Kicking the Chemical Habit
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In the Third world, peasant farmers show a tremendous ability to prevent and even reverse land degradation, including soil erosion. Compared with the ecological wasteland of a modern plantation growing export crops. the small farm landscape contains a myriad of biodiversity iv. This often means lower levels of pest attack and less need for pesticides. Also because small farms are mostly family-run it means that family members know the land intimately and have a genuine commitment to maintaining both soil fertility and long-term Sustainability. That's something generally not found on large farms owned by absentee investors.

Not surprisingly, pesticide use in the Third World is concentrated on export crops grown by large farmers, not on staple foods produced mostly by small ones. Over 90 per cent of all pesticides in West Africa are used on export plantations. In Latin America, 'entrepreneurial farmers' who grow most of the export crops use three/quarters of the pesticides while small farmers use just 11 per cent. Food producers are often the poorest farmers and simply cannot afford the cost. Since pesticides must he imported into most Third World countries they are more likely to be used on crops that earn the foreign exchange needed to pay for them.

But there is an alternative. It's one that involves creating a viable and productive small-farm agriculture based on land reform using the principles of 'agroecology'. That is the only model with the potential to end rural poverty, feed everyone and protect the environment and the productivity of the land for future generations.

From the United States to India alternati\e agriculture is slowly proving itself. But it's in Cuba where this alternative has been put to its greatest test. Before 1989 Cuba was a model Green Revolution-style farm economy Its success was based on enormous farms using vast quantities of imported chemicals and machinery to produce export crops while over half of the island's food was imported. The Governments commitment to equity as well as favorable terms of trade offered by Eastern Europe meant that Cubans were not undernourished. But the underlying vulnerability of this style of farming was exposed when the collapse of the Communist Bloc was added to the already existing, and soon to be tightened, US trade embargo.

When pesticides, chemical fertilizers and tractor parts could no longer be imported Cuba was plunged into the worst food crisis in its history. Within a few short months consumption of calories and protein dropped by as much as 30 per cent.. Nevertheless, by 1997 Cubans were eating almost as well as they had before 1989. Yet comparatively little food or agrochemicals were being imported. What happened? Faced with the impossibility of importing such inputs, Cuba turned inward to create a more self-reliant agriculture based on smaller farms, higher crop prices and agroecological technology.

The combination of food shortages and the opening of small markets meant that farmers began to receive much better prices for their products. Given this incentive farmers produced their crops even in the absence of pesticides. They were also given a huge boost by Government support for alternative methods and by the 'rediscovery' of traditional farming techniques. Small farmers and cooperatives responded by increasing production while large-scale state farms stagnated and faced plunging yields. In response the Government began to divide up the state farms into small plots for sale to their former employees.

The Cuban experience shows that we can feed a nation's people using a small-farm model based on agroecological technology instead of pesticides - albeit. in a small island nation of ten million people. And we can become more self-reliant in food production in the process. A key lesson is that when farmers receive fairer prices they produce - with or without chemical inputs. So if these expensive and noxious inputs are unnecessary, why not dispense with them altogether? But how realistic is the idea that small farms could feed the world? We've all heard the counter arguments: large farms are more productive than small farms We need to consolidate land holdings to take advantage of greater productivity and efficiency. But the actual data shows just the opposite - small farms consistently produce far more per hectare than large farms.

One reason for lower production levels on large farms is that they tend to be monocultures. The highest yield of a single crop is often obtained by planting it alone in a

field. But while that may produce a lot of one crop, it generates nothing else of use to the farmer. In fact, the bare ground between crop rows invites weed infestation. The weeds then make the farmer invest labor in weeding or money in herbicide. Large farmers tend to plant mnonocultures because they are the simplest to manage with heavy machinery.

Small farmers, especially in the Third World, are much more likely to plant crop mixtures (intercropping) where the empty space between the rows is occupied by other crops. They usually combine or rotate crops and livestock, with manure serving to replenish soil fertility. Such integrated farming systems produce far more per unit area than do monocultures. The yield per unit area of one crop - corn for example - maybe lower on a small farm than on a large mnonoculture. But the total production per unit area, often composed of more than a dozen crops and various animal products, can he far, far higher. This holds true whether we are talking about an industrial country like the US or any country in the developing world. Data on farm size and total production is available for 15 countries in the Third World. In all cases smaller farms are much more productive than larger ones - 200- to 1,000-per-cent more productive per unit area, in the US small farms with 11 hectares or less have more than 10 times greater dollar output per hectare than larger farms.

In American commnunities which are dominated by large corporate farms, nearby towns have died off. Mechanization means that fewer local people are employed and absentee ownership means that farm families themselves are no longer needed.

"With dependence on pesticides we have focused on the obvious problem, getting rid of pests, without looking at the deeper problem - a farming system out of balance,' says Paul Buxman. The California farmer, who grows peaches on his family farm in the San JoaquinValley, hasn't used pesticides since 1982. That's when a rash of cancers among local farm families, including his own, forced him to take a hard look at the way he farmed. Eventually, he abandoned pesticide use altogether. But,despite that he still farms successfully today. Buxman's case and many others like his give the lie to the agribusiness myths that pesticides are indispensable or that large farms are somehow more productive than small farms.

If a small-farm model of rural development makes more sense than the mechanized, chemical intensive, corporate-dominated one toward which we are moving, then now is the time to recognize the genuine value of this fast-disappearing style of farming. While large, industrial-style farms impose a scorched-earth mentality on resource management - no trees, no wildlife, endless monocultures - small farmers are usually very effective stewards of natural resources and soil. In the US small farmers devote seventeen pet cent of their area to woodlands compared with only five per cent on large farms. And they keep nearly twice as much of their land for 'soil improving uses' including cover crops and green manures.'

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In towns surrounded by family farms the income (ueulates among local businesses, generating jobs and community prosperity. Where family farms)mmate

there - - are more local businesses, paved streets and sidewalks, schools, parks, churches and clubs as well as better services, higher employment and greater civic participation.

We find similar local benefits with a small farm economy in the Third World. The Landless Workers Movement (MST) is a grassroots organization in Brazil that helps landless laborers to organize occupations of idle land belonging to wealthy landlords.

When the movement began in the mid- 980s, the mostly conservatlve mayors of rural towns were violently opposed to MST land occupations. However, in recent times their attitude has changed. Most of their towns are depressed economically and land occupations can give local economies a much-needed boost. Typically up to 3,000 families may invade a chunk of idle land and start to farm.

They sell their produce in the marketplaces of the local towns and buy their supplies from local merchan t.s. Not surprisingly those towns with nearby MST settlements are now better off economically than other similar ones elsewhere and many mayors now actually petition the MST to carry out occupations near their towns. Today a small but growing movement within the MST is pushing for agroecological, pesticide-free farming techniques.

To the productive, economic and environmental benefits of small farm agriculture - including reduced pesticide use - we can add the continuance of cultural traditions and of the rural way of life. It seems obvious that if we are truly concerned about rural peoples

and ecosystems, then the preservation and promotion of small, family farm agriculture is a vital step forward. .

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How To "Feed The World"

The world's farmers can produce all the food the world's population requires, regardless of how high it goes, using organic, biointensive, permanent raised beds [RBA] in gardening and no-till raised beds in market gardening, mini-farming, mini-ranching using no-till machinery. This allows people to feed themselves on a local basis that provides total community food security and is ecologically sound, economically viable, socially responsible and Biblically based. Farmers can do it if they have: [1] training in RBA; [2] open-pollinated seed; [3] supportive farm research; [4] no government interference and [5] no political interference. Ken Hargesheimer