



Agroecology in Cuba: For the Farmer, Seeing is Believing

Introduction

The Farmer to Farmer Agroecology Movement (MACAC) 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 (<http://viacampesina.org>).

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 to withstand the adverse effects of climate change (such as hurricanes).

During the Special Period, which is the extended period of economic crisis that began in 1989 ensuing on the collapse of the Socialist Block in Europe, 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.

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.



Figure 1. Farmer demonstrates intercropping of plantains with annual crops.

Description of the Agroecology system

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.

Certain characteristics of ANAP favoured 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.

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

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 farms labour invested. 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 food production.

Outcomes of the practices

Figure 2 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 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.

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, 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. It offers a way to rapidly identify new

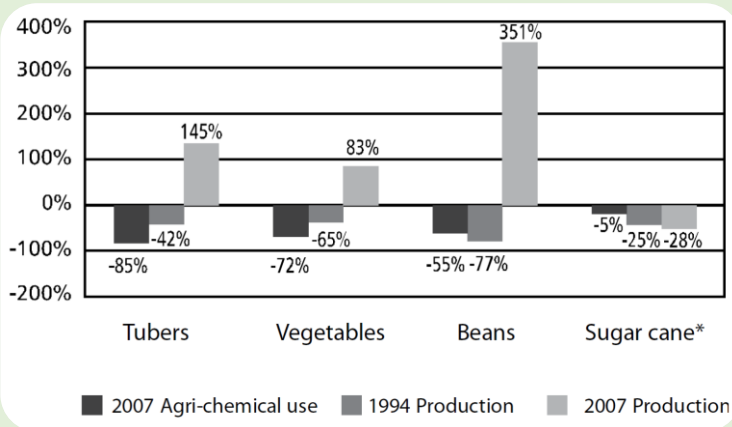


Figure 2. Dynamics of agrochemical use (compared to 1988) and production of sugarcane and other basic foods in 1994 and 2007. Data for sugar cane represent yield, not production.



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. 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, gully control, greater use of cover crops, etc.). Fewer crops are lost when multiple strata of vegetation exist.



Figure 3. Farmers explains his mixed cropping system in campesino to campesino exchange visit

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. It is demonstrated that the initial damage from the hurricane on the most agroecological farms ranged from 30% to 60%, which is below the average for all the farms in the CCS (75%). 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.



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. 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



Figure 4. The home of a peasant family that farms agroecologically.

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 favour 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.

Message from farmer to farmers

“On an agroecological farm, if one thing doesn't make it, another one will. There's always something to eat. It doesn't matter what happens.”

— Nini, agroecological farmer and member of ANAP