Peasant and Family Farm-based Sustainable Agriculture Can Feed the World

Via Campesina Views

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by La Vía Campesina

The 2008 world food price crisis, and more recent price hikes this year, have focused attention on the ability of the world food system to "feed the world." In La Vía Campesina, the global alliance of peasant and family farm organizations, we believe that agroecological food production by small farmers is the agricultural model best suited to meeting future food needs.

The contemporary food crisis is not really a crisis of our ability to produce. It is more due to factors like the food speculation and hoarding that transnational food corporations and investment funds engage in, the global injustices that mean some eat too much while many others don't have money to buy adequate food, and/or lack land on which to grow it, and misguided policies like the promotion of agrofuels that devote farm land to feeding cars instead of feeding people. However, we cannot deny that our collective ability to grow enough food — including, crucially, how we grow it —is an important piece in the jigsaw puzzle of ending hunger. It is here where the corporate agribusiness model of large-scale industrial monocultures is failing us, and where peasant-based sustainable farming systems based on agroecology offer so much hope.

Principles of Sustainable Agriculture

Sustainable agriculture is all over the planet, but the words to describe it vary greatly from one place to an other, or from one system to another. Terms such as organic farming, natural farming, low external input sustainable agriculture (LEISA), agroecology, and maybe some other names all describe some forms of sustainable agriculture. Via Campesina is not saying that any of those names is better than the other because some times the similar method use the different name. What is important is agree on a set of principles to define what we are defending. Here are some of those principles:

1. Enhance recycling of biomass and optimizing nutrient availability and balancing nutrient flow
2. Securing favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity
3. Minimizing losses due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover
4. Species and genetic diversification of the agroecosystem in time and space
5. Enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services

In practice, what is very important is that the farm should be a small farm managed by peasant families and communities. Small farms guarantee the

development of biodiversity because they usually develop a diversified production in various small plots and integrate animal raising. In this type of agriculture, there is less need (or no need at all) for external input as everything can be produced in the farm itself.

The Corporate Food System Cannot Feed the World

With an estimated 925 million hungry people in the world, and rampant illnesses caused by the food system — like malnutrition, obesity, diabetes, heart disease, cancer and swine flu — ravishing many of the rest of us, it is no exaggeration to say that the dominant corporate food system is already failing to provide us with adequate and healthy food. The fact is that under the rules of this system, food flows though the global economy from areas of poverty and hunger toward areas of wealth and abundance. And food is being homogenized into an unhealthy global diet consisting largely of processed fat, sugars, starch, and carcinogenic chemical residues, which is deficient in fiber, protein, vitamins, fruits and vegetables.

Finally, the production methods used to produce corporate food — monoculture, heavy machinery, excessive irrigation, chemical pesticides and fertilizers, GMOs, etc. — are rapidly degrading our planet's best soils though compaction, salinization, sterilization, erosion and loss of above- and below-ground functional biodiversity. Yields which once rose every decade through the technologies of the so-called "Green Revolution" have now leveled off and in many regions are actually in decline, as can be seen in the example Figure 1 (Kundu et al., 2007; also see for example Radford et al., 2001; and Mulvaney et al., 2009).

There is no future for humanity or for the planet in this dominant food system. In fact, there is scarcely a present.

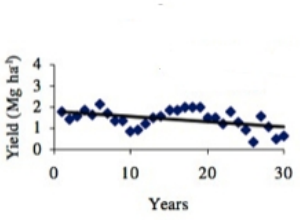


Figure 1. The long-term decline of yields under conventional management based on chemical fertilizers in India. Source: Kundu et al., 2007.

Peasants and Family-farmers Feed People Today

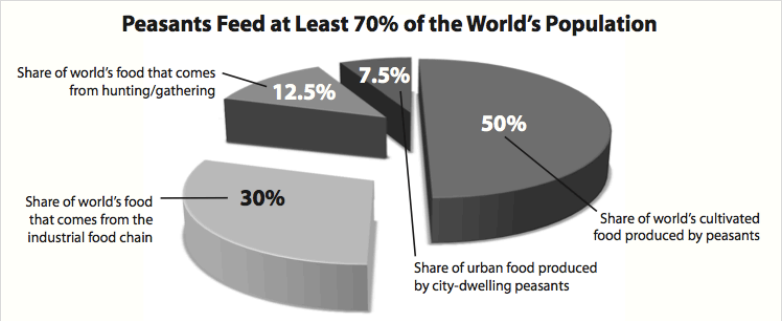
Despite the fact that agribusiness controls the majority of arable land – and especially of good quality land – in almost every country in the world, it is in fact due largely to peasants and family farmers that we have the food that is available today. In country after country, small farmers control less than half of the farm land, yet produce the majority of the food that is consumed. The most recent agricultural census in Brazil, for example, is a case in point. Peasants and family farmers hold just 24.3% of farm land, though they make up 84.4% of all farms and gainfully employ three times as many people as does agribusiness (which in Brazil depends on starvation wages, with numerous recent cases of actual slavery and indentured servitude).

On the one quarter of arable land that they farm, these small farmers produce 87% of all cassava, 70% of beans, 46% of maize, 34% of rice, 58% of milk, 50% of poultry, 59% of pork and 30% of beef, and 38% of coffee, among many other food products. Peasants have less than 25% of farm land, yet they generate 40% of all agricultural value. And Brazil is a country noted worldwide for the supposed productivity and efficiency of its national and transnational agribusinesses, and for it concentration of landholdings in the hands of a wealthy few. Yet it is still Brazilian peasants and family farmers that feed

the Brazilian people, a pattern repeated around the world. Peasants and family farmers have a food producing vocation. Agribusiness has an export vocation. Brazilian agribusiness is more likely to feed cattle in Europe or produce ethanol for automobiles than to feed a hungry child in Brazil.

Half of the people in the world are peasants

There are 1.5 billion peasants on 380 million farms; 800 million more growing urban gardens; 410 million gathering the hidden harvest of our forests and savannas; 190 million pastoralists and well over 100 million peasant fishers. At least 370 million of these are also indigenous peoples. Together these peasants make up almost half the world's peoples and they grow at least 70% of the world's food. (ETC, 2009)



To Feed Future Populations, We Must Nurture the Land

Peasants feed people today, but how will we feed people tomorrow? If we follow the path of "business as usual," we will find ever more land in the hands of the agribusinesses that are failing to feed people well today, and that are destroying the productive capacity of the land for future generations. Corporations move their production around the

world through global outsourcing, and they have no attachment to any given place. They have no incentive to conserve, restore and build soil fertility. Rather they extract the most they can as fast as they can, in the search for quick profits, and abandon a given area once production passes its peak and begins to drop through soil degradation. They move on, outsource from somewhere else, and leave devastated agroecosystems and local economies in their wake.

Peasant and small farm families, on the other hand, are rooted in the place where they and their ancestors have farmed for generations, and where their children and grandchildren will farm in the future. This gives them reasons to nurture the productive capacity of the land and surrounding environment. It is precisely in peasant and family agriculture where we see both traditional sustainable farming practices and the rapidly growing field of agroecology.

Agroecology Conserves and Restores Soils and Agroecosystems

With so many degraded soils with falling productivity around the world, it is critical that we use restorative farming practices based on agroecology and traditional methods. Among the principles of agroecology are the incorporation of biomass and organic matter into the soil, the protection of the soil from high temperatures and erosion through mulching, cover cropping, contour planting, etc., and the promotion of a healthy soil biology and biodiversity (Pretty, 1995; Altieri et al. 2000; Altieri, 2002). In Central America, tens of thousands of peasant farmers have recovered eroded hillsides and restored and boosted productivity though the farmer-to-farmer agroecology movement (Holt-Giménez, 2006). While industrial monoculture degrades soils and drives the loss of productivity, agroecology is restorative.

Philippines: Organic rice produces more and better yields

Research in the Philippines shows that rice yield in organic farms is 19.9% higher than in Low External Input Sustainable Agriculture (LEISA) farms and 37.4% higher than in conventional farms during the dry season. Not only was the yield in tonnes per ha higher in organic farms, but the grains in the panicle were also heavier. The weight of 1000 grains in the organic farms was also higher than in conventional farms (Table 3). Filled grains per panicle were highest in the organic farms while it was lowest in LEISA, the Conventional farm being intermediate. Percent unfilled grains were highest in LEISA while it was comparable in organic and conventional farms.

Table 3. Comparative grain features (filled-unfilled grains, weight of 1000 grains) in Organic, LEISA and Conventional farm

Farm	Filled grain per panicle	Unfilled grain per panicle	% Unfilled Grain	Weight of 1000 grains (g)
Organic Farm	91.5	24.1	20.0	27.4
LEISA Farm	44.9	25.8	36.0	23.4
Conventional Farm	70.8	19.5	22.0	25.7

(Mendoza 2002)

Agroecology Can Produce More and Feed the World

Despite the common misconception that the industrial farming systems of agribusiness are the most productive, many studies have shown in recent years that: 1) small farms are more productive than large farms (Rosset, 1999), and 2) "agroecological," "sustainable" and/or "organic" systems are as productive, and in many cases, more productive, than

chemical-dependent monocultures (Badgley et al., 2007; Pretty and Hine, 2001; Pretty et al., 2003). The most productive systems per unit area are highly integrated agroecological systems on small farms.

Figure 2 graphs the available data relating total production per unit area versus farm size for those countries for which such data is available. Although what constitutes "small" and what constitutes "large" may vary from country to country, in all cases smaller farms outperform larger farms by a wide margin (Rosset, 1999).

Research shows that in developing countries organic farming systems on the average yield 2.7 times more per hectare than do non-organic systems. In developed countries they yield about the same, while on a global level they yield 1.3 times as much (Badgley et al., 2007).

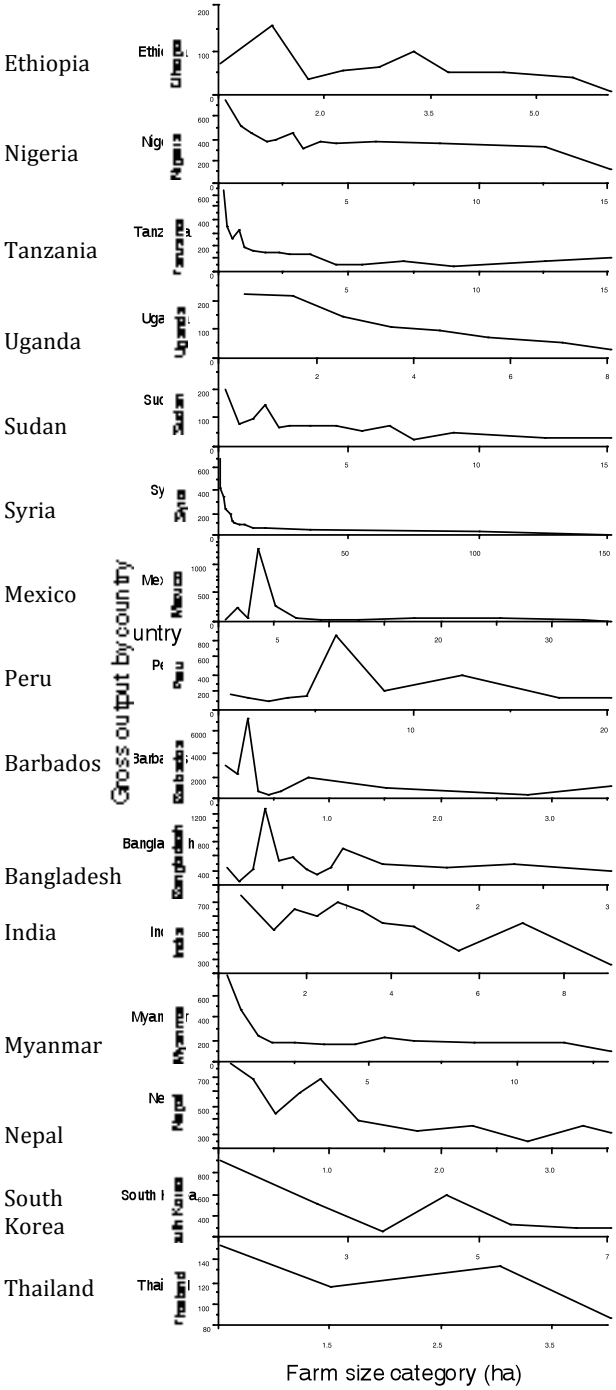


Figure 2.
The relationship between farm size and total output in different countries (Rosset, 1999).

In fact, there is no real argument in favor of industrial agriculture if we are truly concerned about feeding future populations at a global level.

In La Vía Campesina we have conducted our own research to document what we consider to be our most advanced example of a successful large-scale transition to agroecological farming, that of Cuba (Machín Sosa et al., 2010). In one part of the study we compared the productivity of farms along a scale from lesser to greater "agroecological integration." A more integrated farm is one that combines crops and livestock, intercrops and rotates crops, employs agroforestry, and generally exhibits a higher level of functional biodiversity. In Figure 3 one can see that the more agroecological farms are substantially more productive both per unit of area and per amount of labor.

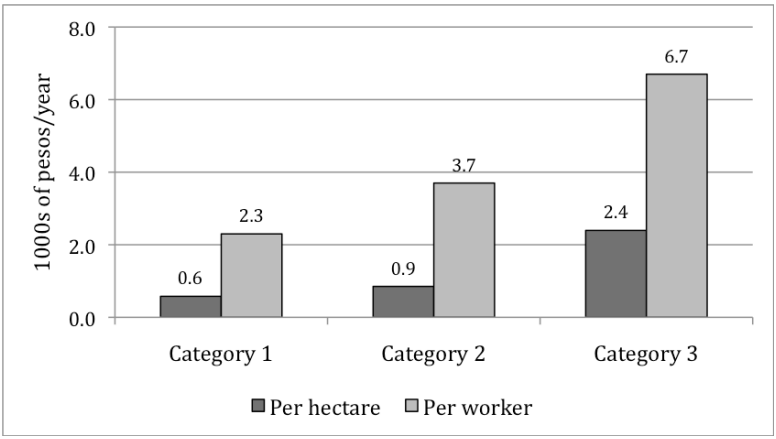


Figure 3. Farm productivity in Cuba from a lesser (Category 1) to a greater (Category 3) degree of agroecological integration (Machín Sosa at al., 2010).

Such systems are not only more productive but have far lower costs, especially in terms of expensive farm chemicals and machinery (Machín Sosa et al., 2010). Many of the peasant

and family farm families that belong to our member organizations in India, for example, are part of the *four million member* "Zero Budget Natural Farming" movement, where farmers buy no off-farm inputs whatsoever, relying instead on manuring, mulching, cover cropping and earthworms to farm successfully from both an economic and an environmental perspective.

Peasant agroecological systems benefit greatly from ready access to the traditional seed varieties that are increasingly under threat of extinction under the corporate- controlled commercial seed regime. For this reason our member organizations in Cuba, Brazil, Tanzania, Indonesia, Thailand, France and elsewhere, are actively involved in conserving and multiplying peasant seed varieties.

Agroecology is More Resilient to Climate Change

By the same token, integrated agroecological farming systems are widely recognized to be more adaptive and resilient to climate change, including droughts, hurricanes, temperature changes, and shifting planting dates. The higher level of on-farm diversity under agroecology means that if one crop is negatively affected, another one is likely to compensate for it. Mulch and green manures that cover soils protect them from high temperatures and conserve moisture. A diversity of varieties, as well as greater within variety genetic diversity, make peasant farms more able to adapt to changing conditions than homogenous commercial agriculture (Borron, 2006; Altieri and Koohafkan, 2008; Altieri and Nicholls, 2008; Chappell and LaValle, 2009).

Our own research in Cuba (Machín Sosa et al., 2010) demonstrates the resilience of agroecological systems to the devastating impacts of hurricanes. We compared multiple layer peasant agroecological systems to monoculture systems, and found that the complex systems suffered about 50% loss – mostly the taller layers – with the initial impact of the storm,

while monocultures suffered losses greater than 80%. After the initial losses, the multiple layer farms recovered their yield potential rapidly by compensatory growth from lower level crops, while monocultures did not, suffering near total losses. It was clear in the conclusions to our study that in countries and regions most likely to suffer severe climate events, agroecological systems are not an option but a necessity.

Agroecological Production Requires farmers organizations and Supportive Public Policies

If we can agree that small farm agroecological systems are more productive, conserve soils and restore the lost productivity of degraded systems, and are more resilient to climate change, then the key question is not whether we should, but how we can, promote the transition to such systems. The experience of Central America (Holt-Giménez, 2006) and Cuba (Machín Sosa et al., 2010), show us that conventional top-down research and extension systems, as well as the "project-based" methods of many governments and NGOs, fail to effectively support small farmers in the transition. Because agroecological systems require the mobilization of farmer ingenuity, the methods that work best are those in which farmers themselves become the protagonists in recovering, developing and sharing methods. This can only happen inside of farmer and peasant organizations, through farmer-to-farmer and community based methods, farmer training schools, etc. (Machín Sosa et al., 2010). However, farmer organizations are swimming against the tide when we cannot count on effective public policies. Such policies must include genuine agrarian reform to put farm land into the hands of peasants and family farmers, an end to open and hidden subsidies to industrial farming methods, including chemical inputs and GMOs, the reversal of the free trade policies that make farming unprofitable, and an overall shift from polices that are hostile

to small farmers and their organizations to ones that support our own efforts to innovate and develop agroecological farming methods and share them horizontally. The time has come to act, to build true food sovereignty in each country, based on agroecological by peasants and family farmers in control of our own destinies.

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