultural production in relation to total national economic growth:

- *1962 to 1970: The economy grew 3.6 per cent, while the agricultural sector grew 3.4 per cent.*
- *1971 to 1980: The economy grew 5.2 per cent, while the agricultural sector grew 2.6 per cent.*
- *1981 to 1985 (the period of greatest economic growth): the economy grew 6.7 per cent, while the agricultural sector grew the least of all analyzed periods, only 1.7 per cent.*

This can all be explained by the fact that the conventional model proposed by the Green Revolution was extremely costly, in terms of investments and imported inputs.

Another element that Rodriguez considers is the behavior of the labor force in the agricultural sector. During the 15 peak years of the Green Revolution, the agricultural workers' share of the country's total employment fell from 30 to 18.3 per cent. This decline can be explain by the high level of mechanization used in this model, coupled with the opening of job options in other areas. However, this decline is also a cause for concern about the future of the labor force in agriculture, especially in a globalized world where the chronic contemporary phenomenon of migration to urban areas brings many economic and social consequences.

Perhaps the most difficult aspect of this era was that the productive results of the Green Revolution only lasted during the first few years. In the mid 1980's, many crops had already reached their maximum or peak yields. Subsequently, productivity levels flattened and even declined, as shown in Figure 1.1, with the example of rice cultivation.

Other crops of significance to the Cuban diet, such as roots, vegetables, rice, and beans, also began to show lower growth rates and unstable levels of production.

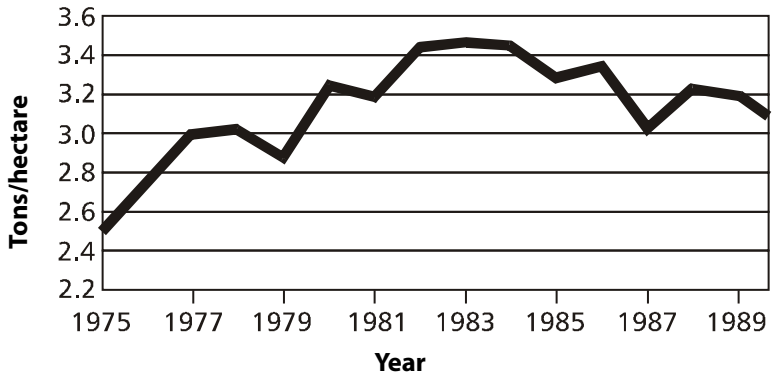


Figure 1.1 Rice yields in Cuba during the Green Revolution (1975-1990).

Source: FAOSTAT (data from FAO).

Other consequences of the conventional model

The excessive use of synthetic pesticides and fertilizers led to a growing imbalance in agro-ecosystems, to the detriment of the environment. An example of this was that it eliminated many beneficial organisms, such as natural enemies to control pests. The result was that new pests emerged, and conventional agriculture was inefficient at controlling the more common pests.

This imbalance in agricultural systems turned them into the perfect niches for the proliferation of pests, which had devastating effects on the main crops grown in Cuba. Some of these pests were the result of the imbalance itself, and others were probably the result of biological warfare on the part of the United States.

- *Sugarcane rust (1978) devastated the plant variety B43-62 (Barbados), which made up 34% of the total crop. This variety had to be substituted with other varieties of lesser agricultural and industrial yield. The impact of the disease caused the loss of 1.5 million tons of sugar in this harvest year. Additionally, during this year more than 500,000 hectares had to be replaced, adding to the economic burden.*
- *Blue tobacco mold (1979) caused several million dollars in economic losses.*
- *In 1997, Thrips palmi was introduced, which affected several major food crops, causing great losses to agriculture and the national economy.*

Conventional agriculture also had other consequences, negatively affecting ecosystems. Indicators show that of the total cultivated land, 43.3 per cent suffered soil erosion, 23.9 per cent suffered compaction, 14.1 per cent had high levels of salinity, and 24.8 per cent had high levels of acidity, while 44.8 per cent was left with low fertility. These together entailed that 76.8 per cent of the soils of the island were categorized as having low or very low productive potential (Soil Institute, 2001)

Peasant agriculture and the end of the Green Revolution

Despite the boom of the Green Revolution in Cuba from 1960 to 1980, peasant families – with 12 per cent of the agricultural area of the nation in their possession – maintained traditional agricultural practices and

practiced careful conservation of their land, particularly in Western, Central, and Eastern Cuba.

There were multiple factors that instilled the peasantry with a sense of belonging, with social and environmental responsibility, and offered them a way to identify with their class and their role in society. The state guaranteed right to land, respect for their social and cultural identity, gave then higher levels of schooling and technical ability to organize under the protection of the law, as well as the feasibility of obtaining affordable credit, agricultural insurance, and markets for their produce.

Rural farming families preserved their often diversified farming systems through various methods. Animal traction, alternative energy sources, intercropping and crop rotation, seed saving, use of manure as fertilizer, and other forms of integrating animals into farm systems, were all common practices. It is these practices that alleviated the impacts of the Special Period in the 1990's, and ensured rapid growth of production to alleviate food crisis, and also, to later promote the advance of the Agroecology Movement.

Looking back, one may say that the underlying vulnerability of high-input farming systems in Cuba was exposed when the country entered into the Special Period in 1990. It was at that time when traditional farm production practices of peasant families, and the results of certain research centers, played a significant role in the production of food for the country. It was this stage where the intelligence and creativity of farmers, workers, technicians and professionals was put to test for the sake of sustainable agriculture.

CHAPTER 2

Setting the Stage for Farmer-to-Farmer: The start of the Special Period

• Collapse of the Socialist Bloc • The Special Period • Science and Tradition • Input Substitution • New forms of organization • The need for social methodology

> Necessity forced us to wake up.
>
> **Orlando Lugo Fonte**
> President of the ANAP

At the end of the 1980's, the result of industrial monoculture was unambiguous: Cuba imported 28 per cent of its fertilizer, and 82 per cent of its pesticides. Many of the components of fertilizers manufactured within Cuba also had to be imported. Add to this, that direct food imports accounted for approximately 57 per cent of the total calories in the diets of Cuban families.

Since the 1960's and until the 1980's, the Socialist Bloc set up favorable trade agreements with Cuba. As mentioned in the previous chapter, this led to the establishment of certain import and export flows, and trended agriculture towards specialization. Because of the favorable terms of trade, sugar production for export was much more profitable in economic terms, than was the production of food crops.

Until the mid-1980's fluctuations in international prices didn't cause many problems for the island nation. Cuban trade with the Soviet Union occupied 70 per cent of their total trade, and an additional 15 per cent was done with the rest of the Socialist Bloc. Revenues earned as a result

of these exports were used to buy agro-chemicals, fuel for mechanized agriculture, and other purposes, including food for the population. All imports were purchased at quite affordable prices.

When in late 1989 and 1990, cuban ties with the countries of Eastern Europe disappeared, and the United States tightened the trade embargo, Cuba plunged into economic crisis. Oil imports immediately dropped to 53 per cent their former levels. Wheat and other grains for human consumption fell more than 50 per cent, while the import of other food goods decreased even more.

While Cuban agriculture was faced with a 80 per cent drop in fertilizer and pesticide availability, the nation also faced the challenge of drastically and urgently increasing domestic food production to replace vanishing imports (Rosset and Benjamin, 1994; Rosset, 1997).

Of course, the consequences of monocultures were not observed overnight. They lay latent, masked by circumstances. What occurred after the fall of the Socialist Bloc was a result of dependency. Yet this crisis, held at bay by favorable trade agreements, was unveiled suddenly. For many, it was as if the country opened its eyes for the first time, to discover that the shiny suit of the Green Revolution was, all along, made of rags.

The Special Period:
Rescue of peasant agriculture and scientific advances

In response to the crisis of food and the economy, the government declared the "Special Period in Peacetime", in 1991. This put the country on an austerity program, with a war-time economy. The primary objective was to preserve the achievements of the political and social revolution that had occurred in the country.

In response to the crisis during the Special Period, the Cuban people were quick to develop and implement economic, social, and productive alternatives to meet human needs, without the luxury of imports. These comprehensive austerity measures included the following:

- *Decentralizing production, especially those sectors that were in the hands of large state enterprises.*
- *Searching for new forms of organization, and stimulating the workforce, within cooperatives.*
- *A new phase of agrarian transformation, with the distribution of available land for free usufruct, with the goal of recuperating production with an eye towards domestic need and economy, which in turn stimulated a return to rural areas.*
- *Greater incentives for farmers to market their products, though price increases.*
- *Achieving market flexibility, with the expansion of opportunities for farmers to market their crops, including permission for open markets.*
- *Expanding the capabilities of the enormous human capital created by the Revolution, in the search for technological solutions and innovations for a sustainable model of agricultural production.*

All institutions and sectors of society in Cuba adopted these special economic provisions. The National Association of Farmers (ANAP) assumed a variety of tasks under these measures, to:

- *Maintain and increase the food, seeds, and livestock that belonged to cooperatives and rural families.*
- *Develop plans for the extensive use of animal traction, and support other rural initiatives and innovations so that they may and manufacture hand tools and raise draft animals.*
- *Intensify the use of windmills, bio-gas, pumps driven by hydraulic power, and other means of saving fuel.*
- *Intensify labor, so that each farm ensures self-provision rather than purchasing products they could grow themselves, as a way of replacing the products made scarce in the local and national market.*
- *Produce alternative feed for animals, with the intention of replacing imported formulas. To this end, ANAP created a local feeding plan for animals in each region.*
- *Applying biological control measures against pests.*
- *Further development and cultivation of medicinal plants for people and animals.*
- *Implementing a rigorous plan of re-forestation.*
- *Putting into practice processes of diversification, by encouraging small-animal breeding, intensive production of vegetables, popularizing dryland rice cultivation, and expanding orchards.*
- *Promoting new forms of organization, decentralization, and stimulation of collective work in the CPA's.*

- *Strengthening capacity for advocacy, management, and provision services within the CCSs.*

Recovering traditional production practices was a central challenge that faced Cuban farmers, who had become dependent on external inputs. Some of these practices typical of the Special Period are shown in Table 2.1.

Thanks to these efforts, production increased rapidly, as did the use of biological pest and crop disease controls, such as bio-fertilizers made from microbial formulations. This led to a new round of investments in the Centers for the Reproduction of Entomopathogens and Entomophages (CREE). Nevertheless, even the most 'ecological' technologies of this era had disadvantages, as the following section will describe.

TABLE 2.1.
Agroecological practices at the start of the Special Period (1990-1997)

- Organic fertilizers (chicken manure, filter cake from sugar processing).
- Bio-fertilizers
- Biological controls (bio-pesticides)
- Alternative feed for animals, such as pasture, forage, and alternative grains.
- Planting resistant varieties and the beginning of the recovery of traditional crop varieties and traditional breeds of animals.
- Establishing the use of animal traction, and innovating alternative implements.
- Artisanal food conservation.
- Diversifying farms and production systems.
- Reclaiming the use of windmills and popularizing pumps driven by hydraulic power.

Source: Collective interviews with advocate/producers, facilitators, and coordinators of MACAC. Documentation workshop, Santa Clara, November 25th, 2008.

Production of bio-controls in CREE. Matanzas Province.

Taking on the challenge through input substitution

Cuba's effort to transform agriculture, during this first phase, focused on input substitution (Rosset, 2011). Bio-pesticides and bio-fertilizers were less harmful than imported agrochemicals, but also needed to be purchased off the farm.

If there is a criticism to be made, it is that import substitution does not build upon the strengths of agroecology, as it does not break with the logic of inputs and dependence. Even though the inputs were being developed domestically, dependence became clear when there was sporadic interruption in the production of biological media in the CREE centers, due to power outages or lack of media cultures, seeds, or other materials (Rosset and Moore, 1998).

The way to control pests was to use harmless bacteria and fungi, produced locally, even if it is off the farm, rather than using a highly toxic imported pesticide. Inasmuch, it is better to use a microbial bio-fertilizer than a chemical fertilizer. These alternative inputs decrease the degree of contamination, toxicity, and damage to humans and our ecosystems. They are not costly to produce. Nevertheless, they do not solve the structural problems within an agroecosystem, such as the lack of functional agro-biodiversity or organic matter. In other words, one may introduce input substitution while still preserving the logic of monocultures. It may look very similar to the model of the Green Revolution, lacking only the toxic inputs.

What is the ANAP?

Member assembly. Las Tunas province.

The National Assossication of Small Farmers of Cuba (ANAP) was founded on May 17th, 1961, on the second anniversary of the Agrarian Reform. It was a continuation of the tradition of struggle of the peasantry, and a result of the processes undertaken by the Cuban people two years earlier.

In the social sphere, the ANAP works to better education, and technical and professional training of peansants in rural areas. The results have been that most rural Cubans today have at least a 9th grade education, and rural areas have a qualified labor force of over 43,596 campesinos. This means 13 per cent of all cooperative members, or approximately 11 people per cooperative, are well educated.

ANAP's main achievements include:

- Development of an organic organizational structure that is able to overcome the isolation and fragmentation – and the resulting individualism – generated within the peasantry through centuries of exclusion.
- Representation of its members, so they may be assisted by the highest State bodies, as well as by other social organizations in all levels of government and politics within the country.
- Consolidating its grassroots structure. The organization covers all geographical areas, and its structure parallels the political administrative divisions of Cuba, to enable the representation and coordination of labor in various occasions.
- Improving the participation of peasants in the production of food and other crops of interest to the national economy.
- Maintaining the stability of it's membership for nearly 50 years, and moreover, doubling it during the last 20 years.

While these alternative inputs are effective, they are not as potent or have an immediately visible effect like the pesticides they aim to replace. Moreover, the strength of agroecological methods lies not in inputs, but rather in the approach of harnessing strong ecological interactions and synergies through truly integrated systems. The examples are many: intercropping may help rid a crop of one pest that is deterred by another plant it is planted near to, eliminating any need for biological or chemical insecticide. Similarly, high levels of naturally fixed nitrogen and phosphorous solubility in living soil, reduces the need for chemical or organic fertilizers.

TABLE 2.2
The strengths and weaknesses of various approaches in agriculture.

Aspect	Conventional Industrial Agriculture	Agroecology
Inputs	Very effective	Weak
Synergies	Absent	Very effective
Capability of recuperating degraded resources	Weak - Inputs mask deeper problems	Very effective

Restoring the full integration and proper functioning of agro-ecosystems takes time and knowledge. Input substitution has its place, as using one input in place of another is a good way to respond to emergency situations, as in Cuba with the collapse of trade and the resulting food crisis.

During the Special Period, import substitution gave the cubans time to re-think their productive structures and systems. The combination of tradition and modernity that the Cuban people possessed aided many Cuban families and the Revolution to survive the most difficult years, at the beginning of the Special Period. Though many people did not have enough to eat, all people still ate. Since mid-1995, the majority of Cubans have no longer had to face drastic reductions in basic food supply.

As highlighted in the following chapters, the Agroecology Movement would appear in later years, as would the need for agroecological integration.

Animal traction: back to the future?

The early years of the Special Period were marked by changes in the technologies of production. Perhaps one of the most notable changes was the widespread recovery of animal traction. Farmers were unable to maintain the excessive use of tractors and mechanization in agriculture. Cuba's agriculture had become some of the most mechanized of any country in Latin America. However, during the Special Period, food production had to be raised without reliance on tractors (Arcadio and Ponce, 2001). Thanks to state policies that never completely abandoned the peasantry, the peasantry had not abandoned using oxen to train ox-drivers.

Schools were founded so that campesinos, or *guajiros* as they are referred to in Cuba, could teach masses of peasants to use oxen to prepare and cultivate land. This, in effect, became a nation-wide effort to rescue a culture. In the year 1989, approximately 280,888 domesticated animals were put to work, including the more extensive use of horses in farming and in the transportation of products, supplies, and personnel.

The Research Institute of Agricultural Mechanization reoriented its research to the development of alternative tools for use in animal traction. An example was the developed of a new type of plow called the "multi-plow," used for plowing, digging rows, tilling, planting, and other tasks.

This work was coupled with farmer experimentation, which provided inventive solutions to various problems across the country. In fact, during this time Cuban peasants made necessity a virtue. The disadvantages of not being able to use a tractor became a strength as strong criticism of excessive mechanization and its negative impacts on sustainability emerged. A school of thought was formed that valued the benefits of animal traction (Arcadio and Ponce, 2001).

Back to the land

There was a combination of factors that aided people who looked to return to the land. Their incorporation into Cuban agriculture –or

Using alternative energy sources: hydraulic pump. Sancti Spiritus province.

reincorporation for those individuals and families with peasant roots– was facilitated by new state policies. Cuba went from a period of massive urbanization, to a more stable period, trending towards a net return to the field. This was a small change, but a real one.

The state began to mediate this process in 1994, by handing over land in usufruct to over 140 thousand families. This was mainly done to increase the production of food and other crops of economic importance, such as tobacco, coffee, and cocoa.

During the years of food shortages in Cuba, people living in rural areas ate better. The economic crisis affecting urban employment, coupled with high food prices and volatile crop yields, meant that even professionals in the city could raise their standard of living by becoming farmers. Importantly, the agroecological approach to agriculture has the effect of reducing the drudgery of farm work that is typical of the industrially grown monoculture. Agroecology tends to capture the mind and creativity of people. Thus farming became an interesting and well-paid job, and aided in the reintegration of peasant families, and incorporated young people who were interested and concerned by new prospects and better opportunities.

It was a time when the Cuban people raised their spirit of resistance to withstand shortages and difficulties and move on. The strengthening

of socialist values, sharing of problems and solutions through collective thinking were aspects that marked this period. As one can see, necessity brought about the use of more ecological practices. Later, it was society itself that discovered that these practices themselves were necessary, with or without a crisis. Social and environmental critiques against the Green Revolution and its impacts developed, and environmentalist values flourished. Important changes that strengthened the environmental policy of the Revolution were born during this time.

Facing the crisis: re-organizing production

With input substitution and the use of animal traction, Cuba survived one of the most difficult periods in its history as a country. Benefitting from a collective memory of how "our parents and grandparents produced before the Green Revolution," agricultural production among the peasant sector recovered much faster than among other sectors. Recovery was more complete and rapid among individual producers who belonged to the Credit and Service Cooperatives (CCSs), and was slower and less complete in the collectively farmed Agricultural Production Cooperatives (CPAs). Large state enterprises were least demonstrative of this trend.

Using oxen with plow invented campesino innovation. Los Velásquez Farm, Las Tunas province.

Veritable Gardens

Forget this program of tractors and fuel. Even if we had them in sufficient quantities, the fundamental concept is to plow with oxen. We are talking about small farms. A growing number of producers have done this with excellent results. I have visited some, and saw that the lands they've been working have turned into veritable gardens, where they take advantage of every inch of ground.

Excerpt from a speech delivered by President Raul Castro Ruz. Third Regular Session of the Seventh Legislature of the National Assembly of Popular Power, August 1, 2009.

The slow recovery of production among the CPAs and state enterprises may be attributed to issues with the organization and motivation of labor. In CPAs and state enterprises, workers were organized into teams that worked in a specific activity at the order of local managers. In return, they were paid according to their compliance with given work standards. Under these conditions, the workers could not experience the satisfaction of a good harvest as a result of their own work. This division of labor led to alienation or apathy, which in turn led to low labor productivity and, consequently, low crop yields (Rosset, 1997; Rosset and Benjamin 1994).

To increase productivity and facilitate faster recovery in the state farms and the CPAs, the state implemented a new concept called 'linking people to the land and to the final results'. This meant linking people to a specific area, and workers' income the results of their work, usually

measured by yields and profitability of the area to which the person was linked. Applying this concept, the ANAP introduced one of the CCSs' secrets of success into the CPA's. This was, the relationship between a person and the land, which is a method that has led to strengthening collective forms of work.

Meanwhile, the state sector, made up of large companies, was not able to take on this kind of technological change. Generally, under the new circumstances, their production lagged. Therefore, a process began at the end of the year 1993 which portioned off many of the state enterprises into smaller units to be owned by workers as Basic Units of Cooperative Production (UBPC). These are productive structures based on cooperative forms of operation, while the state retains ownership of usufruct land. Other means of production such as buildings, machinery, animals, irrigation equipment, and tools, became the property of the UBPCs (Martin, 2001).

The effects of the UBPC's has been variable, and is not in the scope of this book. Nonetheless, their creation may be taken as evidence of the necessity of small-scale land management and appropriate organization methods in order to achieve the highest level of sustainable production.

In 1995, ANAP decided to reinforce the CCSs by broadening their collective leadership. The ANAP provided them with management teams, tools, and full authority to provide services to their members. This involved a process of training of the CCS leaders. If increasing the impact of the CPAs meant applying the best aspect sof the CCS, then strengthening the CCS's entailed applying the best practices of the CPA's, such as greater management and administration capabilities and collective ownership of resources. The CCSs, once strengthened, increased their productivity, and membership grew consistently, due to the incorporation of families and new usufruct landowners. The CCS units thus became more stable, and were quicker to recover production even during the harsh conditions of the crisis.

Methodological resources for the technological transition

A mixture of traditional methods of agricultural extension and individual peasant initiative, characterized technological changes in Cuban agriculture during this period. A movement of scientists began, who aimed to promote the use of more ecologically sound

technologies, and there was a range of State action at the level of sectoral policy.

By 1997, some individual farmers already had highly integrated agro-ecological production systems. Yet the vast majority of agricultural producers were still in various intermediate points along a transition from Green Revolution practices to an unsystematic implementation of various elements of input substitution. ANAP felt the need to incorporate agroecology into the lives of more families. In order to overcome the methodological shortcomings and to meet new needs, the ANAP, which had discovered the Farmer-to-Farmer method in Central America, brought it to Cuba.

CHAPTER 3

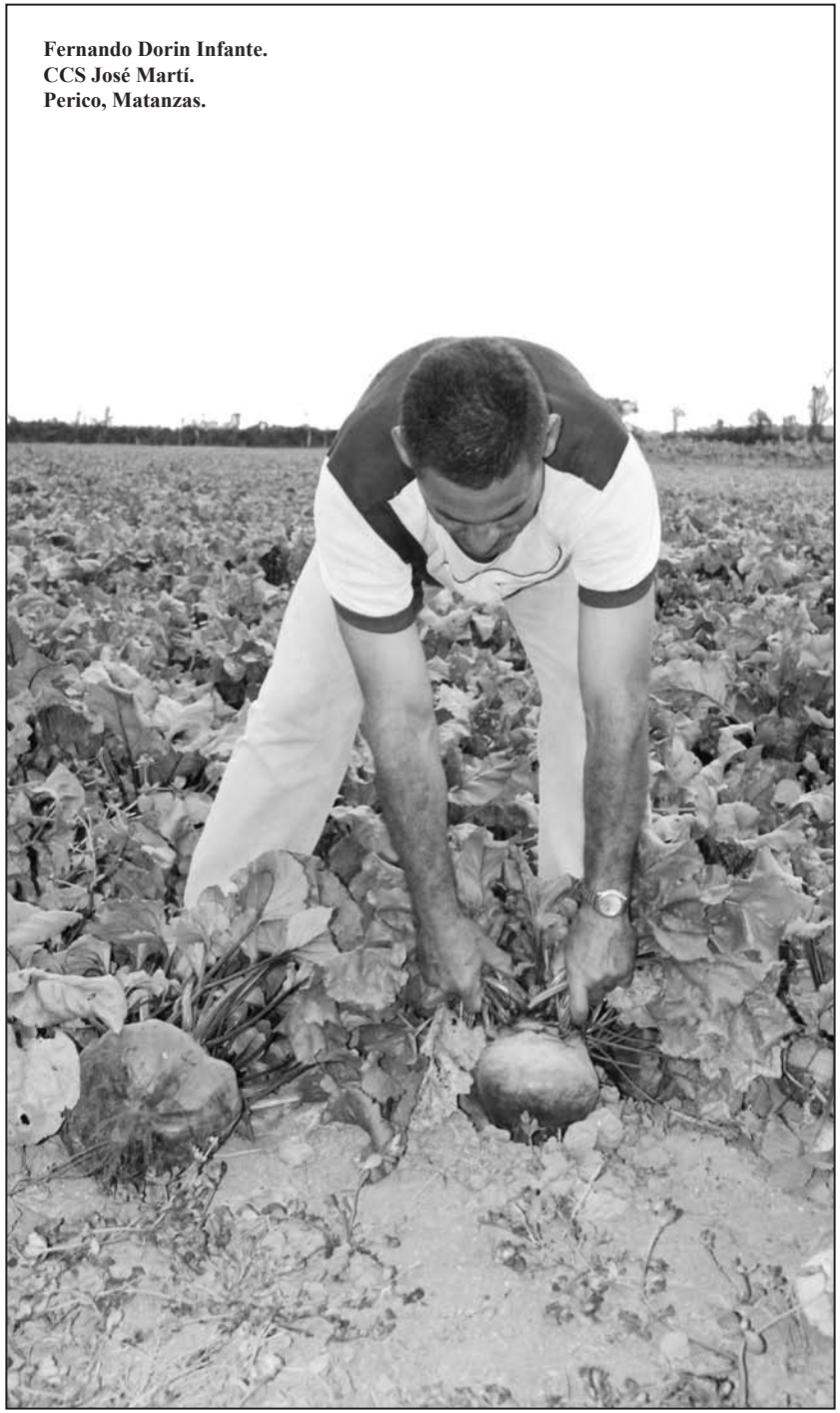
Launching Farmer-to-Farmer in Cuba (1997-2000)

• The arrival of Farmer-to-Farmer in Cuba • Methods of Horizontal Communication • Principles and activities

At the end of the previous period, it was evident that the only definitive way out of the food crisis in Cuba was through the practice of agro-ecology. Several of its elements had already, more or less, been put into practice. However, a methodology was needed to encourage widespread dissemination of these practices.

In countries around the world, as in Cuba, it has been noted that top-down, extensionist to rural farmer dissemination of information is limited by the number of extensionists and by the budget of institutions. This classic method of agricultural extension does not trigger any auto-catalytic response among rural farmers. The Farmer-to-Farmer method looks to diverge from these practices. In this methodology, the protagonist is the peasant or rural farmer, not the technical expert (Holt Gímenez, 2008). This is the most fundamental, though not the only, aspect that has aided the success of the method. As they say in the field, "the farmer trusts another farmer over a technician."

Farmer-to-Farmer or Campesino-to-Campesino (CAC) is a dynamic process, which moves at its own pace and reaches much further in less time than extension technicians have been able to. The method has more to do with social processes than with specific technologies.



Fernando Dorin Infante.
CCS José Martí.
Perico, Matanzas.

The truth is that there are many good agroecological methods that one may use to produce food. The problem is, that in most cases, the broad dissemination of these ideas and practices are limited by methodological weaknesses. This is a problem for which CAC has provided solutions.

CAC methodology was not invented in Cuba. Throughont the world, and indeed throughout history, peasant families have experimented with different methods of planting and production, and neighbors have shared the resulting knowledge. The Green Revolution was accompanied by brutal modernization, occurring vis-à-vis the dispossession and displacement of local and traditional knowledge. This created a rift between 'traditional' and 'modern' knowledge, and the virtual abandonment of many valuable knowledge systems. Fortunately, there have always been remnants of this knowledge held in collective memory, and it is on these remnants that CAC methods are built.

In Guatemala, Honduras and México, CAC was developed outside of the existing national peasant organizations. The breeding ground of this methodology was in the indigenous peasant community, and it settled in local community organizations. As a result, it rapidly spread among community-based organizations. However it could not reach beyond the limit of the community or municipality, because it lacked the organizational structures to do so.

In Nicaragua, however, CAC grew faster. In large part, this was due to the greater degree of organicity and mobilization of the peasant base that lingered as a product of the Sandanista Revolution. Another aiding factor was the extant national-level peasant organization, the National Union of Farmers and Cattlemen (UNAG) (Holt Gímenez, 2008; Rivas, Vasquez, Zeledon, & Espinoza, 2006).

Farmer-to-Farmer methodology was not introduced in Cuba until 1997. Nonetheless, its impact has been even greater than that felt in Nicaragua. Across Latin America, CAC has reached perhaps 30 thousand families over the last 30 years. In Cuba, however, over 100 thousand families have adopted CAC in only the last decade. As shown in this and subsequent chapters, reasons for why CAC has grown so quickly and to such a degree are complex, but certainly related to the high level of intentionality and urgency felt in Cuba when CAC was introduced. Also, in Cuba it was organized more systematically, and less extemporaneously. The ANAP also added additional methods to the 'toolbox' of Farmer-to-Farmer, and refined others.

The start of Farmer-to-Farmer

The ANAP's relations with campesino and indigenous organizations in México, Central America, and the Caribbean, as well as many fruitful exchanges with scholars of sustainable agriculture, and with international support, all facilitated the creation of a solid agroecological vision, while using a new methodology.

As mentioned above, this new perspective encouraged the ANAP to launch a Farmer-to-Farmer program, with funding from the German NGO *Bread for the World*, in the central province of Villa Clara. Its main purpose was build the human resources that were necessary to develop the program, by identifying key stakeholders, determine their functions, and train them in methodology.

Since 1999, it has spread through the rest of the country, with financial support from other organizations such as Oxfam and the French Catholic Center for Development (CCFD). Because of it's success and strength, the program has created the conditions for the founding of what two years later became the National Farmer-to-Farmer Movement.

Initial efforts focused on training, and creating teams that would facilitate further training and advocacy. These teams learned the essentials of the CAC methodology, and how to plan, monitor, and evaluate progress. These are the three initial fundamental stages of the methodology:

Table 3.1. Common agroecological practices during the 1997-2000 period

- *The transition from input substitution toward agroecology.*
- *Decentralization of farm production*
- *Rapid Rural Appraisal.*
- *Integration of crops and livestock.*
- *Organic fertilizers.*
- *Intercropping.*
- *Planting alternative feeds for livestock (Leucaena, King grass, etc.).*
- *Medicinal plants.*
- *Tree nurseries.*
- *Urban agriculture and organoponics.*

Source: Workshop with promoters, facilitators and coordinators of MACAC, Santa Clara, 25 November 2008.

Here to stay

I know that since 1993, some of the ANAP cooperatives began to have occasional exchanges between participants in the Mexican and Nicaraguan Farmer-to-Farmer programs, without having made any real commitments or follow-up.

Inter-provincial exchange at the launch of CAC. Provinces of Villa Clara, Cienfuegos, and Sancti Spiritus.

In the summer of 1995, Bairon Corrales and Marcial López, leaders of the National Association of Farmers and Cattlemen (UNAG) of Nicaragua visited the ANAP. They came to exchange their views with ANAP on the potential that the Farmer-to-Farmer program had to quickly achieve more sustainable agriculture. During the visit they urged us to accept an invitation to participate in the VI Encuentro Regional de Campesino a Campesino (6th Regional Farmer-to-Farmer Meeting), which was to be held in Honduras in November of 1995.

ANAP's management accepted the invitation and decided to send me to represent our Cuban peasant organization, and to become familiar with the experiences that were to be presented at the meeting.

On this date I left to attend the meeting, having planned transit through Nicaragua, where I would get a visa. Already in Managua, the Embassy of Honduras still had not granted me a visa. I couldn't get to the meeting, so I decided to send a letter explaining the situation and my interest and willingness to work in my country and learn from the experiences that were to be discussed at the meeting.

The representative of UNAG's Farmer-to-Farmer program read

- *Problematization: this stage is for diagnosing and assessing problems through participatory appraisal on farms.*
- *Testing: in this stage, participants test and adapt practices learned to the particular conditions of specific farms.*
- *Promotion and propagation of the practices: this is the final aim of the Farmer-to-Farmer program.*

The methodology of Farmer-to-Farmer in Cuba was to set up a system of methods, procedures, and techniques that facilitate the generation of processes of sharing and learning between peasants and their families, and between leaders, technicians, researchers, and other actors. The objective was to involve and engage interested stakeholders in transforming agriculture into an increasingly more sustainable model. And this was to be done through analysis and projections made at the very sites of production, in a much more participatory fashion.

ANAP had been working with the German organization, *Bread for the World*, in compiling the book '*Construyendo procesos de Campesino a Campesino'* ('Building Farmer-to-Farmer Processes') (Kohlmans, 2006). In dialogues and consultations with this organization, the methodology of Farmer-to-Farmer was defined as "a form of promotion and improvement of production systems, which places them in a position to achieve higher levels of sustainability, based on the principle that participation and empowerment of the actors themselves are intrinsic components of sustainable development, and therefore focuses on the initiatives and roles of peasants".

This methodology proved to be a simple tool, which managed to

Here to stay...

my letter at the meeting, and in an act of solidarity with our country, agreed to make Cuba the headquarters of the 7th Meeting, for which we immediately began preparations for the successful completion of the event.

The days I planned to be at the 6th meeting, I instead spent making a visit in Nicaragua, where there are many experiences to have, and chances to have meetings with facilitators, developers, and the technical team of UNAG. I had the chance to meet Enrique Kolmans, an adviser who worked on the Farmer-to-Farmer program in Nicaragua.

Finally, between the 18th and 23rd of November of 1996, the 7th Regional Farmer-to-Farmer Meeting was held at the Niceto Perez National Training Center in Guira de Melena, in the Province of Havana. Nearly 90 delegates from throughout Central America, México, and the Caribbean came to the meeting, as well as a good representation of Cuban farmers and cooperatives belonging to the ANAP and other stakeholders.

During the meeting, the ANAP was elected to the Monitoring and Liaison Committee of the Farmer-to-Farmer Movement, which would be a permanent body within the program that worked in various meetings. This meant that implicated the need for ANAP to participate in various exchange activities and help us campesinos learn more about the program.

The ANAP's Office of International Cooperation began to formulate a project during the meeting, which would set up a plan for implementing agroecology and the Farmer-to-Farmer methodology. The plan was completed in 1997, and then presented to and approved for funding by the NGO, Bread for the World.

It proved to be of great importance that apart from the need for financial resources, we foresaw the need for technical training in facilitation processes of introducing the Farmer-to-Farmer methodology. The project was initially planned to be developed in the province of Villa Clara, in central Cuba, with the plan to later extend it to the nearby provinces of Cienfuegos and Sancti Spiritus, which in turn would make further extension of the program viable.

In November of 1997, we convened the first workshop to prepare the team of facilitators, with future facilitators from several ANAP locations in various provinces. Enrique Kolmans, Jairo Restrepo and Marcial Lopez served as workshop facilitators.

This is how it began, more than a decade ago. An idea which at first seemed strange was later internalized, and now we share it with many compañeros. Today it has spread throughout the country. As we say in good Cuban talk: "it's here to stay".

Leonardo Chirino González
Member of the ANAP and founder of the Farmer-to-Farmer Program, ANAP-Cuba

stimulate horizontal transmission and socialization of knowledge and of good practices among rural farmers and peasants. In addition, the appropriate inclusion of technicians, researchers, and directors, under conditions of equal participation, let to knowledge dialogue with a deep sense of belonging and greater social commitment.

Horizontal communication vs. Classic extension

An *a priori* analysis could lead us to separate the links between the methods for dissemination of knowledge, and the technologies that correspond to one model of agriculture or another. Or one may downplay the importance of these links.

The conventional market-oriented and profit motivated model, based on recipes and technological packages designed for 'everyone everywhere,' and therefore oblivious to environmental sustainability, is consistent with vertical, linear methods. It dismisses local needs, cultural differences, and local knowledge.

However, the spread of a sustainable model that begins internally –from within families and communities– corresponds with participatory methods that take into account differing needs, cultural practices, and environmental conditions, through building commitment and fostering a sense of ownership among rural farmers. Success in using the Farmer-to-Farmer methodology is based on the discovery, recognition, development, and socialization of the wealth of knowledge that is held in farming households and communities. This knowledge is linked to specific historical conditions, and to their own specific identity. It shows greater concern for the social, economic, ecological, and cultural dimensions of rural labor.

In classic agricultural extension, the goal was to replace the knowledge of farmers with knowledge that, in the end, was comercial propaganda. Agricultural education and practice, then, became a kind of 'domestication'.

According to Paolo Freire (1973), true knowledge is developed in confrontation with the world. This is what happened during the days sharing experiences, holding meetings, visits, and other activities that were carried out as part of the CAC methodology. Communication among participants as equals allowed them to generate new knowledge, which would help inform actions that transform reality. The resulting social awareness was borne out of human interaction and action.

Stepping forward

CAC arrived when I was an instructor for ANAP, in the municipality of Ciego de Avila. At that time there were no municipal coordinators, so I performed the role of local facilitator for the new program.

My job was to have direct contact with and visit the productive bases of the CPA's and CCS's, so I decided to select a facilitator from each cooperative within the municipality. We then conducted a training workshop with them, which really enthused them, and by then end we had identified several people from each cooperative to be advocates.

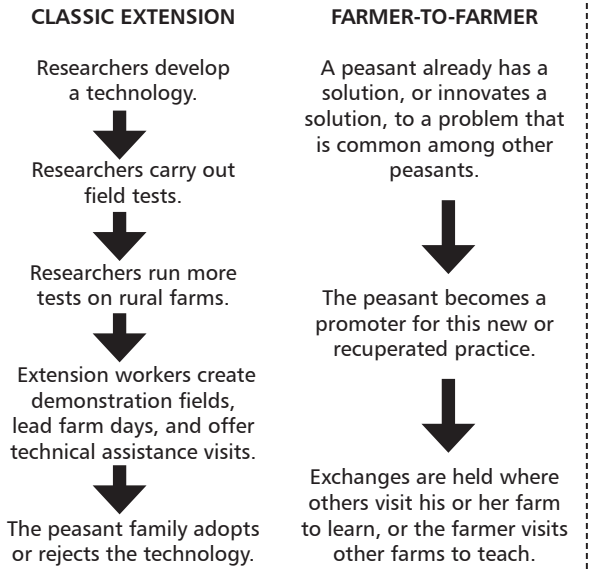
Exchange among advocates: learning by practical examples. Holguin province.

When I was speaking to them, they didn't understand very well, but then they stepped forward to take a position in this General Assembly, and present their own experiences. This had great results, because it wasn't just any member who was speaking to them, but a fellow promoter or producer.

Julio A. Infante Sánchez, facilitador
Municipio Ciego de Ávila

Figure 3.1 shows the fundamental differences between the methodology of classic agricultural extension, and that of the CAC. In the former, the protagonists of the process of generating and transferring technologies are the researchers, extension workers and technicians. The peasant or family farmer, or often the entire rural family, is a passive actor during almost the entire process. Only at the very end is the farmer allowed to act, when the time comes to adopt or reject the proposed technology. The peasant or rural farmer's capacity as an innovator is excluded entirely from the process.

FIGURE 3.1
Classic Agricultural Extension *versus* Farmer-to-Farmer



Many times enormous amounts of resources are invested to generate technologies that are never adopted. A timely intervention of rural farmers early in the process, however, would allow farmers to indicate whether proposed technology would be compatible with their reality. The methodology of CAC goes so far as to put the farmers in the leading role in this process, which makes it much more dynamic and efficient.

It should be noted here that CAC does not exclude technicians and researchers. Instead, extensionists should facilitate exchanges and communicate the results of research in trainings they provide for promoters. However, while this does not exclude them as participants, it does require of them a different mentality and different approaches, as they are no longer the ones who old the truth, but equal participants in collictevely creating knowledge, with defined roles.

The power of practice

And so it is that the graduates of technical colleges have no practical knowledge or methodology, and they are not working in communication with farmers. The CAC methodology has come to change all that. The farmer is reassured by this practice.

Parcipatory assessment. Villa Clara province.

Amaury Ramos, advocate
Jimaguayú, Camaguey province

Guiding principles of the Farmer-to-Farmer program

Establishing agroecological practices implies that technologies will change, and many new concepts will develop. Numerous experiences from within Farmer-to-Farmer have been consistent in demonstrating the necessity of program that integrates both social methodological elements, as well as technological ones. The development of the methodology of Farmer-to-Farmer in Cuba has been based on five principles:

1. **Start slow, and start small.** This principle allows for evaluation, reflection, and the rectification of errors. It diminishes the magnitude of risks. It also allows farmers both great participation, as well as time to manage their work on the farm. '*Visit me slowly, because I'm in a hurry'.*
2. **Limit the introduction of technologies.** It is not necessary, in agroecology, to introduce many new techniques all at one time. It

is more efficient to gain command of new innovations one by one, and stabilize and integrate them little by little. It is best to begin by introducing those techniques that have low initial investment needs, yet aim to resolve the biggest production issues. This way, new techniques are easier to implement and achieve quicker results. Later, one may continue introducing other more complex techniques. *One idea in the mind of a hundred is more valuable than a hundred ideas in the mind of one.*

3. **Attain quick and recognizable success.** Enthusiasm is a generator of new ideas, and success is the most effective motivator. This principle seeks to be the moral engine during development, recognizing the advances made by daily tasks. *The word may convince, but the example prevails.*
4. **Experiment on a small scale.** Experimentation is nothing more than testing, sharing, adapting, and adopting new techniques or solutions, based on needs. By this principle, the farmer becomes an active and innovative experimenter and the farm, his or her rich and permanent laboratory. The farmer can test which technologies may or may not work on the farm. This principle definitively separates us from the general recipes and technological packages that are designed to work for all people in all regions. *You have to crawl before you walk.*
5. **Develop a multiplier effect.** Sharing information between peasants about results and lessons learned is the only way by which one can achieve extension and growth of this new production system that has a real impact on the environment and favorable economic results. This way, farmers who become promoters or share their experiences, become more skilled in both production and communication. Teaching is the best way to learn a subject in depth, and much of this teach lies in creating a living example, and communicating from farmer to farmer. *For the farmer, seeing is believing.*

Principle activities of the Farmer-to-Farmer method

The participatory nature of the Farmer-to-Farmer methodology, and the traditions and customs of the members of the ANAP in the promotion of agroecology, are based on activities where different tools are used:

Farmer-to-Farmer's methodological tools

An exchange visit between farmers in MACAC. Havana Province.

These tools can be used in different activities, such as in exchanging experiences or in meetings, and for different purposes. They may motivate, encourage, or call for reflection. Using these tools makes it possible to develop the work of promoters in a stimulating environment, and promote greater understanding of issues and techniques.

The farm

This is the most basic tool used in experimentation. Demonstrating the results of each experiment, the farm offers great assurance.

The testimonials

The statements made by promoters or stories told by another campesino about the solution to a problem or how to succeed when beginning to farm organically. These stories have immeasurable educational value because of the strength of the word, and the honor of campesinos.

Farmer-to-Farmer's methodological tools...

Teaching demonstrations
This is a type of tool used to visually and practically demonstrate a practice that may be harmful or beneficial. The demonstration must always be accompanied by an explanation and discussion among those present.

Exhibition of products/seeds/materials/innovations
This tool is used during skill shares and meetings. Both visitors and hosts may enjoy presenting their products, seeds, materials, and innovations, and explain how they acquired or produced them, and discuss the outcome

Dynamics group
These are used to uplift the mood of the participants during meetings and workshops. They can also aid in developing understanding of the issues that participants face. The activities may be games, or other activities incorporating humor, but they must always ensure respect for the individual involved, and not alter the community's conventions and habits.

Songs and poetry
In spaces between meetings and workshops, songs and poetry may be useful to encourage participants to discuss issues, and introduce issues in enjoyable ways, while, above all, awaken and integrate the promotion process with spirituality, and the talent that the people of the community possess.

Skits
These theater performances are used to exhibit problematic situations and solutions, found through the practice of the CAC methodology and concepts, and through sustainable agriculture.

Other
There are other tools used, such as photographs, audiovisuals, maps, drawings, posters, and others – depending on availability and the site conditions where advocacy work is done.

Workshop. Province de Guantánamo.

A list of the most commonly used activities:

- ***Members Assembly:*** In the cooperative, the assembly of members is a systematic event that enables other activities during the process, such as methodological approaches and organizing advocacy. The facilitator is introduced to and approved by the assembly. They get to know farmers who have been identified as promoters, who then establish commitments and publicly recognize and encourage best practices. This activity is the practical expression of the feasibility of using ANAP's existing structures as the main platform for the advocacy of agro-ecological production.
- ***Workshops:*** These activities involve the participation of Farmer-to-Farmer stakeholders, and aim to socialize experiences and collectively build new knowledge. The content may be methodological (to train promoters, facilitators, and coordinators on Farmer-to-Farmer methodology), or technological, where members may exchange experiences and skills or the results of a practical experiment. Most technological workshops are given on the land of the promoter, who teaches the practices he or she has already successfully put to use.
- ***Rapid Participatory Diagnoses (DRP):*** These diagnostic activities reveal the problems on a farm that affect or limit

production. This activity aims to identify the main problem, discover its causes, and discern which remedies are available or may be generated on the farm to solve them. After explaining the problems, future action is determined, beginning with the broadest, least costly, and least risky action with the most rapid impact. This is referred to as the 'key technology.' The DRP is a fundamental and strategic activity within the methodology, because it awakens a critical and constructive sense of reality, encourages experimentation, and ultimately, stifles agricultural recipes and packaged technologies.

- ***Visit:*** Visits are a natural and common practice among farmers and campesinos. They occur both formally and informally, and serve as a way to learn the outcome of a particular activity. Advocacy for and organization of visits are of great importance for Farmer-to-Farmer participants.
- ***Exchanges:*** These consist of visits between farmers, promoters and cooperatives, where they learn about the practices, skills, experiences, and improvements made by other farmers and promoters. This aspect of stimulating and socializing knowledge is part of the process, as is the commitment to apply this knowledge in other farms.
- ***Meetings:*** Are held on the regional, municipal, provincial, and national level. They involve promoters, facilitators, coordinators, and other stakeholders and partners of CAC who have the common goal of practicing ecological agriculture. Meetings provide a space to publicize experiences and skills, organize joint action, and plot guidelines

Final thoughts on the initial stage of Farmer-to-Farmer

Using new methods and breaking the dominance of top-down hierarchies that characterize classic agricultural extension, was a challenge. However, in the end, the outcome of employing the Farmer-to-Farmer program has gone far beyond the simple application of new practices. It has helped to create and integrate new knowledge, and develop a new consciousness among the farmers and rural laborers.

This new vision is noted in a book about methodology that was published during the initial stages of the process:

The idea of finding solutions to acute resource scarcity should not weaken the strategic outlook for agroecology. This is not to establish a cyclical pattern of input substitution, by, for example, exchanging one chemical fertilizer for a biological media or botanical preparation. We aim to establish a sustainable model, by means of reproducing conditions, processes, and productive cycles that imitate those in nature. This way, we may be able to conserve natural resources, and harness, regenerate, and produce by and for ourselves resources that may be available or obtainable in each farm, while reducing the external dependence of each farmer, in every cooperative, and throughout the country. This is a strategic factor in ensuring our independence and securing the achievements we have already gained (B. Machín, 2001).

An army of producers

I hope that in very few years, this Movement turns into a great army of men and women who are working to feed the people.

Orlando Lugo Fonte
President of the ANAP

CHAPTER 4

The birth of a national movement (2000-2003)

• Political movement • ANAP's structure and importance in the National Farmer-to-Farmer Movement
• Five steps of the Farmer-to-Farmer Methodology
• A new role: the coordinator

During the year 2000, the success of the Farmer-to-Farmer (CAC) method in the provinces of Cienfuegos and Sancti Spiritus had become clear, while in the provinces of Holguin, Ciego de Avila, Matanzas, and Havana, it was off to a good start.

Due to dependence on external funding, growth was frustratingly slow particularly in the face of the national urgency surrounding the lack of imports and necessity of producing food. As Orlando Lugo Fonte, the president of the ANAP, has noted, "Cuba's economy couldn't wait, feeding the people couldn't wait, and food security couldn't wait".

Urgency is not patient, but impatience, in this case, brought good things.

The beginning of a national movement

In February of 2001, the First National Meeting of the Farmer-to-Farmer Agroecology Program was held. Almost 200 promoters, facilitators, and leaders of the ANAP participated, coming from eight provinces around the country. There, Lugo Fonte launched the idea that would prove to be crucial for the success of CAC in Cuba: that the promotion of agroecology must become a strategic *movement*.

The productive and organizational structures of ANAP

The ANAP functions and realizes its objectives through productive and social grassroots organizations. Its structures –in terms of forms of ownership, employment and income distribution– is built in two ways. One is as Farming Cooperatives, which are based on principles of collective work, and the second is Credit and Service Cooperatives, which are composed of farmers who own their own land and form unions in order to receive services and assistance in processing credit, agricultural insurance, and marketing.

The functions and powers of the cooperatives are recognized by Cooperative Law 95, which reads as follows:

- *The Agricultural Production Cooperative (CPA) is an economic entity that represents an advanced and efficient form of socialist production with its own legal status and cultural heritage, constituted by land and other possessions provided by campesinos in order to achieve sustainable agricultural production in a collective manner. CPAs farm collictevely.*
- *The Credit and Service Cooperative (CCS) is a voluntary association of individual farming families who own property or have usufruct of their land and other means of production and the production obtained. It is a form of agricultural cooperative that handles and facilitates technical, financial, and material assistance, which the state provides in order to increase production and help farmers market their products. It also has its own legal status and acts in accordance with its own cultural heritage. Each family has their own individual farm.*

In recent years, the ANAP has aided in strengthening the CCS's, providing them with the necessary equipment and personnel so they may increase their management capacity and thereby improve services and comprehensive attention for their members. These entities are called Strengthened Credit and Service Cooperatives (CCSF).

The highest governing body in these cooperatives is called the General Assembly. It is composed of all members, and usually meets once a month. The Assembly elects the Chairman and other members of the Board by direct secret ballot. They are in charge of the political, economic, and administrative, as well as social and cultural, aspects of cooperative organization.

Finally, this Board is works with an Administrative council, which is appointed to perform the duties associated with providing services, supplying inputs, marketing, and accounting.

The advance of our organization has to come from the movement of peasants promoting [agroecological] *production. We want a thousand promoters. Effectively, there are already one thousand promoters. But while we have those thousand, one thousand more farmers are aspiring to become promoters, and this is consistent among the* compañeros *who are entering the movement. And speaking of this movement: in a relatively short time, it can turn into thousands of men and women working towards this noble idea.*

From that meeting on, the directorate of ANAP established a mission, now called the Farmer-to-Farmer Agroecology Movement (MACAC). It was to be developed through the structure of the ANAP, as a way to preserve and transform Cuban peasant agriculture to a sustainable model.

Unlike the UNAG in Nicaragua, the ANAP took over the promotion and facilitation of the new movement, and of agroecology, as an organic duty of each level and structure and each member and functionary of the entire organization. ANAP's commitment was financial as well. In respect to this, Lugo Fonte said, "if we did not find external funding, the Agro-ecology Movement in Cuba would only have our own resources, and we have very little…We had no budget, conditions were terrible from the standpoint of economics and financing, and I told the

Minister of Agriculture, that you put some in and I'll put some in at the provincial level…[Today] all those facilitators and coordinators [of the Agroecology Movement] – we pay them."

Here it is crucial to understand the culture medium that the National Association of Small Farmers of Cuba (ANAP) offered. The organization was an incubator for a movement that eventually managed to permeate even the farthest corner of the island. The ANAP is the only organization of Cuban *campesino* families, making it possible to open the Farmer-to-Farmer process on a national scale. It was, and still is, an instrument of great educational influence, guiding and mobilizing farming families.

The historic mission of the organization was to focus on agricultural policy in support of the Revolution. At the same time, the ANAP also focused on promoting the participation and integration of the peasantry into the Cuban economy and society, from their social representation to their productive contribution.

It has been lead by principles of voluntary action and promoted from the grassroots. It was a long journey. The ANAP began with simple forms of cooperation and mutual assistance based on principles and structures of peasant associations. It later moved on to intermediate forms of cooperation, namely the Credit and Service Cooperatives (CCSS), and collective forms of production, such as the Agricultural Production Cooperatives (CPAs), which were based on the collectivization of

National Structure of the ANAP

The highest governing body of the ANAP is the National Congress, which elects a committee who in turn elect an Executive Board. They are both permanent governing bodies during the time between one congress and another. They are responsible for implementing and enforcing the guidelines, agreements, and decisions made. At the end of each term in office, they must report their activities to the bodies that elected them.

The levels below the Congress consist of the assemblies in each province, municipality, and grassroots organizations. Executive bodies in these organizations may vary in composition according to the needs of each territory.

In order to coordinate a wide range of duties, the Executive Boards distribute work into different branches, as follows:

The presidency. Besides holding the top position of leadership and representation, the president directly addresses international cooperation and the Agro-ecology Movement.

The vice-presidency. He or she is responsible for temporarily filling in for the president, and also manages the legal and economic affairs of the movement, as well as the development of communications.

Organizational and administrative branch. Manages member registration, internal functioning, membership policies, women and gender strategy, and the coordination and implementation of actions with other mass organizations. At the same time, they are responsible for the internal administration of the financial and material resources of the organization.

Education and political and ideological work branch. Supports rural education and health programs developed by corresponding ministries and government institutions. They also address social problems, recreation, and the restoration and preservation of campesino culture. Also, this branch performs functions related to historical preservation of culture, dissemination of ideas through mass media, and the training of new members of the organization.

Agri-food branch. This branch is responsible, together with the Ministeries of Agriculture and the Sugar Ministry, to attend to production programs and to scientific and technological development.

land, the means of production, labor, and the equal distribution of the produced goods and services.

The ANAP's profound ideological work has rendered tangible fruits in the consciousness of each campesino. Their perception of the world goes far beyond their own plot, to a higher sense of social responsibility: feeding the people and protecting the environment. By organizing the ANAP, Cuban peasant families have developed attitudes and values of cooperation, collectivism, solidarity, and internationalism, which are basic to Cuban society.

By the start of the new millennium, the ANAP had already achieved a high degree of integration and harmony at the grassroots levels. It was unmatched in its well-developed structure, with assemblies and boards, and cooperatives, municipal and provincial bureaus, and a growing membership –from the peasant population– all educated and politicized, with socialist values and environmental expertise.

Furthermore, the cadre within the organization already have experience in promoting and conducting other movements and organizing people, such as the Phytosanitary Movement in the 1980's. This is to say, there was already a working methodology for grassroots organization within the ANAP.

With so many favorable conditions, it was clear that the ANAP was ready to launch and coordinate the Farmer-to-Farmer program as a powerful national movement. In April 2001, the National Bureau of the ANAP approved new elements to the strategic plans of MACAC:

1. *Continue using the Farmer-to-Farmer methodology and the development of the training process, in order to raise the awareness and conscience of all stakeholders to the necessity of agroecology.*
2. *Retain all positive aspects of the traditional peasant culture of production. In addition, properly implement and reproduce the achievements of Cuban science in sustainability and environmental stewardship.*
3. *Make sure that all different levels of the ANAP work fully and effectively together, and with the cooperation of ministries, agencies and institutions, to support and mobilize the organization.*

Why is it a political movement?

A coordinator with promoters, during a MACAC activity, Villa Clara province.

Lugo Fonte has spoken many times of MACAC as a political movement, because the transformation goes beyond that of production. It is also a mass movement, adds Orlando Peñate, the vice president of the ANAP, because it incorporates the country's entire peasantry. He asserts:

It is political, as well, because it contains economic, social, and ethical principles that are required to fulfill the number one patriotic duty of rural farmers, which is to produce for the people. And that task is so important, so decisive, that it cannot be divorced from the grassroots structure, both municipal and national, of the ANAP. The grassroots should be part of the regular analyses we do in our assemblies and board meetings, despite the fact that some cooperatives, because of their economic development and results, are able to send a compañero who is responsible for this task.

4. *Monitor the progress, scope, and contributions of the Farmer-to-Farmer program by systematically measuring the results and impacts of improvements in productivity.*

'Niceto Perez' National Farmer Training School

The Agroecology department of the ANAP's 'Niceto Perez' National Farmer Training School (CNC) was created in November of 1996. This was after the celebration of the Seventh Regional Farmer-to-Farmer Meeting, which took place in Cuba, and just a few months before beginning the new project in the province of Villa Clara. Teachers were supportive during this initial phase, conducting methodological and technological workshops.

As it has been demonstrated in other chapters of this book, both members and leaders of the ANAP embraced Farmer-to-Farmer methodology from the very beginning. As a result, it was the concerns of their students that let the National Training Center to include the subject of Agroecology and Sustainable Agriculture in class schedules.

Another example linking this school with Farmer-to-Farmer was the First Seminar in Agroecology and Sustainable Agriculture, organized with the Directorate of Farmer-to-Farmer, the Agrarian University of Havana, and the Department of Agroecology of the school. This seminar, held full-time in 1999 at the CNC, trained facilitators and coordinaters of the Farmer-to-Farmer programs of various provinces. This seminar was held three more times as a correspondence course, once in the province of Havana and twice in Sancti Spiritus. These courses trained 109 members linked with Farmer-to-Farmer in various ways.

It should also be noted that in the Environmental Policy courses, which all leaders of ANAP take at the school, agroecology and Farmer-to-Farmer methodology are taught alongside environmental legislation and issues about the environment. This facilitates better understanding, and contributes to spreading the agroecological program.

Because of their proximity, the school has collaborated with the MACAC directors in Havana by training their team of local coordinators, supporting technology workshops in different areas, and creating a resource library.

In February of 2009, the school taught a workshop to the provincial coordinators of all municipalities. Based on this experience, they decided to design a new training course to add to the various member-training courses that already existed at the school. This course aimed to comprehensively train new actors in MACAC. After designing the course, it was approved by the National Bureau of the MACAC, and was to be included in the course schedule of CNC from May of 2010.

In addition to this significant work in on the national level, the 'Niceto Perez' National Training School has contributing to training farmers and agrarian leaders in other neighboring countries in Latin America and the Caribbean, in a show of solidarity. They have provided theoretical and practical courses on the sustainability of peasant agriculture, which includes the Farmer-to-Farmer methodology, and visit from various promoters of agroecology.

Leveraging the structure of the ANAP

The leap that ANAP took from being a program to becoming a movement, which was essentially political, had three key components. First, the ANAP realized the importance of stepping forward, transforming from a

ANAP National Training School, Havana Province.

technically based experience into a social process. Utilizing the structure of the national organization, the ANAP made this transformation through political education, training, and the organization of campesinos at the grassroots. The second component was the expansion of this social process, starting with the local resources and contexts, both at the farm and in organization structures. The third and final component was the continued experimentation at the farm level, which had already become the foundation for the skill sharing and training between producers, and for guaranteeing food production.

The process of expanding the movement into the provinces of Holguín, Ciego de Avila, Matanzas, and Havana was similar to the process in Cienfuegos and Sancti Spiritus provinces in the period between 1997 and 2000, during the implementation of Farmer-to-Farmer methodology. Training and the proliferation of agroecological practices were developed through the recovery and re-valuation of practices that already existed, and the best practices for campesino farming, which had already had time to develop in the Cienfuegos and Sancti Spiritus, were shared and socialized.

The mass character

To 'massify' is to put into action all methods in all possible ways in the aim of promoting or spreading any one task. It involves bringing agro-ecological practices to campesinos, adovocates, through workshops, seminars, or in conversations on farms. Make practice a learning experience. Do it in schools, with children in the neighborhood, with the community, and they will bring the words of the campesino or the campesina closer … that we need to make a huge movement, regionally, municipally, nationally. Techniques should be consolidated in an organized manner; this will demonstrate that there is something good to teach others; until no knowledge is kept to ourselves, because we can all learn and teach, according to our abilities.

Individual reflection
Granma Workshop

TABLE 4.1
Agroecological practices on the rise during this period 2000-2003

- Green manures.
- Contour planting.
- Planting in terraces.
- Organic pest control preparations.
- Diminishing the use of off-farm biological means.
- Increasing bio-diversity.
- Development of tree nurseries.
- Diversification of fruit trees.
- Diversification of sugar cane plantations.
- Increased use of the neem tree.
- Increased use of alternative sources of energy.

Source: Group interview with promoters, facilitators, and coordinators of MACAC. Documentation Workshop, Santa Clara. November 25th, 2008.

One of the ANAP's most notable initiatives is the creation and operation of Movement working groups within the municipalities, provinces, and the National Directorate. These working groups are established to organize and coordinate the Agro-ecological Movement from within the structure and agencies of ANAP. They are composed of leaders of focal peasant organizations, and coordinators, facilitators and promoters, representing all levels of the organizational structure of the Movement. Also, other organizations interested in the topic of agroecology are invited to participate by coordinators. The meetings, coordinated by the president of the ANAP, occur at various intervals established by their respective groups.

Furthermore, through joint programs the national management group organized training sessions and workshops in new provinces. One of the key spaces used for training members in the discussions around agroecology and Farmer-to-Farmer methodology was the 'Niceto Perez' National Farmer Training School. This training helped raise knowledge

and awareness of the leaders of ANAP and of those who make decisions during exchanges. This has created a sense of identification with the methodology and the agroecology movement, strengthening it and creating the conditions for progress.

Within the cooperatives, the dynamics of training are developed in workshops and exchanges, organized by facilitators and executed by promoters, and held with groups of farmers who were in essence already working together, due to affinity or geographical closeness. During this period, some cooperatives made progress by creating a workshop program. But in other areas, it was preferable to develop training through informal exchanges.

It was at this time that the *Five steps of Farmer-to-Farmer methodology* (see the box) were introduced to Cuba. This added a new player into the method: in addition to the promoter and facilitator who were already part of CAC since it began in Central America, the coordinator joined the team.

The appearance of this figure was one of the key elements that allowed for faster geographic spread of the movement than in other countries. Currently, the coordinator helps carry out exchanges with distant groups, and to streamline and manage the training, where it may be more effective. With Cuban innovation in this period, the team of principle actors within MACAC included:

- **Campesinos:** Together they make up the target group of the Movement. They are gradually attracted voluntarily through the methods of CAC, and are further encouraged by the various degrees of agroecological practices they have implemented on their farms.
- **Promoter:** He or she is the basic actor – a farmer from a cooperative with good productive results that come from agro-ecological practices. The promoter is not paid for his or her work. They identify other participants by their willingness to stand by their interests and commitments, and their love of service to the community, and to nature and the environment. The training of an promoter is complete when he or she is equipped with methodological elements, particularly with the ability do agroecological advocacy through popular education.

Five steps of Farmer-to-Farmer Methodology

One experience that led to the promotion of ecological agriculture was the establishment of a system of steps that organized training process of coordinators, facilitators, and advocacy. This system was adopted and adapted to the conditions in Cuba, by the Program of Exchange, Dialogue, and Assessment in Sustainable Agriculture and Food Security (PIDAASSA), with the help of the NGO 'Bread for the World' and the ANAP. The steps are seen out vis-à-vis workshops, as follows below:

1. ***Starting on the participatory.*** Commencing with methodology in the farms with rapid assessments of key problems, this workshop quickly establishes priorities and identifies the improvements that could be key to initiate change.
2. ***Sharing experiences.*** Knowledge is shared between a group of farmers and a promoter who is likely to have solutions to the problems of the former, by having tested them on his or her farm. Those farmers experiencing a certain problem begin a small-scale experiment, to test whether the technique also works on his or her farm. They note the achievements and then make commitments. It is important to maintain a reciprocal relationship, and continue with follow-up after this exchange.
3. ***Methodological tools.*** Training for facilitators and advocates is the main focus of this workshop. Knowledge of methodological tools will allow their use in various activities, such as workshops, exchanges, training session, and/or farm visits with various other farmers.
4. ***Workshop on agroecological techniques.*** In addition to the key techniques found during the first workshop, other techniques must be tested to ensure that they work and are successful, so farmers may adopt a broader spectrum of techniques. There are some advocates who are encouraged to experiment and innovate on their own.
5. ***Meeting for general reinforcement.*** A review of the whole process is made, in order to analyze achievements and difficulties, and to outline new priorities.

All these steps are aiming towards gender equality, sustainable agriculture, and food security.

- **Facilitator:** This is a person of the cooperative and/or contracted by the cooperative, who is selected according to their abilities, such as communication skills and time available for work. In the Cuban context, the facilitator works under the farmer leadership of the cooperative to facilitate the process of promoting and multiplying ecological agriculture practices using the principles, activities, and methology of the Farmer-to-Farmer program. Many facilitators work voluntarily and some are paid by their cooperative.
- **Coordinator:** Is a cadre of the campesino organization, ANAP. He or she must have technical skills and be trained to assist the ANAP directors in forming the working groups of MACAC in various municipalities, provinces and in the national authority, in response to the needs of the Movement that demand attention, so that it may continue functioning. They are paid by ANAP.

A brief summary of progress in this period

Since 2001, the progress made in implementing agroecology enabled the leaders of ANAP to adopt new resolutions. This, in turn, initiated a new stage in development. At the same time, they were able to consider other methodological and organization components.

The following list is a synthesis the organizational components, which allowed the ANAP to advance this period.

1. Above all, the decision was made to become a movement.
2. The good results in the provinces which began this process of transformation, and its gradual extension to other territories, and even throughout the whole country.
3. The development of a national strategy for promoting and implementing agroecological practices.
4. The integration of agroecological work in the structure of ANAP. This led to the creation and development of groups at the municipal, provincial, and national level.
5. The creation of a new player in the movement: the coordinator, who is in charge of coordinating the work of various groups and addresses the multiplicity of functions and content within the Movement and its work. This decision allowed for the selection and location of coordinators in each province, and then later one

TABLE 4.1
Further explains, in detail, the functions of promoters, facilitators, and coordinators.

PROMOTER

FUNCTION	• Participate in technical and methodological training using Farmer-to-Farmer methodology. • Experiment with agroecological practices in one's own farm and use the results as methodological tools. • Share knowledge and resources. • Share one's own experiences.
QUALITIES	• Have an attitude open to creating, developing, and adopting new techniques. • Be a productive leader, who experiments on their farm and teaches by example. • Arrange for the sharing of experiences. • Be enterprising, and promote this quality among other rural farmers.
STRENGTHS	• Has the capacity to mobilize, which is aided by the ANAP. • Technical and institutional support. • Has guaranteed land. • Freedom in decision-making.
LIMITATIONS	• Influences of conventional agriculture. • Produce grown agroecologically is not differeniated in the market from products grown under conventional methods.
CHALLENGES	• Achieve social recognition as the community advocate for agroecological products.

FACILITATOR

FUNCTION	• Plan training sessions according to needs. • Efficiently plan workshops. • Promote the integration of schools, farms, and cooperatives, during training activities. • Follow the agroecological work of the CPA's, the CCS's, the rural farmers and their families.
QUALITIES	• Be open to dialogue. • Develop and incentivize relationships of equality between farmers, both male and female. Treat everyone equally, regardless of gender or circumstances. • Possess the talent and attitude to complete job functions. • Develop labor relations so that the promoters play an active roll in the process.
STRENGTHS	• Has the support of the administration of the cooperatives. • Is supported by the Movement Forum for Science and Technology. • Proximity and technical support from research institutes and organizations. • Works in teams.
LIMITATIONS	• Assume other duties and relegate those corresponding to MACAC. • Some members don't give priority to agro-ecology. • Some means of training and exchange are lacking.
CHALLENGES	• Turn all farms in the cooperatives into sites of agroecology.

COORDINATOR

FUNCTION	• Develop plans for activities and training. • Coordinate and facilitate actions to implement strategies, especially those related to the training of both internal and external stakeholders, and to the promotion of agroecological practices. • Coordinate the tasks of the Agroecology Movement inside the structure of ANAP. • Address the administration of ANAP regarding the tasks related to the Agroecology Movement. • Coordinate the activities planned by the municipality, which should be developed in the CPA's and CCS's • Offer methodological training to promoters and facilitators. • Search out and organize logistical support • Coordinate the participation of stakeholders in the Movement's activities. • Coordinate the participation of the press in the dissemination of the Movement. • Coordinate exchanges between cooperatives.
QUALITIES	• Have an adequate technical level. • Have a vocation for agroecology. • Must be a good communicator.
STRENGTHS	• Is supported by the structure of the ANAP. • Is linked with allied organizations. • Receives training. • Participates in working groups.

COORDINATOR

LIMITATIONS	• Restricted mobility as a coordinator. • The resistance of some decision makers. • Insufficient educational materials or libraries.
CHALLENGES	• To continue training new decision-makers, facilitators, and promoters, as well as allied organizations. • Broaden spaces for debate with agricultural or related organizations. • Strengthen the links with allied organizations to achieve more synergy and cooperation in resource-sharing. • Improve the quality of how information about the movement and best practices is disseminated.

Source: Group workshop about stakeholders and methodology, with facilitators and coordinators of MACAC. Development Workshop, Havana City, November 27th, 2008.

for each of the 154 municipalities in the country, as the process unfolded.

6. The support of provinces which had more experience initiating the process of transformation.
7. The five steps for implementing agroecology. These correspond to the gradual progress of the process, and the different levels of response in various regions, or from one cooperative to another.
8. The publication of newsletters and using various means of communication, both local and national.
9. Strengthening alliances. Working agreements were made together with various ministries (MINAG: The Ministry of Agriculture, MINAZ: The Ministry of Sugar, CITMA: The Ministry Science, Technology and the Environment), and with universities, and research and other institutions.
10. International cooperation with non-governmental organizations, such as Oxfam, the French Catholic Center, and 'Bread for the World,' which provided for both financial resources, and a whole range of advisory services, exchanges, and documentation assistance.
11. The Forum of Science and Technology, promoted from all government levels. This led to the extension of the experiences and work of the Movement.

Exhibition of locally-produced materials. Villa Clara Province.

Conclusions of this period

This period was a watershed for the Farmer-to-Farmer program in Cuba. Without the afore-mentioned structure, the program would have grown slowly and been limited. But the crisis in Cuba could not allow for slow growth. ANAP had decided to cut its dependence, unleash the reigns of Farmer-to-Farmer, and turn it into a grassroots movement of

the campesinos already part of the organization. This decision marked a turning point, and the Farmer-to-Farmer Agroecology Movement (MACAC) grew rapidly in every corner of the country. This was the biggest difference between the experience in Central American versus that in Cuba, where the program grew larger and faster.

There were also crucial advantages offered by the ANAP, which acted as an incubator for the mass movement. It was highly organized at the grassroots, with many members, and highly developed ideology. When the ANAP took on the Movement as an organic task, which was largely funded with its own resources, its entire structure was working towards the same end.

During this period, the adoption of the five methodological steps, imported from Central America, were important to the Movement. Added to this, were Cuban innovations, such as the coordinator's post.

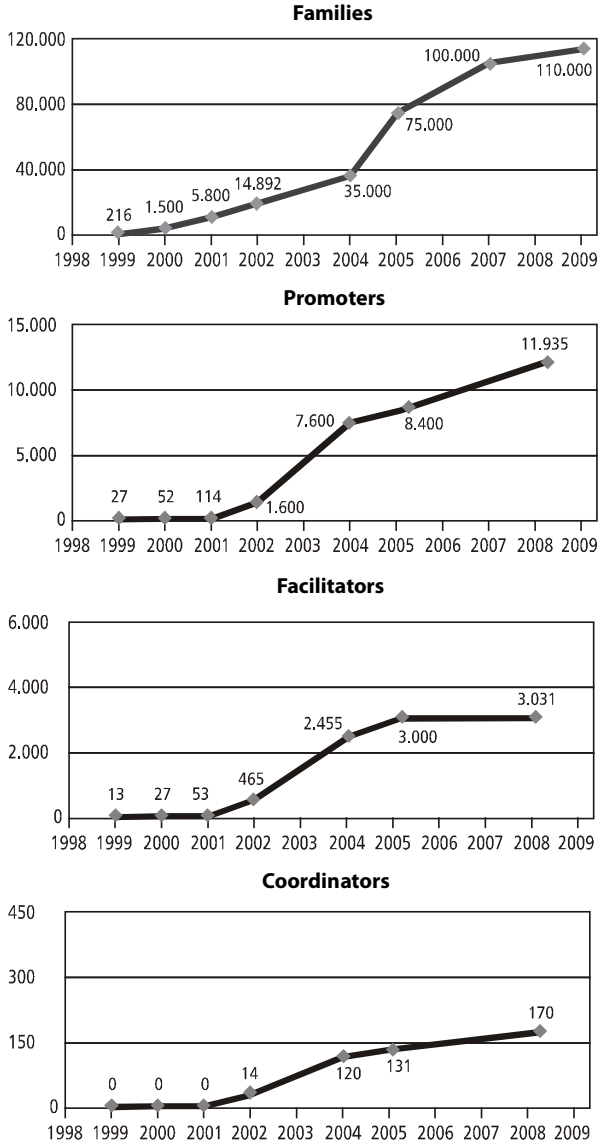
CHAPTER 5

Between Hurricanes and World Crises: The Movement Today (2004-2009)

• The Movement grows • Methodological innovations: the Banes method and farm classification • Advances in the CPAs • Resilience of agroecological farms to hurricanes • Campesino creativity • Education and training

The Farmer-to-Farmer Agroecology Movement (MACAC) began to grow at a much faster pace from 2004 onwards. In that time, it managed to consolidate several elements: the degree of agroecological integration observed at the farm level, developments of methodology related to social processes, the production and reduced use of pesticides, and strengthening of alliances with other social actors within Cuba.

In Figure 5.1 we can see that the number of families fully incorporated into MACAC reached 110,000 during that period. The number of campesino promoters increased from 1,600 in 2002, to 11,935 in 2008. Also, the number of facilitators rose from less than 500 to more than 3,000, and coordinators from 14 to 170, in that same time period. It is often argued that the advances in agroecology that Cuba has achieved are mainly due to the necessity that came out of the Special Period. However, as noted, the majority of people joined MACAC during the years of economic improvement, which is evidence of the dynamism of



Source: Compendium of Information on the Agroecology Movement, ANAP

FIGURE 5.1
Growth in the number of campesino families, promoters, facilitators, and coordinators from 1998 to 2008 in the Famer-to-Farmer Movement. Note that the scales vary.

the Movement and the persuasive power of agroecology.

The dissemination and adoption of agroecological practices, and thus the influence of MACAC, reach beyond the farms of families that belong to the movement. Figure 5.2 shows that different agroecological practices have been implemented in 46% to 72% of rural areas, and between 38% and 91% of all peasant farms across the country. Just over a third of these farms belong to MACAC members, but the influence of MACAC reaches much further. It extends through debates held during assemblies in cooperatives, in workshops, and in the media. But also, through the simple, informal emulation of one farmer of another.

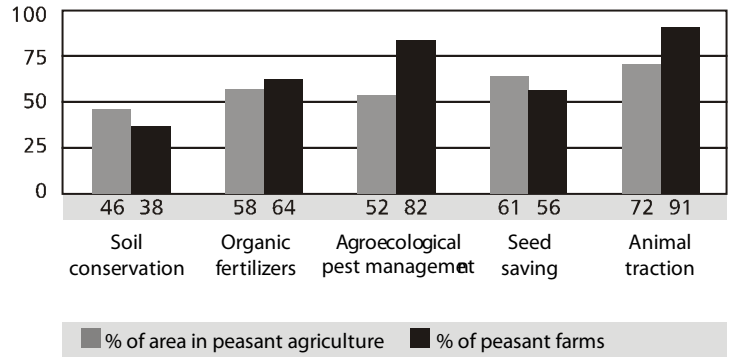


FIGURE 5.2
Percentage of the total area of peasant agriculture, and number of peasant farms, in Cuba, which use certain agroecological practices.

Source: Statistics of Departments of Organization and Agro-foods, ANAP

Furthermore, through the period of crisis in Cuba (since 1989), the relative contribution of the rural sector to the total national production of food has been increasing, as seen in Figure 5.3. This contribution is not only explained by an increase in acreage farmed, but also by their productivity. Moreover, it is not only greater in relative terms, compared to other forms of land tenancy in Cuba, but also in terms of absolute increase in quantity produced, as shown in Figure 5.4.

FIGURE 5.3
Percentage of the contribution of peasant agriculture to total domestic production in various categories, and proportion of the national agricultural area under peasant agriculture in 1989 and 2008.

Source: Statistics of Departments of Organization and Agro-foods, ANAP

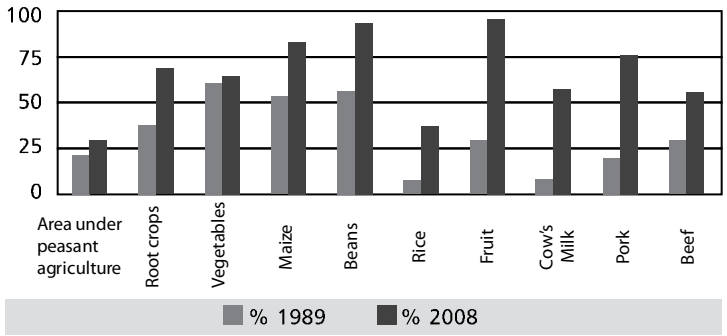
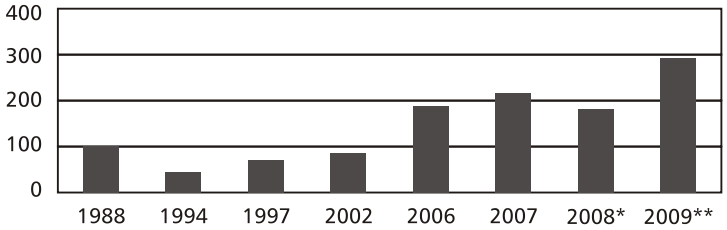


FIGURE 5.4
Percentage of growth in marketed peasant production (1988 is taken as the base level of 100%)



**** Production in 2008 was drastically affected by hurricanes.***
***** Data for 2009 are based on projections of the Planting Plan. However, at the date of publication, the deliveries were already above those noted in the Plan, therefore the figure is conservative.***

Source: Statistics of Departments of Organization and Agro-foods, ANAP.

Figure 5.4 shows the percentage of growth in peasant production during the last two decades, during which it has undergone profound changes towards ecological agriculture. Below, we highlight certain years in which the stages and impacts were critical.

1988. *Record production during the conventional agriculture stage*
1994. *Decreased production as a result of abrupt scarcity of conventional inputs: vulnerability of the Green Revolution.*
1997. *Input substitution stage: implementation of alternative agriculture begins on some territories.*
2002. *National movement for agroecological transformation spreads across the country: moving beyond the input substitution stage.*
2006 and 2007. *Agroecology advances under normal conditions.*
2008. *Cuba was hit by three hurricanes, but peasant agriculture showed signs of resilience. Production fell by only 13%, compared with the previous year.*
2009. *The peasant sector reported exceptional productive growth beyond the level in the National Planting Plan.*

There should be no doubt that the strong performance of the peasant sector is due largely to the success of agroecology, as their productivity significantly exceeds that of less agroecological sectors. The resulting benefits of agroecology, are demonstrated in data showing improving yields, while at the same time reducing the need for toxic, imported inputs, as Figure 5.5 demonstrates.

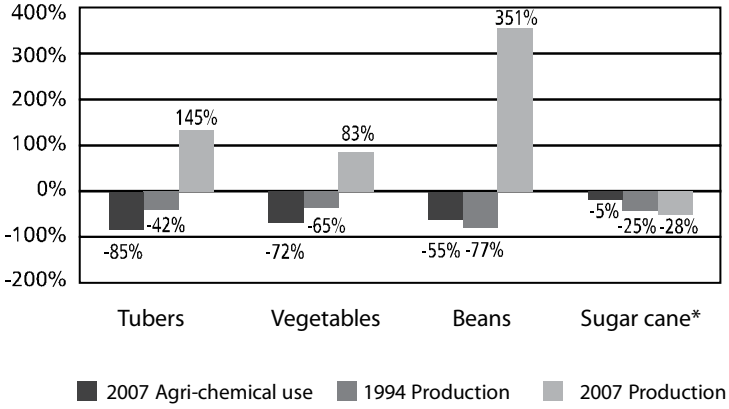
Figure 5.5 shows:

- Current reduction in agri-chemical use compared to doses applied in 1988, the peak production year of the Green Revolution in Cuba.
- Falling production (1994 was a critical year) as a result of abrupt decrease in conventional inputs, which exposed the vulnerability of the conventional Green Revolution systems.
- The recovery of production obtained as a results of the implementation of agroecology in agriculture.
- How sugarcane, of which the production has essentially been

maintained under Green Revolution principles, has a contrary tendency and diminished yields.

It is worth mentioning that the downward trend in the use of agrochemicals has continued in the sector even in recent years, despite their increased availability in Cuba, through agreements with Venezuela. The peasant sector is the one that has not returned to the use of agro-chemicals, yet has the largest increase in productivity. Not surprisingly, it has not been as vulnerable to fluctuations in availability of inputs, which are related to fluctuations in the price of oil.

FIGURE 5.5
Change in the use of agri-chemicals, compared to 1988, in the production of some food crops and in sugarcane yield, in 1994 and 2007.



**** Yield, not production, in the case of sugarcane.***

Data from the Agri-food and Organizational departments of the ANAP.

Diverse agroecological practices.

This is a strong example of how the Agroecology Movement has become a the engine of the peasant sector; a sector which has strived to feed the country and their own communities during a crisis that lasted more than a decade. It has done so without relying on external technologies, which has been vital in a country facing a blockade. In Cuba the peasant sector swims against the current, and in the face of worldwide crises, rises with positive results.

Spreading experiences in order to advance more quickly: the Banes method

The leaders of ANAP, spurred by the need to achieve productive and environmental impacts as quickly and comprehensively as possible, carried out a critical analysis. They identified various limitations and requirements:

- The need to implement agroecological practices even faster.

The Banes Method

How to carry out the process:
1. Do inventory of agroecological practices in the cooperatives during the General Member's Assembly.
2. Identify productive leaders with the goal of training new promoters.
3. Determine the number of farms present, for rapid appraisal, and group them according to the similarity of their current challenges.

Procedure for the inventory of agroecological practices in cooperatives:
• On a flip chart, list agroecological practices and number them.
• Each producer is given a pencil and paper, on which they should write their full name.
• The facilitator or municipal coordinators then explains the procedure.
• Each farmer must write down the agroecological practices he or she performs and the unresolved problems he or she steal has. Each practice and problem is then explained and discussed among the participants, until the list is complete.
• At the end, the papers are collected and a statistical analysis is performed.

After completing the inventory, three fundamental steps are taken:
1. A facilitator or agroecological activist from each cooperative is identified, and given the tasks of promoting and facilitating meetings between promoters and farmers, and holding workshops and strengthening training practices.
2. Campesino leaders in all grassroots organizations are identified. As trained promoters, they will constitute the core of the exchange processes, advocacy, and training.
3.Training plans that are based on strongest needs and plans of implementation and dissemination of agroecological practices will be developed and implemented.
4. Each grassroots organization will create a record to monitor all indicators of production and other results of the Movement. This will help groups:
+ Review and monitor agroecological practices
+ Monitor the statistics related to agroecological production
+ Review and monitor the training and promotional activities that are carried out with promoters and campesinos.

Group activity during the National Workshop on the Banes Method, Holguin province.

- The multiplier effect of newly introduced practices did not meet its potential.
- The process of detecting productive leaders and, later, their training and transformation into promoters, was relatively slow.
- High dependence on facilitators.
- Little use of the assemblies and of other methods traditionally employed by ANAP.

This analysis took into account the experiences of the most successful participants in the Agroecology Movement in Cuba. Because of the relevance of the results, it was decided to disseminate information about the experiences in Banes, Holguin Province. This was done through a rapid, participatory, and inclusive procedure, inventorying the agroecological practices of various cooperatives. The intention was to create a method of characterizing and diagnosing the level to which

agroecology had been implemented farms, in cooperatives, and in rural areas of the country, in the shortest time possible. This would allow for exchanges of information in the areas where they were most needed, and with the most appropriate content. (See the box, "The Banes Method").

In order to implement this method, the National Agroecology Movement group convened in the Banes municipality itself, holding a national workshop involving 122 municipal and 14 provincial coordinators. The purpose was to visit Banes to learn about and analyze the experiences there. This meeting resulted in the agreement to extend the Banes method developed there throughout all municipalities.

The method allowed for the systematic identification of the main problems of each farm. At the same time, it also allowed for the identification of potential promoters, many of whom already held solutions in their hands. As a results, the coordinator and the facilitators were able to better direct exchanges and training sessions, to solve production problems more efficiently.

Clear advancement of MACAC and positive results are evident. wherever this methodology has been implemented.

Even though it emerged out of necessity, the experience of Banes has been one of the most enriching contributions that Cubans have made to the Farmer-to-Farmer methodology. By taking the reins of a fledgling movement, the campesinos have become the architects of their own destinies.

Classifying farms to promote learning from role models

The classification of farms has been another methodological advance during this period. It provides moral encouragement to the farming family, and also induces emulation by other farmers.

Farms are classified on a scale of one to three, according to their level of agroecological transformation. The individual producer or farming family which reaches the maximum level of agroecological integration often expresses a great amount of satisfaction and gains the respect and emulation of their community and cooperative.

All farms do not progress in a uniform manner, and it is necessary to create ways to acknowledge the different levels of agroecological implementation. Therefore, in 2008, indicators were defined in order to classify the farms within three categories.

Diverified farm on the "26 of July" CPA, Rafael Freyre municipalite, Holguín Province.

Category 1: Farms which have initiated the path towards agroecology have complied with the following:

1. *The Rapid Participatory Appraisal has been applied on the farm.*
2. *Alternative agroecological techniques have been applied to solve the diagnosed problems.*
3. *The farmer is developing 1-3 more agroecology practices.*
4. *The family has begun to be involved in the agroecology movement.*
5. *The family is aware of environmental issues and productive problems.*
6. *A family or an individual member has committed to participation in the agroecology movement at a General Assembly meeting.*
7. *The farm practices or is reviving peasant traditions.*
8. *There are prospects for diversifying plants and animals on the farm.*
9. *The practice or willingness to experiment (campesino experimentation.)*
10. *There is potential to produce and market with social objectives.*

Category 2: Farms in agroecological transition have complied with the following:

11. *Farms are well integrated in the processes of exchange, experimentation and advocacy of the agro-ecology movement and of the Farmer-to-Farmer method (as a receiver and actor within it).*
12. *Increasing biodiversity and integration of the productive components of the farm (integration of agriculture, animal husbandry, and forested areas.)*
13. *Substantial reduction in amount of agri-chemicals applied.*
14. *Increasing use of on-farm resources, and the proportional reduction of dependence on external resources.*
15. *Social commitment, integration of the family and cooperative group, with gender equity (equal participation of men and women, according to their capacities and conditions.)*
16. *Re-affirmation of the campesino identity, socially and culturally.*
17. *An economically efficient system of production.*
18. *The farm is orderly and functional.*

Category 3: Agroecological farms have complied with the following:

1. *Heightened awareness and conceptual mastery of agroecological sustainability and food security, with a focus on gender.*
2. *Commitment as a promoter in the Agroecological Movement, participating in workshops and skill shares.*
3. *Diversification, integration, and a high level of efficiency of the various components of the property (land, crops, trees, animals, water, seeds, and family culture).*
4. *High yields, sufficient for the family and local marketing (yield per area should be comparable or superior to conventional agriculture.)*
5. *No practices that are aggressive towards the environment exist on the farm (no use of chemicals, genetically modified seeds, hormones, over-mechanization, intensive monoculture, etc.)*
6. *Low (almost zero) external dependence for the production and maintenance of family life.*
7. *Assurance of a quality family life (family, education, health, and information.)*
8. *Participation in the activities of grassroots organizations.*
9. *Social commitment (providing local products in local markets, and involvement in social organizations.)*
10. *Conservation and practice of traditional campesino cultures.*
11. *The on-farm resources are highly valued through the conservation of soil and water, and self-generated field fertility, etc.)*
12. *Participation of the entire family (men, women, and youth) in the work and decisions of the farm.*

Source: Norms for the Agroecology Movement (ANAP).

Using this system of classification was largely successful. Category 3 farms have obtained higher production values than farms in lower categories, both per unit area and per labor time applied. Greater productivity and greater agro-ecological integration progress hand-in-hand, as shown in Figure 5.6.

Agroecology advances in Agricultural Production Cooperatives (CPA)
The criteria on which agroecological progress in the CPA's is based is an issue that is still in debate within the Agroecological Movement.

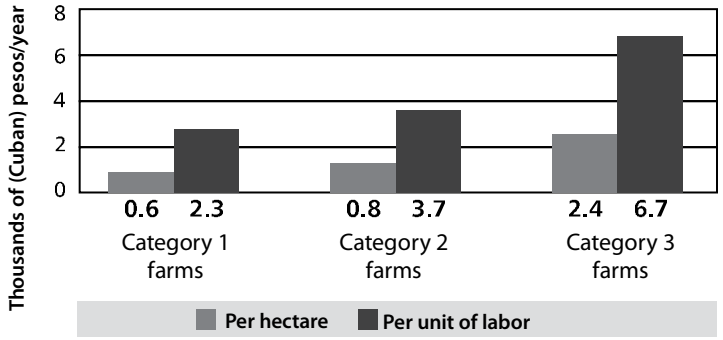


FIGURE 5.6
The values of products sold and invoiced in 2008, per hectare and per worker, are shown, with a sample of 33 farms with varying degrees of agro-ecological progress. Note that these values are additional to production for the family or self-provisioning. The farms belong do different CCS's in the municipalities of Fomento, Cabaiguan, Trinidad, Santi Spiritus, and Taguasco of Santi Spiritus province. The farms are classified according to their degree of agro-ecological integration on a scale from 1 (lowest) to 3 (highest).
Source: Data from the cooperatives.

Motivation

Agroecology in the CPA is a bit sluggish, but results can be achieved. It depends on the interest of the cooperative and the relationship that the farmers have to the land. There must be good motivation to work, or, in other words, a sense of belonging. There are practices that work better in CPA's than in the CCS's, for example, vermiculture.

Criteria of a municipal coordinator of Camaguey

Promoter Elisa Perdomo Pérez in the CCSF Manuel Ascunce Doménech, in the Cienfuegos province.

There is no doubt that the agroecological transition has progressed faster among the CCS's individual families than in the CPA collectives. However, there have been significant advances made within many CPA's.

The vast majority of decisions made within CPA's go through the Assembly, unlike in the CCS's, where the peasant family as an independent body decides what is to be done on a farm. In addition, the internal organization of labor that has prevailed in the CPA's, as well as on state farms, is based on group work and systems of remuneration that depend on daily results. This kind of organization of labor has been a limiting factor for many CPA's. In many cases, this meant that members did not develop a strong sense of responsibility and belonging to a cooperative. At times, it may be said, the working system did not make life easy.

The ANAP became aware of this problem. In order to fix it, a system to link the worker to an area and to the final results of production was designed. This opened up the potential for agroecology in this form of cooperative. The members of the cooperative who are linked to a specific area now have greater autonomy in making decisions about production practices. However, production remains lower than that on farms owned by families who are part of CCS's.

In this study, it was observed that the greatest achievement of

The campesino learns more by doing

Beltran and Emma were founders of the cooperative on which they worked for 17 years. They are now retired, and since 2002 they have been working with the system of connecting farmers to plots on the CPA called '26 of July,' in the municipality Rafael Freire, in the Holguin province.

It is a mountainous area that had low productive potential, with soils that had been completely devastated. The first thing they did was to plant hedgerows. To aide in the recovery of the land, they planted sugarcane, pineapple, canavaila, mucuna, cowpea and crotalaria. In addition, they have incorporated sheep manure by composting.

They have preserved the natural forest in order to conserve the soil and environment. They have kept the native timber and planted fruit trees and coffee, from which they removed only the wood they needed for a few construction projects. They also have chickens, oxen, and 180 sheep. For the rearing of the sheep they use mulberry, leucaena, nacedero, and jupiter, all plants that provide protein for animals. They have built several houses and shelters for the animals.

The farm had no water supply, so Beltran dug a small well on the upper part of the farm. He developed a gravity-based water supply system that runs from the mountain to the house.

As promoters of agroecology, they engage in teaching various forms of agroecological practice and integration on the farm. During the visit they spend more time in practical work than in speaking. They work with the people who visit, who join them in their every-day tasks. "The campesino learns more by doing and seeing the results", they say. They always introduce themes of agroecology into the monthly meetings of the cooperative.

Besides the work of this couple, their four children also work with the family on weekend visits.

MACAC in the CPAs were in those that linked the farmer to an area in this way. The work that promoters, facilitators, and coordinators have done with the members and leaders of the CPA's has been essential to

this progress as well –even more so than that which they carried out with the CCS's.

Another element that allowed the progress of MACAC in the CPA's has been the level of diversification that these entities already have. In order to ensure their subsistence, all cooperatives have developed a process of agricultural diversification and animal integration. This has provided an excellent medium through which to promote the Agro-ecological Movement. Most houses of CPA members have vermiculture or other areas for composting, intercropping, and others have nurseries for the propagation of trees, organic gardens, and areas where they grow medicinal plants. Some even have their own CREE.

Although agroecology in the CPA's has shown progress to date, many agree that further development of specific methodologies for CPAs is needed to catalyze further work.

Resilience to climate change

Almost all of the world's scientists who study climate change predict more and more extreme weather events in the future, such as hurricanes and droughts. Cuba is an exceptional case due to it's geographical location, directly in the path of the increasing numbers of hurricanes. Therefore, resilience to climate change is a particularly important factor on the island.

Resilience is defined as the ability of an agroecosystem to maintain productivity when it is subjected to a disturbing force. This force may be a common stress which is cumulative and predictable, such as salination, erosion, or accumulation of toxic substances in the soil. It may also be an unpredictable circumstance, such as hurricanes, droughts, floods, sudden increases in the price of oil or chemical inputs, disruption of the supply of external inputs, etc.

Studies by Eric Holt-Gimenez (2000, 2008) showed that in 1998, after Hurricane Mitch, the agroecological plots in Central America withstood the impact much better than conventional plots. Although the damage was tremendous, agroecological plots retained more fertile soil, moisture, and vegetation that the conventional ones. They also experienced less erosion, landslides, and economic losses.

In 2008, forty days after *Hurricane Ike* hit Cuba, our team doing work on this report took a tour of various Cuban provinces, particularly Holguin and Las Tunas. We did so in order to investigate the vulnerability and resilience of agroecological farms to these phenomena. Our team found that areas planted with industrial monocultures were, generally, entirely destroyed and in a poor state of recovery. In stark contrast, agroecological farms the group visited showed less loss at the moment of impact: approximately 50% loss, compared to 90-100% loss experienced in monoculture farms. It was also estimated that a productive recovery of 80-90% was already visible within 40 days of the hurricane.

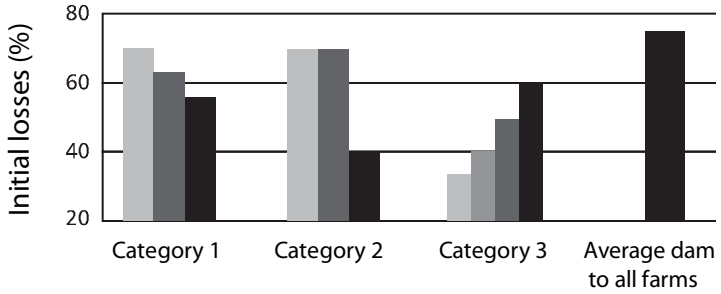
After interviewing a number of farming families, our team understood that this greater resilience of agroecological systems was made up of the following components:

1. ***Physical-biological resistance.*** Agroecological systems suffer less erosion and land-slides because of the implementation of soil conservation practices, such as contour planting, gully control, greater ground cover, etc. And, as a result of the multiple layers of vegetation, there are also fewer crop losses from direct impact.

   For example, we observed polyculture agroforestry systems composed of tall and short banana trees, with cassava, maize, beans, squash, and tomatoes. In these and other similar systems, the hurricane only ripped away the top layer, such as the taller banana trees. Much less damage was experienced in the lower vegetative layers. In contrast, in banana plantations of either tall or shorter trees that were planted in monoculture, the hurricane flattened all the trees. This explains how the loss from initial damage on agroecological farms was not much greater than 50%, compared to total losses in monoculture farms. Figure 5.7 demonstrates the situation on farms of a Credit and Services Cooperative (CCS). Category 3 farms, the 'most agroecological', according to the classification system described above,) tended to have much less damage. The initial damage from the hurricane on these farms ranged from 30% to 60%, which is below the average for all the farms in the CCS (75%). It should also be noted that even the farms affected the most by the hurricane did not suffer total destruction, as was felt by the monoculture farms not of the campesino sector.

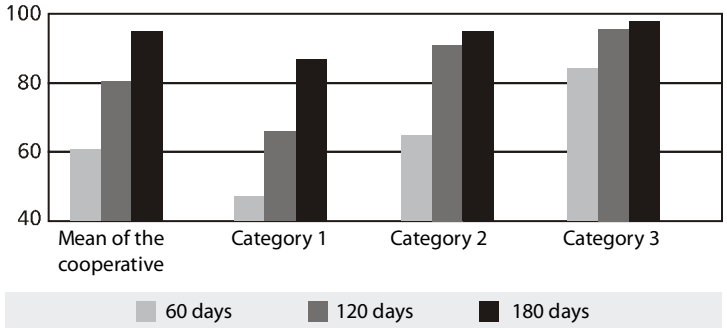
2. ***Biological compensation.*** One part of recovering productivity

FIGURE 5.7
Initial losses due to *Hurricane Ike* on selected farms from the CCS 'Rafael Zaroza', in the province of Santi Spiritus. The farms are classified according to their degree of agroecological integration on a scale from 1 (lowest) to 3 (highest). Classification is explained in the text. Losses are compared for three category 1 farms, three from category 2, and four from category 3, with the average loss of the entire cooperative also provided.



Source: Data from the cooperative in question, and interviews.

FIGURE 5.8
The projected average recovery at different times of the areas affected by *Hurricane Ike*, on selected farms of the CCS 'Rafael Zaroza' in the province of Santi Spiritus. The farms are classified according to their degree of agroecological transformation on a scale from 1 (lowest) to 3 (highest). Classification is explained in the text. We report the recovery of production projected at 60, 120, and 180 days after the hurricane.



Source: Data from the cooperative in question, and interviews.

after only 40 days had to do with the compensation process. Cutting away the leaves of the tallest trees allowed for more solar radiation to reach the lower vegetative layers, resulting in compensatory lush growth of the crops in lower layers. The increase in production thus obtained largely offset the loss of upper layers.

3. ***Biological recovery.*** The diversity of plant layers reduced the impact of wind gusts. As a result, there was less damage to individual plants compared to that in monocultures, where most plants were killed. Consequently, many plants that were damaged but not killed showed signs of biological recovery (eg: new vegetative shoots and leaves) after 40 days.

4. ***Human/campesino recovery and resilience.*** In cases where the farming family lives in or near the farm, it was noted that they worked hard on the farm in the days following the disaster. For example, many of the taller trees that had been felled were put erect again, supported by sticks and stones. It was clear that many of these trees were saved, and that they would survive. In contrast, almost no evidence of such recovery efforts were observed in monocultural crops that had been felled.

Figure 5.8 shows the most rapid recovery on agroecological farms. In this case, the researchers were checking for levels of resilience after a hurricane, but farmers who were interviewed also spoke of greater resistance to drought. As they explained, the higher content of organic matter in soil and vegetative cover crops in agroecological systems (resulting in a lower temperature of the soil), makes it retain moisture better. It is also shown that a lack of dependence on external inputs is associated with greater resilience to market shocks and blockades.

Farmer experimentation and innovation: a valuable tool

As aforementioned, a major strength of Cuban people is their ability to make a virtue of necessity. Their inventiveness, their constant search for fast and durable solutions, and their creativity have been tested many times in recent history, and they have persevered.

Traditionally, peasants have always been great experimenters. Small

1. Human resilience, after a hurricane. 2. This photo demonstrates that only 40 days after the passing of *Hurricane Ike*, the coconut plants which had been completely destroyed had already been replaced with new plantings. Las Tunas province.

experiments are routinely performed, either with a new variety of plant, or a new biological or organic amendment. The aim of such experimentation is to continue improving their productivity, or to seek solutions to problems they encounter on their property.

What can be done to mitigate hurricane damage?

- Planting windbreaks.
- Diversifying agricultural systems.
- Intercropping, especially with several vertical layers.
- Using flood-resistant varieties.
- Experimenting with crop cycles and planting dates.
- Strategically storing all products that can be well stored.
- Planting cassava and sweet potato in planters, rather than in the ground.
- Select plant varieties of shorter stature.

Suggestions of promoter Victor Manuel Peña Proenza, from the Ulises Fernandez CCSF, in the municipality of Calixto Garcia, in Holguin province.

A necessary parenthesis

—TWO ILLUSTRATIVE EXAMPLES—

Nini and María are well-known producers on the María Pena farm, of the Pedro Diaz Coello CCS, in the town of Gibara, Holguin.

Nini has three international medals from military missions, two from Angola, and one from the Congo, among many other accolades. María has a vast knowledge of medicinal plants.

They got the farm ten years ago. "There was nothing, just rocks –lots, everywhere, incredible amounts– and marabou and the worst weeds". The farm consisted of a large slope and it was very rocky – no water, and very poor soils with low fertility. Upon receiving the field, they had to remove 11,029 carts-full of stones. Still, "this campesino and campesina have been given the task to transform all of this." Today, at last, they are proud to tell that they have succeeded.

They created an agroforestry system: many coconut trees, with bananas, coffee, avocado, loquat, achiote, mango, and cocoa, among others. Many herbs and spices are planted, with ornamental plants and animals, especially in the backyard. They also have trees intercropped in between all of this, especially bananas. Good crop associations are bananas with beans, avocado, guava, tomato, sweet potatoes, melons, and peanuts. Complex designs have been made to assure that a yoke of oxen may be used to manage weeds. María and Nini have very high productivity on land with quite low fertility.

A necessary parenthesis...

Their farm has shown an impressive resilience to Hurricane Ike, with great recovery within only 40 days of the disaster. They had to lift many of the trees that had been felled in order to rescue them, holding them down with stones and logs. The trees subsequently survived.

Nini is also a MACAC promoter. He likes to share their experiences with the use of manure, compost, and hedgerows, which many others have adopted. He also attends a circle of interest organized with a primary school in their community, where he has made a beautiful vocation out of training children in agriculture and agroecology.

Another example of resilience may be seen on the sixteen acre Velásquez Farm of the Gerardo Antonio CCS in Las Tunas province. The farm has an area of 16 hectares, low soil fertility, water deficiency, yet a high level of diversity.

This farm is dedicated to the production of fruit, namely citrus, coconut, guava, and avocado. They also grow beans, cassava, sweet potato, vegetables, and other species that associate well with fruit trees. They have twelve head of cattle, horses, goats, turkeys and 100 chickens. They use living barriers and dams to conserve soil, and do not use a tractor because it compacts the soil. All work is done with animal traction.

Despite the direct impact of *Hurricane Ike*, like the farmers of this property observed great regeneration of their citrus groves of both fruit and foliage, after only forty days.

After sharing these experiences with the promoters, they realized the importance of human resilience, which can be defined as the ability of human actions to recuperate damages after climatic phenomena. The concept, however, is hardly sufficient to describe the willingness, courage, dedication, and sacrifice shown by the producers who immediately begin recovering their farms after disasters.

As we have seen, agroecology was introduced into Cuba during one of the most difficult periods, but also during the one most suitable for accepting and producing necessary changes in agricultural practice. At the beginning of the crisis, Cuban farmers faced two main problems in maintaining agricultural production:

1. The limited availability of inputs and other resources, especially those needed for conventional systems of agriculture.

2. The environmental issues which resulted from the imbalance created by monocultures, over mechanization, and the excessive use of chemical inputs.

It was therefore necessary to devise new plans through farmer experimentation and innovation, the foundations of which were elements of sustainability and their traditional systems. Farmer experimentation, because of it's strength and objectivity, has attracted the interest of technicians and research

María and Niní's Principles

An advantage of crop associations: "If one thing doesn't make it, another one will. There's always something to eat. It doesn't matter what happens.

"On the farm we are always advancing, yet were doing less work all the time". In other words, to establish an agroecological system, the functioning of that very system means less and less labor inputs are necessary. For example, there are many natural enemies present on the farm. Two pests may fight and cancel each other out, and crops will continue growing.

Promoter Ilso Velásquez' Principles (The Velásquez Farm)

I have never been defeated nor am I a defeatist. At dawn, I would go outside once it was light, and when I came out and saw the trees, I was not afraid. You should have seen the whole plantation: 111,000 coconuts on the ground. You had to see the ground. There was no room to walk. But looking up I said, "[the hurricane] left me half of the oranges, and that will be enough to allow me to recover".

centers in their search for solutions.

Currently many results of the ingenuity and creativity of peasant experimentation can be found throughout the country. This is a sign of the spread of the agroecology movement, especially as training and exchange among farmers has been strengthened. Some examples follow.

The Doña Esther farm belongs to the CCSF 'Ulises Fernandez', in the municipality of Calixto Garcia, in Holguin province. The farm has 63.75 hectares, and is devoted to various crops and livestock. The promoter of the farm is Victor Manuel Proenza Peña.

Victor Manuel joined the ANAP in 1969. Together with his wife, he began to work on the farm with traditional practices inherited from their ancestors. In 1982 he was chosen by the cooperative to be an activist for plant health, and took several courses about concepts of conventional agriculture, particularly those which advocated the use of destructive agro-chemicals. In 1989 he began working in agricultural extension in coordination with various research centers. This experience led him to discover the various affects of soil degradation, and learn about biological pest control and other sustainable practices.

Because of this background, he was chosen in 2000 as a facilitator in the agroecology movement during a pilot provincial plan. Through his participation in national workshops and exchanges, he was trained to become a part of the provincial advisory group. All these factors have enabled Victor Manuel to transmit his experiences to other farmers, and also to put them into practice on his own farm. His main achievements have been:

- The use of biological controls, mainly the lion ant which has a natural habitat on the farm. This practice has also spread to other places and is practices by other farmers. The lion ant is used to control the sweet potato weevil, but research has also been done about how fertilization can be done with the lion ant.
- Not applying agri-chemicals. Balance has now been reached on the farm, because in the past many chemical insecticides were applied, and as a result the number of pests grew.
- Using polycultures to maintain a balance.
- The introduction of new varieties and production technologies of tubers (yam and cassava), combined with the use of agro-ecological practices.
- Improving soils through crop rotation, fallow periods, minimum

TABLE 5.1
Agroecological practices on the rise during the current period

- Vermiculture.
- Soil conservation.
- Conservation of seed varieties and rescuing traditional varieties.
- Plant breeding by farmers themselves.
- Introduction of new crops.
- Strengthening traditional local animal feeds.
- Increasing the use of alternative energy sources.

Source: Group interviews with promoters, facilitators, and coordinators of MACAC, Documentation Workshop, Santa Clara, November 25, 2008.

The Multi-purpose Plow JC21A

Hoeing is the hardest of jobs, and often the least productive. To makes this easier means, on one hand, to reduce the physical force needed, and on the other, to heighten the productivity. Thus began the creation of the multi-purpose plow. And now, as you can see, my plow is registered with its own patent.

Joseph A. Casimiro González, Advocate
CCS Rolando Reina Ramos, The Middle Farm
Taguasco municipality, Sancti Spiritus Province.

Traps for insect control using honey and sex pheromones, prepared in different areas with local resources and/or waste products and great ingenuity. Holguin province.

tillage, use of animal traction, and application of organic matter, mainly vermicompost and compost.
- Rescue and maintenance of plant and animal species.
- Improvement of species through positive selection, in the case of beans. He also has a variety of squash named 'Lady Esther,' which he made by crossing varieties on his farm.
- Improvement of animals by cross-breeding.
- Production of traditional grains for animal feed.

Training and forming cadres

One cannot speak of the achievements of the Cuban Revolution without mentioning education. Fidel Castro has stated, "I have always thought that education is one of the most noble of human tasks to which someone may dedicate his or her life. Without it there is no science, nor arts, nor literature, nor would there be production, nor economics, nor health, nor well-being. Quality of life, recreation, self-esteem, or social recognition would not be possible".

The educational work that schools do is significant, and includes values such as the love of nature, and respect for farm work. These themes are demonstrated in primary school and kindergarten circles of interest, which involves children directly in agricultural activities, complying with the principles of José Martí that link work with study.

The fact that Cuban campesinos have an average scholastic level of 9th grade in high school, has facilitated the implementation of

the Farmer-to-Farmer methodology. This, along with the ANAP's organizational system and methodological training, have made Cuba one of the best places for achieving results in agroecology. The ANAP has expanded agroecology training during this period, with the following results:

- *A course on the Environmental Policy of the Cuban Revolution and Sustainable Acriculture for the leadership of ANAP. From 1997 to the present, this program has trained 2,386 leader of this campesino organization.*
- *The creation of a program to organize the preparation of cadres within the grassroots organizations of ANAP. These were conducted from September 2003 to June 2004, in 188 classrooms of various municipal schools. This course included the theme of preparing cadres within ANAP to interact with the environment and with training in agroecology. This course featured a reading list complied in the Niceto Perez National Farmer Training School, and trained 5,058 cooperative members.*
- *Courses on agroecology were given to 1,762 students from Europe, Latin America, and the Caribbean.*
- *Courses in training trainers were given to 162 coordinators, who were given with the methodological tools to pass on this training to 3,031 other facilitators of the Agroecological Movement across the country.*

MACAC has been so succesful in training promoters, that many of them get elected to political positions in the organization, so that they are in a sense lost to the Agrocology Movement. The doubt remains whether this is a strength or weakness.

In principle, this could be considered a weakness because of what it implies for the stability of MACAC if new promoters continually need to be trained. A cycle begins in which the process is regularly restarted. However, these new ANAP leaders are directly linked to production, and problems and agrocological solutions. Also beneficial is their personal development, as upon being promoted to leadership positions is a factor contributing to the strength of the Movement, because of the level of commitment they have made along the way. Their knowledge and experience gained in the process of taking on new responsibilities

Two commentaries

'The Guardians of the Forest' circle of interest, made up by young pioneers and assisted by promoters.

Reflection of Peter Rosset in Holguín Province

I remember the last ACTAF event at the National Hotel. One thing that struck me was the performance of the peasants at the roundtables. I saw them in all the workshop sessions, taking notes like crazy, like students doing their doctoral thesis. And questions and comments, like any scientist, they asked shamelessly. It was lovely, lovely, lovely: there, mixed with the great teachers and researchers and all – great authorities. It was really special.

The principles of a facilitator from the province of the City of Havana

Training work has to be inter-generational. Both because of the aging population and for the need to exchange knowledge, and because you can –with a holistic and humanistic focus– work with issues of gender, environment, culture, law, and bioethics, in order to ensure sustainable human development.

Work with all generations, because it will take all of us to build a better world.

From Cuba to Venezuela, Farmer to Farmer

Together with the work done by MACAC at the national level, work with other countries such as Nicaragua, Mexico, Guatemala, the Dominican Republic, Haiti, Mozambique, Colombia, Chile, Ecuador, and Brazil has been central to the organization.

The collaboration with the people of Venezuela has been exceptional. It was carried out through the implementation of the 'Project for Comprehensive Agroecological Training for Rural and Indigenous Peoples'. This project was realized with 34 cadres of the ANAP, including several master-farmers who worked in 22 states of Venezuela, and held various workshops and actions in 205 municipalities, with farmers on both small-scale and medium-scale farms.

As a result of this collaboration, 565 agroecological classrooms have been opened in Venezuela, with 10,744 people enrolled, as well as 7 regional agroecology schools. In addition, work with the National Farmer Training School for Rural and Indigenous Peoples in the state of Anzoateguí continues. This project has also included the training of 641 Venezuelan peasant an indigenous leaders in Cuba, at the Niceto Pérez National Farmer Training School of the ANAP.

changes them into excellent spokespeople and defenders for the Agroecology Movement.

Conclusions

At the moment, MACAC is at its peak, and in a period of consolidation. This can be observed in the data related to the growth of the movement, its contribution to feeding the nation and the people, levels of production, and decreased dependence on imported inputs.

The rise and success of MACAC can be explained by several factors, the most important of which is its transformation into a mass movement. Additional explanations are the refinements of its methodology, such as the Banes Method, and the system for classifying farms and progress of MACAC in the CPA's, although it is slower.

Exchange of experiences in Valle de los Ingenios, Trinidad, Sancti Spiritus.

The biological and human resilience to hurricanes is undoubtedly another advantage agroecological systems. Another important factor is the continued innovation and experimentation on the part of the peasantry, who are the source of creativity within the Movement. Finally, training and initiation of cadres through the Movement, although sometimes a double-edged sword, has strengthened the movement.

CHAPTER 6

The Rural Family and Agroecology

• Diversification of roles through agroecological practice • Generational turnover • Laws and guarantees for Cuban women • The Agroecology Movement: towards gender equality

> This is 10 percent agroecology, and 90 percent the family on the farm.
>
> **José Antonio Casimiro Gonzålez**
> MACAC promoter
> CCS 'Rolando Reina'
> Sancti Spiritus

Around the world, the peasant families are in crisis. Given the economic reality of rural life and the extreme poverty of those working in agriculture, young people in many countries do not see a viable future in rural life. Many of them end up joining the migratory flows towards cities or other countries.

At the same time, *machismo*, inequality between men and women, and domestic violence affect quality of life; not only that of women, but of the entire family. Conventional agriculture –the kind promoted by the Green Revolution– based on monocultures, chemical inputs, and mechanization, offers no place for other members of the family other than the man. It is the man alone who manages the machinery, who applies the pesticides, and who collects the income from the year's harvest. This ends up reinforcing his powerful role within the family unit. Therefore, many times the man makes all decisions within the family, exclusively. The others are left to be only his helpers.

In Cuba, though MACAC, agroecology is beginning to alter these trends for the better. Agroecology increases and diversifies incomes, and also generates a diversity of roles for the entire extended peasant

family. Furthermore, with the help of the *Estrategia de Género* (Gender Strategy) implemented by the ANAP, it also combats patriarchy, that is, the exclusive power of men within the family unit.

La Vía Campesina's Committment

One issue was very clear in this V Conference, that all the forms of violence that women face in our societies –among them physical, economic, social, cultural and macho violence, and violence based on differences of power– are also present in rural communities, and as a result, in our organizations. This, in addition to being a principal source of injustice, also limits the success of our struggles. We recognize the intimate relationships between capitalism, patriarchy, machismo and neo-liberalism, in detriment to the women peasants and farmers of the world. All of us together, women and men of La Via Campesina, make a responsible commitment to build new and better human relationships among us, as a necessary part of the construction of the new societies to which we aspire. For this reason during this V Conference we decided to break the silence on these issues, and are launching the World Campaign "For an End to Violence Against Women". We commit ourselves anew, with greater strength, to the goal of achieving that complex but necessary true gender parity in all spaces and organs of debate, discussion, analysis and decision-making in La Via Campesina, and to strengthen the exchange, coordination and solidarity among the women of our regions. We recognize the central role of women in agriculture for food self-sufficiency, and the special relationship of women with the land, with life and with seeds. In addition, we women have been and are a guiding part of the construction of Via Campesina from its beginning. If we do not eradicate violence towards women within our movement, we will not advance in our struggles, and if we do not create new gender relations, we will not be able to build a new society.

Maputo Declaration
5th International Conference of La Vía Campesina
Maputo, Mozambique
October 19-22, 2008

Agroecological diversification diversifies responsibilities

One fundamental element that MACAC promoters is the diversification of farmland. Instead of one crop, an agroecological farm has multiple annual and perennial crops, often planted in poly-culture and agroforestry systems. The farm may have medicinal plants, ornamentals, herbs and spices, various animals, and even fisheries; fruit trees, compost, and vermiculture; forested areas, etc.

During the transition from a monoculture to a diversified farm, it has been observed that duties and roles are restored to various members of the peasant family, as the need arises. We have also discovered a trend towards the reintegration of the family on the farm (the return of several of its members). Because of the diversification of roles, each member has his or her own part to play, and at times, an independent income.

Table 6.1 illustrates the roles and responsibilities

TABLE 6.1

Roles and activities of the members of the peasant family in diversified agroecological farms. [Table created by the participants in the Santa Clara workshop].

Women
1. Horticultural practices like grafting.
2. Making preserves.
3. Raising poultry and other livestock.
4. Seed saving and selection.
5. Worm composting.
6. Composting.
7. Growing herbs and spices, medicinal and ornamental plants.
8. Fruit trees.
9. Growing vegetables for home consumption.
10. Preparing and applying biofertilizers and biocontrols.
11. Handicrafts.
12. Backyard gardening.
13. Maintain the morale of the whole family.

Men
1. Composting.
2. Soil conservation.
3. Seed saving.
4. Animal husbandry.
5. Making and applying organic fertilizers.
6. Applying biopesticides and botanical formulations.
7. Plowing with animal traction.

Table 6.1...

8. Planting living fenceposts.
9. Planting polycultures and diversification.
10. Incorporating organic matter in the soil.
11. Building vermicompost bins.
12. Heavier farm labor.
13. Reforestation.
14. Planting green manures.
15. Vegetables.

Youth
1. Learning from their elders.
2. Composting.
3. Farm chores.
4. Animal herding.
5. Planting.
6. Contribute practical applications of their theoretical learning.
7. Marketing produce.
8. Plowing with animal traction.
9. Planting fruit and timer tree species.
10. Beekeeping.
11. Tree nursery and grafting.
12. Harvesting.

Children
1. Sort waste for composting.
2. Feed and take of worms in compost bins.
3. Seed saving and selection.
4. Making preserves.
5. Attending circles of interest in agroecology.
6. Ornamental plants.
7. Raising pigeons.
8. Feeding and taking care of animales.
9. Weeding vegetables.
10. Studying at school.
11. Pest control with traps.
12. Tree planting.

Elderly
1. Transmit knowledge to the rest of the family and guide the youth.
2. Making preserves.
3. Fruit trees.
4. Prepare livestock feed.
5. Seed saving and selection.
6. Task that require less. physical strength.
7. Apply water to the compost.
8. Medicinal plants.
9. Backyard gardening.
10. Raising rabbits and hens.
11. Child care.
12. Making tools and implements.

Motivation

The cooperatives have see the training and formation of young people as an investment, and not just leave it to the State. They shoild participate in the selection of students to go to college, and motivate the kids of farmers to study agriculture, so that they late re-join their families..

Orlando Lugo Fonte
ANAP National President

Promoters Augustus and Joaquín Rodríguez. Their farm features 20.3 diversified hectares, more than 100 species of tree (8 of them exotic and 4 endangered), a garden of ornamental plants with varieties of rescued orchids and exotic birds. They have continued working with the lion ant, a project initiated by their grandfather when they were children.

on diversified agroecological farms, which were drawn up by a group of rural men and women participating in a workshop in Santa Clara. Note, there is some overlap between the roles. This is because on many occasions, what may be the responsibility of a child in one family will be that of an elder in another, for example.

In some field visits, we have observed that the women, besides taking responsibility for the animals, also sow plants and vegetables in the backyard. Often, they are also responsible for vermiculture, even forming small vermiculture collectives with neighboring women. It is also common that young people have their own projects, such as breeding animals, from which they hope to earn an income. The elderly may have orchards, and they sometimes make and sell preserves. All of these opportunities on farms that follow agro-ecological practices encourages the integration of the entire extended peasant family. Moreover, the power of the man within his family is reduced, compared to that which he holds in mono-cultural farms.

Generational renewal: a vital necessity

Resource shortages and the standardization of agricultural work is most notable in conventional monocultures, where the working conditions are horrible: the suffocating heat of direct sunlight, the dust rising from the bare ground between the crop rows, and the nausea produced by the fumes from agrochemicals. If we also take into consideration the need to follow specific recipes for production, instead of using creativity, the work fosters little appeal for youth.

Alternatively, the agroecological farm has shade, the temperature is often pleasant, and the dust does not rise. Instead, the soil is covered with green manures, mulch (bark debris, wood chips, straw, leaves, rice hulls, etc.) and intercropped plants. There are no agrochemical fumes. Above all that, the work captivates the imagination, engaging the mind and demanding creativity. In our travels and interviews, we found many young people who were fascinated –even obsessed– with agroecology. Many young men and women said that they had stayed in the countryside because there was creative and interesting work.

The presence of the younger generation is a guarantee of generational renewal and that the agroecological transformations initiated by the ANAP will continue. At the end of 2008, for example, 2,526 farmers under the age of thirty were counted among its members (ANAP statistics), which represented 6.2 per cent of all members and those who have mentioned the desire to continue agroecological practices. Nevertheless, a much greater increase is certainly necessary.

Of course, there are many cases in which only the male head of household speaks during assemblies and other activities, and is the only member of the organization. Even so, the potential participation of the youth could be improved.

The agroecological movement itself, due to the broad and persistent advocacy among families and cooperatives, as well as the alternatives it offers, has allowed the incorporation of young people whom in many cases exceed 25 per cent of participants, as promoters, facilitators, and incorporated farmers.

The ANAP also promotes other ways for young people to participate. For example, the *Brigadas Juveniles Campesinas* (Rural Youth Brigades) bring together the youth for a variety of trainings and recreational activities. By the end of 2008, the organization had assembled more than one thousand different brigades, composed of

The stories of two families who returned to the countryside

Amaury Ramos and his family. Camagüey Province.

I. Amaury Ramos, at 32 years of age, was a worker at the Pasture and Forage Experimental Station in Camaguey. There he worked on a project called 'agroecologically based integration of agriculture and livestock.' After a few years there, he decided to apply what he had learned in his step-father's farm where he had diversified the crops and created a model of an agroecological system.

In the year 2000, he moved to Jimaguayu, in the province of Camaguey, to a field infested with Marabú and other weeds. It was very difficult to get going because of his lack of economic resources. Nonetheless, he persevered. The first things he did were remove the weeds, drill a well, and build a rustic home. He then planted two acres of pasture –which later became two and a half, and now are five– and he sowed seeds to feed his family. He called his farm 'Hope', and belongs to the CCS-F, 'The 26th of July'. Every year it has been growing. Having just a few at the beginning, he has been adding more hardy animals and he also

The stories of two families...

practices aquaculture with tilapia. The soils of Hope were very poor, but adding the organic matter coming from his own animals has given him very good results.

Currently, he is a promoter of MACAC, and participates in sharing experiences, workshops, and the issue of seed production. His farm suffered the scourge of hurricane Ike in 2008, but his polycultures have proven to be quite resistant. Amaury believes that integrating livestock with agriculture brings about sustainability.

He states, "my ultimate goal is to nurture my family with the Earth's own produce, and then later bring that health to the population. I feel like I am achieving this. I sell milk and vegetables to schools, kindergartens, and maternal waiting homes. My farm is like a school".

Six people live in on the farm. The tasks are distributed among the family members, and everyone contributes. His wife and sister clean the vegetables and corrals, harvest the crops, tend to the plantains and the animals, and prepare lunch. While his nephew herds the livestock, the grandfather helps with the vegetables. The grandmother also helps, supervising everything. Amaury, satisfied, concludes, "the farm has been a way to reunify the family."

II. Jose Antonio Casimiro Gonzalez speaks of the CCS 'Rolando Reina,' in Taguasco of the province Sancti Spiritus.

On the 12th of June in 1993 we arrived on this farm to see if it was possible to accommodate ourselves here. We didn't come with anything more than ourselves: my wife and two children, a girl and a boy of 12 and 11 years. I had come here in my early childhood with my grandparents, and this was good experience. I had a child's perception of rural life: playing, riding horses, and helping with various chores.

There was nothing that could be done on the farm upon arrival. It was totally degraded without fences or farm implements. The house was in a very bad state; it had been many years since anyone lived in it, and there was no electricity. In those days my father was the one who conventionally farmed the land, mainly in a monoculture of tobacco.

My grandfather gave me a piece of land, and after two years I had done wonders with two chickens, a cow, and a pig. My father was then convinced that what I had been envisioning was in fact possible. I had been left with an enormous responsibility: an extremely misused farm, after 53 years continuous years planted with a monoculture of tobacco, without barriers or fences. Zero infrastructure.

Twelve years ago, the prospects were terrifying. But I feel that in that moment I discovered so much motivation and my exuberance was visible to everyone. The first obstacle I ran into was the fence; there wasn't one. Without resources, and without wire, we decided to fence in the farm with the 'rat pineapple' plant. But in that area there was no rat pineapple cultivated, so I had to bring it from quite far away. Under criticism and whatnot, we established it and little by little we ourselves began to produce. I started out by doing what had always been done conventionally: tractors, turbines, agro-chemicals. I really achieved high yields in some crops, but there were also a high levels of degradation, pollution, erosion, dependence on inputs, and need for labor power in that system, which is very expensive and scarce. For all these reasons, I had to start to change, and look for other methods. I started doing it, but nobody understood me.

On the 4th of April in 2001, I visited a farm of the Agroecology Movement of ANAP, with a group of wise farmers. That was what I needed. Until then only the sea believed me. I thought that I was the only person who found the countryside appealing. I was isolated with all of my crazy ideas, but that meeting convinced me that there are many crazy people, and in addition they were crazy to give, teach, communicate, and they understand that one can farm in Cuba, and that it can be better for everyone.

I think that what motivated me the most was receiving so much appreciation from those who knew the most. I was doing well and what I needed was there. If it weren't for that movement, none of this would have happened to me today. They got me to make a commitment and I decided, now with a more scientific foundation, to continue my investigation into the most equitable science for

The stories of two families...

producing food: agroecology.

In the midst of all this, and each time with more experience, we realized that everything we've been talking about is much, much more serious than we can imagine. Truly, agroecology aims to create a continuous chain of wonders. Honestly, everything that scientists and researchers say is true: you can farm without chemicals, without importing fertilizers, with little water; in an honest, humane, decent way, without contaminating, without degrading, but rather improving the environment. But true agroecology, the best, long lasting kind, must be acquired as a culture from childhood, and this is the most important thing I can offer my family. (Casimiro, 2007).

9,225 young people. Also, along with the Ministry of Education and youth student organizations, they conduct other activities, such as talks at pre-university education centers, colleges and universities, farm visits, and exchanges with farmers. As a result, they encourage youth to study for careers in agriculture.

It has been demonstrated that the younger ones are much more open to changes and using new methods. Young people's contribution to the Agroecological Movement is quite visible. There are many genuinely involved young promoters and facilitators who contribute greatly to these efforts with their enthusiasm and creativity. Agroecology is a concept whose practices require active participation –to investigate, experiment, recover and create. As such, it is understandable that it captivates the restlessness and imagination of the youth. Thanks to this, it is not difficult to help retain young people's interest in the countryside.

Women in Cuba, in the ANAP and the MACAC

Since the triumph of the revolution, the theme of women's equality has been among the priorities of the revolutionary government and social organizations, including the ANAP, through its direct relation with rural women.

The materialization of said priorities by the Cuban government is reflected in a set of legal instruments that endorse the rights of women:

- The two Agrarian Reform Laws give the right of land equally to men and women. Historically, chance or perhaps coincidence, the first title to property was awarded to a woman.
- The Family Code, enacted on March 8th, 1975, provides –among other things– the absolute legal equality of men and women in marriage.
- The Constitution of the Republic, put into effect on February 24, 1976, declares state protection of the family, motherhood and marriage. Article 43 of the Constitution specifies that women enjoy equal rights with men in economic, political, social and family life. In addition, the State provides the ways

Encouraging a focus on gender

The Movement has helped raise the prominence of women, and their presence in social activities is greater. The participation of women in the workshops held on the farms of promoters has proven a difficult problem to solve. Nowadays, their attendance is achieved, which is a symptom that expresses that many of the barriers imposed by the male chauvanism in the earlier years have been ruptured.

At times, when talking about sustainable agriculture, one does not often take into account the role played by women, in breeding fowl, keeping up the garden, or their participation in the harvest and practices that benefit the soil. Generally, the wife of the agroecological promoter also performs agroecological practices and helps convert the farm into a closed system.

The women promoters of the Agro-ecology Movement of CAC are closely linked to the Food Conservation by

Encouraging a focus...

Traditional Methods project. Using the Woman to Woman method, this brings about sustainability and responds to the needs of rural families.

Despite these achievements, we are not satisfied with the numbers of female promoters and facilitators, which are still insufficient. We can achieve this through training, diversifying jobs, promoting these concepts to bring awareness to the focus on gender, conducting exchange activities to achieve communication among women, and addressing family spaces to spread new ideas.

We have in our cooperatives a number of youth and women. We now have more than 2,500 women, and 2,300 youth under the age of 30, incorporated as members of the organization. The work with women and youth of the cooperatives isn't the only development. Other women and youth who are there in the community are also part of this development, as the unifying role of the cooperative coordinates with the rest of the constituents and secures the active participation of everyone. This is to say, that besides women being direct partners, wives of members of the cooperatives or other rural men, and other women and youth who reside in the rural zone, are incorporated into the movement.

Rafael Santiesteban
President of the ANAP
Holguín province

to ensure women's incorporation into social work and creates favorable conditions for the beginning of equality.

- The Maternity Act establishes the paid leave entitlement to pregnant working women, secures and facilitates medical care during pregnancy (authorized and remunerated), rest before and after childbirth and nursing, and care for their children until they reach one year of age.
- The Cooperative Law recognizes equal rights of men and women.

Extensive progress has been made towards gender equality. The following data is from 2007: Cuban women make up 46% of the labor force of the country, 66% of technical and professional workers, 55.5% of doctors, 70.1% of judges, and 52.2% of health professionals working.

Fidel Castro himself has said that providing equal opportunities is not enough to guarantee the kind of justice we aspire to. It is necessary to encourage changes, which, in the case of women, go beyond just making spaces for participation or personal development. The discriminatory legacy of machismo in the private spaces of home and family, which extends to the public social spheres, must be broken in such vital areas as participation and decision-making.

Migadlia, of the Sabino Pupo CCS, en Cañadon, Banes. They are rebuilding their family's agroecological farm after a hurricane.

Despite the conditions of equality and social progress enjoyed by Cuban women, few peasant women are incorporated as members of the organizations of ANAP. Currently, an estimated 11.41% of members are women, while approximately 47% of the rural population is female. Today, female peasants and cooperative members are already aware of their role in production. However, we still need a higher level of consciousness on issues related to traditions and habits that have not kept up with social progress: their role in the family, married life, in sex education, health, and other aspects of life (Navarro, B. 2007).

For these resaons, the ANAP plans to address three cornerstones

of the problems that rural women experience:

1. The sense of justice necessitated by the topic of equality between men and women.
2. The need to incorporate women as fully active economic and social beings.
3. Provision of political and social attention to the world of rural women.

The role of planning

Women help a lot in the development of agro-ecological practices. As we see, they consecutively and logically organize daily tasks and quickly anticipate situations that may arise.

Women are more likely and enthusiastic to apply new techniques. With their dynamism, they require and direct the tasks to be performed. They are able to spread awareness to their whole family, and disseminate the ideas of agro-ecology among the youth and other farmers.

Reflection of a facilitator
Ciego de Åvila province

In order to reach these goals, the ANAP has been working on the implementation of a Gender Strategy since 2005. Its main objective is: "to achieve greater participation of women in the CPAs and CSSs, and strengthen their roles by increasing their participation in different levels of leadership and decision making". This has involved the clarification of specific objectives and tasks, which has enabled us –just three years after implementation– to assess a wide range of performances of and perspectives about the work.

- Aim to strengthen the role of women by increasing their participation at different levels of leadership. Today, women account for 31% of the leaders of the organization.
- Create a gender department in the Niceto Pérez National Farmer Training School.
- Strenthen working relationships with the Federation of Cuban Women (FMC), and maintain joint plans developed over many years with noteworthy experiences. Example: the formation of work teams called FMC-ANAP.
- Work with universities, particularly with the existing Women's Studies Departments.
- Mobilize international support. Currently, Oxfam is supporting the development of some pilot projects for training and education around the theme of gender.
- Develop a comprehensive program for awareness and training in all of the cooperatives, municipalities, and provinces, which will close annually with a national assessment of activities related to the theme of gender.
- Select and train 4,500 gender activists in cooperatives and municipalities across the country.

Orlando Lugo Fonte, the president of the ANAP, commented in an interview made during the planning process, "we have a long way to go with this. No doubt, the transformation that we are bringing to rural families by practicing gender activities with common sense will help to elevate the quality of life of those families. The family in which a woman is a slave who must do everything, is not the same as the family which shares the work, the rules, the opinions. The latter kind of family has a better quality of life. This is what we are pursuing with the Gender Strategy: to improve the quality of life for rural families."

The gender issue is therefore one of the transversal axes of the implementation process that has driven MACAC. It is worth mentioning that the MACAC –according to Lugo Fonte– is the basis of the model for the Gender Strategy. That is, it seeks to transform gender relations by promoting an internal movement within the ANAP, which would be composed of male and female activists, similar to the structure of MACAC.

The gender situation in the Agroecology Movement is complex. On one hand, the agricultural diversification it has fostered has opened spaces for participation and of power for rural women, as much inside their families as in the Movement itself. For example, some women have been able to take spaces set aside for them in the roles of promoter, facilitator or coordinator. However, women's participation in these areas is far from egalitarian, as shown in Table 6.1

On the other hand, the participation of women in the implementation of agroecological techniquies is commendable. Women are prominent and stand out, not only in technological disciplines, but also in the planning of the responsibilities they assume. Results are better when

Table 6.1
Current composition of MACAC, by gender.

Coordinator				Facilitators				Promoters			
Total	M	W	%	Total	M	W	%	Total	M	W	%
144	87	57	39.58	2975	2620	343	11.53	11460	10566	895	7.81

women take part in the practices and technologies that they themselves deem feasible, allowing them to synchronize their work with the web of roles they play in the organization of the family and the farm. For example, in our interviews we were told that women excel at:

- Worm composting.
- Diversification of the farm with orchards, gardens, flowers, and raising small animals.
- Food conservation and other post-harvest activities.
- Seed selection and conservation.
- Administration of the farm and cooperative.
- Watching over the property and possessions of the farm.
- Sustaining and guaranteeing aesthetic needs and order on the farm.
- Better management of water and firewood.
- More active awareness of weather patterns, and about pests and preventative measures.
- Health care, as well as knowledge and encouragement of the use of traditional medicines
- Play a crucial role in molding vocations, habits, and skills of future farmers.

Source: Gender workshops implemented by the ANAP

In the CPAs, many practices routinely carried out by women, become sources of income. In general, producing vegetables, flowers, fruits and artisanal processed foods, which have value-added production, provide better remuneration.

Some future prospects

Rural areas around the world in all countries are confronted by the disintegration and fragmentation of rural families. The traditional monoculture fails to offer attractive or profitable job options for the youth or other members of the family, with the exception to the man in the household. This reinforces the patriarchal structure.

By contrast, agroecological diversification as advocated by MACAC, in turn diversifies the roles available to the entire family. Agricultural work becomes more interesting and enjoyable, as it captivates the imagination and offers opportunities for all family members. As a result, greater numbers of young people remain in the countryside, while other members of the extended family return to the farm. Undoubtedly, this helps guarantee generational renewal, as well as reducing the patriarchal structure inside the family unit.

All of this is complemented by the ANAP's ambitious Gender Strategy, which is a defining component of the Agroecological Movement. MACAC offers new opportunities for women as promoters, facilitators, and coordinators. Nevertheless, much is still needed to achieve gender parity. We are aware that the Movement is young. Just as people learn to run before learning to walk, true gender equality will clear the brush from the path. This will allow us to walk.

CHAPTER 7

Other Factors in Advancing Rapidly

• Policies and programs promoted by the state
• Other programs of ANAP • The media • A variety of allies

Due to the Cuban political system's premise of unity, ANAP is finding allies among organizations and other institutions that investigate and promote agriculture in their own contexts. Since its inception, the agroecology movement has been favored by a group of national and state policies that have facilitated its rapid evolution and contributed significantly to the achievements:

- ***Plan Turquino of the mountainous areas.*** This project began on June 2nd, 1987 as a strategic program, which also would address economic development as a parallel factor to social development, raising the standard of living of the population, and environmental protection, as well as stopping out-migration from these mountainous areas.
- ***National Program for the Production of Biological Inputs.*** This program was approved in 1988 as a way to build a network of Entomopathogen and Entomophage Reproduction Centers (CREE). The mission is to produce (or reproduce) organisms such as bacteria, fungi, and insects to be released into areas

where they would behave as efficient and natural enemies or bio-regulators of crop pests.

- ***National Animal Traction Program.*** Beginning in the 1990's, this program is based on two main intentions. First, to diminish the slaughter of animals and instead put them to work. Second, to promote research and development into animal-drawn farming implements. This program was initially targeted at replacing the deficit of tractors, and later as an element of empowerment and the humanization of farm work.
- ***National Program for the Production of Organic Matter.*** Also beginning the early 1990's, this program has the objective of producing organic fertilizers as a strategic solution to the shortage of chemical fertilizers, and also as an alternative to improve and conserve soil.
- ***Science and Technology Forum.*** Emerging in 1981, this forum was organized by various levels of government. Its aim was to promote worker and campesino innovation, and to spread the results and experiences from the grassroots to the national stage. For the ANAP, this forum was an excellent means through which to present the results of the Agro-ecological Movement, and to disseminate relevant experiences throughout the country.
- ***Popular Rice Cultivation Program.*** Rice is one of the main foods in the Cuban diet. Following the economic crisis of the 1990's, many people began to produce their own rice in small plots to ensure household consumption and a small surplus to sell. This also contributed to the diversification of agricultural systems. The ANAP has defined specific goals for the program in 2009, namely to select and train 500 producers, and province the necessary means to ensure that the producers produce 4 millions pounds of rice.
- ***National Urban Agriculture Program.*** Beginning in 1994, this program has the aim of producing various healthy and fresh foods in the urban or peri-urban areas which up until this time were primarily unproductive. This includes promoting production in courtyards and gardens of houses. It also involves all the cooperatives that are in suburban areas. The program has 28 sub-programs designed to ensure diversification and sustainability, through the use of compost, seed saving, and growing vegetables, fresh condiments, fruits, rice, etc. This production is based on organic practices, with the wise use of local resources. Some of the main results have been: the use of idle areas, the creation of permanent sources of employment for more than 350,000 people, and the rapid growth of vegetable production, from 480,000 tons in 1994 to 4,200,000 tons in 2006 (Lineamientos para los Subprogramas de la Agricultura Urbana 2008-2010).
- ***National Program for the Improvement and Conservation of Soils.*** This program was designed with the aim of implementing soil conservation measures to raise the content of organic matter to improve fertility, and also to develop training programs for the personnel responsible for soil-related activities in production.
- ***National Program to Combat Desertification and Drought.*** Created in the 1990's, this program was developed to combat desertification and mitigate the effects of drought. It was an answer the UN Convention and is part of the National Environmental Strategy.
- ***National Forest Program.*** This program, which supports forestry development nationwide, is a component of the Forest Act, and receives financial support from the National Forest Development Fund (FONADEF). Moreover, as a stimulus it subsidizes 30% of production costs. They also assume costs for the protection and development of forest plantations.

Environmental policy

Protecting the environment is a constitutional provision established in the Constitution which was adopted in 1976, which strengthened the environmental policy of the Revolution and created the bases for important changes, mainly after Cuba's participation in the Rio Summit of 1992.

In 1994 the Ministry of Science, Technology and the Environment was created. In 1997, the National Environmental Strategy was developed and implemented in order to carry out multiple aims. One was to indicate the best way to preserve and develop the environmental achievements of the revolution. Another was to overcome the mistakes and weaknesses identified, as well as to identify the major environmental problems in the country. This laid down the foundation for achieving goals of sustainable economic and social development in Cuba.

During this period, other important pieces of legislation was signed to protect the environment in Cuba. Law 81 of Protection of the Environment and other decrees had provisions, when taken together, had a favorable effect of supporting the Agro-ecology Movement.

Down-sizing and diversifying the sugar-cane sector

The collapse of trade with Eastern European countries and the low price of sugar on the world market precipitated the down-sizing of the monoculture of sugar-cane in Cuba. Beginning in April of 2002 and lasting until December 2007, this process was called 'Alvaro Reinoso', in tribute to the Cuban scholar. In 2005, new directives were given to the Ministry of Sugar (MINAZ):

1. Production of sugar cane should meet the needs of domestic consumption plus a surplus to meet commitments.

2. Production of food that raises the level and quality of life of the population. With the development of agricultural and forestry programs, as well as the restructuring process, will allow all land freed from sugar-cane production to be used for the production of meats, vegetables, and fresh herbs, beef and pork, and fruit trees.
3. Diversification of production to meet the food needs of the population.

Reflections from a facilitator from Ciego de Ávila

The alliance of MACAC with different institutions that work in one way or another for the sustainability of agricultural production has been very important.

This integration of associations, universities, training schools, and individuals responsible for sustainable agriculture programs, which have then been linked to work with farmers to help them and be nourished by them, has been a paradigm shift.

The distribution of land in usufruct

The number of farmers in the world is on a downward trend. However, the peasant sector in Cuba has experienced an increase in people who are involved in agricultural activities during the last twenty years. This is the result of a state policy to deliver vacant land in permanent usufruct, free to individuals and cooperatives who may have the interest and ability to work it.

The primary goal has been to increase the production of food crops and support economic recovery. Results have also been obtained in finding solutions to other problems. Today there is better use of soil as a valuable natural resource, more sources of employment, the trend of migration to the city has been reversed, and because the process involves the entire family, it has rescued productive and cultural values. This fosters the rise of sustainability indicators of the Cuban economy, and also promotes the implementation of organic agriculture.

Other programs of the ANAP and its allies

Preservation of grains in silos.

Considering the importance of creating a strategy for seed-saving and considering the peasant tradition of producing and saving seeds, the ANAP created a program for the conservation of grains on the farm in metal silos. This practice has spread rapidly among farmers, because it is effective and cheap. To date 35 workshops on hand-crafting artisanal metal silos have been held in cooperatives, and over 10,610 units have been created with the capacity to store 8,516 tons of grain. ANAP is currently working to expand the number of workshops in all provinces of the country.

Artisanal conservation of food.

ANAP is developing a project on conserving and processing foods by traditional methods. This represents a rescue of campesino traditions that can strengthen food security within the country through the use of local resources.

Program for Participatory Plant Breeding (MPP).

This program was developed by the National Institute of Agricultural Sciences (INCA), who work with ANAP cooperatives from different

regions of the country. This program promotes endogenous community development through the participation of farmers in the selection, multiplication, exchange, and conservation of varieties of plants. This also contributes to the rescue of traditional varieties, and to adaptation to local conditions. This task, carried out by farmers, is made possible through various pedagogical tools, including Agro-biodiversity Fairs.

Leveraging the Media

The local and national media in Cuba (radio and television), have played an important role in the dissemination of agro-ecology. During 2008, 14,292 campesino radio programs were transmitted around the country, and 491 television programs were recorded in cooperatives. Both spaces are used by MACAC to publicize their activities, the experiences of campesinos, and to transmit interviews with featured advocates.

As for the press, first it is important to mention the ANAP magazine, which is distributed to all grassroots organizations and discussed in general meetings of members. This material is an excellent way to publicize the activities of the Movement and to promote successful experiences. The role of national and provincial press is important as well, which regularly publish information on issues related to sustainable agriculture.

Nonetheless, it should be noted that this extension of media is not present in all provinces. It depends partly on the inciatives taken within each place.

Diverse allies

As we have seen, there is a widespread perception that the working relationships between various ministries and institutions and the Agroecology Movement are an asset. The following is a list of those ministries and institutions:

1. Ministry of Agriculture (MINAG).
   - *Soil Management Department.*
   - *Plant Health Directorate.*
2. Ministry of Sugar (MINAZ).
3. Ministry of Science, Technology, and the Environment (CITMA).
4. Cuban Association of Agricultural and Forestry Technicians (ACTAF).
5. Cuban Association for Animal Production (ACPA).
6. Universities.
7. The Antonio Núñez Jiménez Foundation for Nature and Man.
8. Urban Agriculture Movement.
9. Several research institutes and their agencies in each province:
   + *Research Institute of Pastures and Forages (IIPF).*
   + *Research Institute of Agricultural Mechanization (IIMA).*
   + *Institute for Basic Research in Tropical Agriculture (INIFAT).*
   + *Institute of Tropical Roots and Tubers (INIVIT).*
   + *Research Institute of Plant Protection (INISAV).*
   + *Research Institute of Irrigation and Drainage (IIRD).*
   + *National Institute of Agricultural Science (INCA).*
   + *Animal Science Institute (ICA.)*
   + *National Research Institute of Sugarcane (INICA).*

The Press

The role of the press in the Farmer-to-Farmer Agroecology Movement is an important one. It is how we learn of results, present our reflections, and broadcast our opinions.

In my work as a journalist I have had the opportunity to interview producers who have managed to increase their yields through techniques such as vermiculture, composting, and growing plants such as the velvet bean, which is considered a green manure, as well as various organic techniques to combat pests.

Currently, because agroecology has played a central role in how they have increased food production, it is very difficult to talk about the tasks taken on to achieve this goal without referencing the application of agroecology.

Amado Rodríguez López
Journalist invited to the Documentation Workshop
Ciego de Ávila

In short, a part of the success of MACAC in Cuba has been that the ANAP has managed to build a policy of alliances. They have been able to leverage and influence other policies and programs promoted by the state and work with a variety of external actors, without losing the prominent role of the peasantry within the organization itself. Finally, we should also mention that this policy has seized on the opportunity of multiplying their reach through the use of mass media.

CHAPTER 8

Conclusions: "The land is there. There is no choice but to make it productive"

The land is there. Here are the Cubans. We will see if we will work or not, if we produce or not, if we keep our word or not! It's not about shouting 'countryland or death'. Under imperialism, the Blockade beats us down, but the land is there waiting for our sweat. Despite the ever increasing heat, there is no choice but to make it productive...Every time we talk about this issue officials from the Ministry of Agriculture show up... with an endless list of millions of pesos or dollars requested for the assigned task.

And if a bag of money doesn't appear, nothing is planted. I do not know what the hell our grandparents did to plant all the trees that exist today, because there they are, and we're here eating the mangoes that they planted...

Raúl Castro Ruz
President of Cuba, July 26th, 2009

The solution is in our hands

After finishing the work of documenting a decade with the Farmer-to-Farmer program in Cuba, we, the authors, understand that Cuba has the answer to the problems with food in its own hands. Compared to the cost of imported inputs and the unstable productive indicators of conventional mono-cultural agriculture, the style of the Green Revolution, peasant production of food through highly integrated agroecological systems have many benefits. These include:

- More productivity per hectare, per worker, and per amount of economic investment, especially in foreign exchange.
- More stable, or in other words, more resistant to the ravages of

climate change, especially droughts and hurricanes, with faster and more complete recovery from damages.

- More resistance to economic and political shocks. Not relying on imported inputs, the output is not affected by the blockade nor by volatility in the markets caused by the fluctuating price of oil.
- Finally, human health or the environment is not undermined by agriculture or the use of agri-chemicals or GMOs. This type of agriculture produces healthy food, in harmony with nature.

The MACAC is a mass movement that is in full swing, as shown in the figures and graphs presented in Chapter 5 of this book. More than 100,000 families are incorporated, and the peasant sector is increasingly interested in agroecology, as one can see in table 8.1, which shows the number of activities and workshops in 2008 alone.

The urgent need for food sovereignty

Given the high and volatile price of food on the international market, and the United States' economic blockade, it is increasingly clear that Cuba must aim for self-sufficiency. As Raul Castro said on July 26th of 2009, "it is an issue of national security to produce the products needed in this country, and now we spend hundreds and thousands of millions of dollars –and I am not exaggerating– importing them from other countries".

In order to survive, Cuba must achieve food sovereignty. The country's production will not be safe or sovereign if it depends on increasing amounts of increasingly expensive imported inputs. Agroecology has an answer to these issues, placing true food sovereignty within reach of the people and the country.

What had hindered the progress of agroecology as a viable option to achieve food sovereignty and security, was the difficulty of finding a way to spread the practice of acting and applying technologies based on principles rather than recipes. These principles of agroecology are meant to be implemented according to local contexts and resources in each place. The problem was, however, in confronting the habits of and dependence on top-down methods of agricultural extension. These are methods in which technicians who rarely understand local contexts hold 'the truth,' and arrive with pre-fab packages of recommended inputs. This system prevents innovative and creative processes from

TABLE 8.1
Activities and workshops of the Farmer-to-Farmer Agroecological Movement (MACAC) in 2008.

ACTIVITY	QUANTITY	NUMBER OF PARTICIPANTS
Diagnostic study of cooperatives (Banes Method)	3,035	190,940
Rapid participatory diagnoses of farms (DRP)	19,650	110,124
Workshops for developing agroecological techniques	8,650	121,100
Methodological workshops	3,922	47,064
Monthly assembly meetings with analyses of agro-ecological designs	21,233	1'816,317
Activities during Agroecology Day (September 21st)	3,700	92,500
Municipal meetings of advocates and facilitators	262	9,171
Provincial meetings	14	980
Total activities	6,0455	2'388,196

Source: Anthology of Agroecology Movement Information, ANAP

flourishing in peasant families, who are and should be at all time the real and savvy agents of their own reality. This problem was overcome in Cuba through the use of Farmer-to-Farmer methods.

Cuba has taken Farmer-to-Farmer and transformed it into a mass movement, which is supported by the organizational structure of the National Small Farmers Association (ANAP). The peasantry of the country already has the tools and skills to build and exchange knowledge collectively, and to do so with the aim of appropriating such knowledge and using it to transform their realities. This is a truly Freirean process. That is, the *campesinos* and *campesinas* of Cuba are already on the path to arming themselves with what is necessary to fulfill their revolutionary duties of feeding their people.

Such preparation of the Cuban peasantry has been made possible by combining the methodologies of the Central American Farmer-to-Farmer method and the innovations that flourished in Cuba. The particular political position of Cuba has also benefitted this preparation.

Experiences and lessons to take into account

The experiences gained during the application of the Farmer-to-Farmer methodology in Cuba have allowed the definition of some principles and lessons. It is interesting to take this into account, as much for the continuity of the process in Cuba as in other countries. A list follows:

- Begin with the needs expressed by the farmers.
- Integrate the program with other actions or interests that have similar objectives and that are already present in the community, the region, or the country.
- Join in action with other stakeholders, and consider them allies. This is of primary interest to continue using Farmer-to-Farmer methodology.
- Implementation programs based on the local resources available at each site, both human and local material. This is in order to reduce dependency on external actors and resorces as much as possible, in order to ensure sustainability. It is also essential that the organization determine, find, plan and source who and what is needed.
- Start with the simplest solutions: leave the most complex and costly for later.
- Advance gradually and diversify your actions, according to the requirements and possibilities of each family, of each cooperative, and of each community. Rescue, evaluate, and recognize and promote local knowledge, while trying to enrich it with technical scientific knowledge.
- Respect the culture and customs of the family and the locality.
- Consider the family as the center and principle objective of the process of implementation, as the family is the unit that is always situated on the farm.
- Promote and give space to campesino leadership in order to continually promote the assimilation of good results on the part of campesinos and other actors.
- Strive towards equitable gender relations. This raises the need to promote greater participation of women in terms

of agroecological practices, and also to improve the status of women.
- Ensure horizontal relationships of different actors and work on vertical and horizontal integration during facilitation, as well as the transmission of knowledge and best practices. At all times, conserve campesino leadership.
- From the beginning, avoid letting technological advancement, which tends to move faster, be at an imbalance with methodological advancement, which initially tends to lag behind.
- Identify local leaders in order to train them in methodology and agroecology.
- Avoid creating problems in which certain leaders grab the limelight. For example, some rural farmers become technicians who flaunt their knowledge in unproductive ways, and some farms become display cases for everyone at all times, taking experiences away from others.
- Select the facilitators and coordinators for their dedication and capabilities in the field of social dynamics. Preferably, they should be from the cooperative, community, or municipality in which they work.
- Harness natural and informal relationships that exist in the community (leaders, related vocations, historic structures, meeting places, population affluences), in order to organize the structure of advocacy and training of the grassroots.
- Take advantage of grassroots structures. It is essential to involve their leaders and to have their support.
- Acquire and develop theoretical knowledge during the practice of agroecology. This makes the process of development effective in two ways: both learning by doing, and through acting, reflecting, then acting, techniques are improved.
- Teaching by personal example, as favored by Farmer-to-Farmer methodology, gives results and makes agroecological practice even more enjoyable, harmonious, and easy to learn.
- Avoid taking promoters away from their farm as much as possible.
- Discourage promoters from wasting time in unnecesary burocracy as much as possible so it does not distract them from their role in the process.
- It is essential to develop action plans, systems of monitoring and evaluation, all of which must be participatory.

This was expressed during a reflection of one cadre of ANAP during a workshop that took place in Granma province:

> *Another important consideration which should be discussed everyday, is the existence of the Agrarian Reform law in Cuba. The distribution of land, and the fact that the farmer is the owner of the land, makes him or her think about how to improve it. That farmers and cooperatives are owners of the land and the means of production is something that facilitates this process.*
> *Another point is about the campesino tradition. Traditional knowledge, habits, and practices of production existed before this Movement began. This accumulated knowledge has facilitated the success and the practicality of the methodology used.*
> *It's important to point out that the conditions of Cuba have made this Movement stick. It hasn't stuck like this in other countries. Sometimes campesinos from other countries have to eat the seeds themselves. Here the campesino does not go un-protected. The peasant has shifted from conventional to agroecological farming without many problems, because of the support of the State.*

To those who still don't believe in agroecology...

It is paradoxical that in today's world, overwhelmed by consumerism which generates system crises which affect all countries, there are still people who don't believe in sustainable alternatives such as agroecology. Many prefer to gamble with the option of continuing high-input agriculture.

It is a worry that many people who make these gambles occupy public offices. They choose to make decisions which at first glance, seem easier. Hopefully the following brief list of arguments will appeal to them, or at least, lead to reflect.

- *The current environmental context is marked by climate change, as there are more natural disasters and imbalances in agro-ecosystems. Agroecological systems are more resilient and better resist the onslaught of climate change.*
- *Depletion of natural resources in general, including soil degradation, affects 70% of arable land in Cuba. This is a call to change production models. Only agroecology is able to restore degraded soil.*

- *The harmful effects of agri-chemicals on human health have been shown. There is a growing awareness about this issue in society, and people are beginning to demand cleaner food. Agroecology does not use pesticides.*
- *The increase of food prices on international markets, as well as the increase in the prices of inputs and other means necessary for developing conventional agriculture, forces us to consider another less dependent model for agriculture. Because of the brutal economic blockade in Cuba, the economic and agricultural situation is complicated further, and greater challenges are posed in terms of sustainability. Agroecology is not dependent on imports. It is sovereign.*

The future of MACAC in Cuba

The resolutions adopted during MACAC meetings, the monitoring of the Working Group, the stated strategies of the ANAP, and the transformations in Cuban agriculture that already exist allow us to make some projections about the future of MACAC in Cuba.

- The process of incorporating rural families into MACAC should continue, with special attention to those who are incorporating agroecology into their farming practices. The same should be done with the CPA's and new actors from the UBPCs should be influenced.
- Farmer-to-Farmer methodology should continue to be strengthened, combining the activities, methods, and roles of actors of the ANAP with that of MACAC in order to further embed the Cuban methodology. Special attention should be given to develop methodology for the CPA's and methodology that could serve the UBPCs.
- Achieve production growth, as well as food security and food sovereignty of the country through agroecology and using agro-ecological principles as deciding factors.
- Further the progress made in conservation and wise use of natural resources in agroecosystems.
- Keep the goal of elevating production leaves within the production system in order to recapitalize agricultural economies, with a focus on sustainability. This can be done using concepts of diversification, agroecological integration, lower costs, labor efficiency, quality, added value, and functionality.
- Improve outreach and publications of content related to the Movement, making greater use of mass media, including digital media. Also, document economic and productive data, disaggregated by sector and mode of production. In addition, make sure results, case studies, and experiences in implementing agroecological technologies are published.
- Based on mutual interest, strengthen the skill sharing, training activities, and cooperation among farmers, rural women, and indigenous peoples from other countries, jointly with La Via Campesina.
- Integrate the central position of gender in MACAC with the Gender Strategy which was developed by ANAP. This will motivate and improve the participation of women as actors within the Movement.
- Institute MACAC as a scientific-technological-methodological support system of sustainable development within cooperatives and the agricultural sector. This can be done through:
  + Further consolidation of alliances with scientific institutions, universities, and ministries.
  + Strengthening meetings and debate forums about experiences in the development of agriculture.
  + Reorient the technical force of the agricultural sector through retraining them with visions for sustainability, agro-ecology, and in Farmer-to-Farmer methodology.
  + Give more technical attention, as well as a greater scientific and economic foundational training, to a group of agroecological experts. They can study together with other institutions to develop programs of promotion and documentation.

- *Even under these economic conditions and with adverse weather, Cuban farmers who have relied on agroecology have exhibited the highest levels of productivity and sustainability in the country, as demonstrated in Chapter 5. Agroecology produces more with less (foreign currency, inputs, investments.)*

A call to policy makers to reflect

In spite of the problems discussed above and the success demonstrated by agroecology, many Cuban policy makers are still in favor of a system of high-input agriculture. This is the case even though the Cuban president himself has put faith in agroecology, as one can see in the quote in the beginning of this chapter.

In the workshops we have conducted with the rural grassroots members of ANAP throughout the country, producers have said again and again that the main difficulties they face are two. One is to convince policy makers, some of whom are still longing for costly, dependent, and destructive industrial agriculture. The other is the sporadic imports of pesticides and promotion of technology packages.

We believe it is time to reflect deeply about what other models of production we may have at hand.

Contributing to the debate over the future of farming in Cuba and other countries

With this work to summarize the experiences of the Farmer-to-Farmer Agroecology Movement in Cuba, we hope to contribute to the reflection and debate on the island, and also in the other peasant and indigenous peoples organizations that make up La Vía Campesina International. They are also involved in the struggle for (re)appropriating and transforming their production systems. We hope this will serve as a documented source of ideas and inspiration. May this work be the inspiration of an agroecological revolution forged by peasant peoples resisting imperialism and producing for the people what the people need.

Globalize the struggle!
Globalize hope!

(Slogan of La Vía Campesina)

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