

It's a Cute Little Movement but Can It Feed the World?

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Since the theme of the Fair this year is climate change, we arranged for the weather to change every 20 minutes on Friday and Saturday and the temperature today to get up to 80, to illustrate the point. So let me give a very, very warm welcome to all you farmers, gardeners, and the rest of you, who might be getting the itch to become farmers or gardeners. We're trying really hard to get under your skin. And you can get a lot of advice from the practitioners who are here today, and from those who run all the programs that MOFGA provides year-round. Listen and learn.

But I want to talk about something you should *not* listen to. Lately there's been an ugly smattering of articles in the press telling us that if we grow organic food, especially if we are small-scale growers, we are deluded, elitist, anti-technology and anti-science. They tell us that our farms and gardens are very pretty, and what we do is very sweet and well intentioned, but it can't feed the world. They say the earth's population is exploding, people are starving and it's all our fault.

Now isn't that just a load of bunk?

Here's the truth. The current industrial methods of growing food are becoming unpopular. Americans have lost faith in our food supply, and those on the other side – the people who have a lot invested in mainstream farming – are getting scared. So they'll

make a statement like, “Organic can’t feed the world.” Then people start repeating it, just because they hear other people say it, and finally it’s assumed to be the truth. Currently the chief way the opposition attacks us is to belittle us, trivialize us, marginalize us. For example, chemical agriculture has recently gotten sick of being called “conventional farming.” It makes them sound so, I don’t know, conventional. So they refer to themselves as “modern” farmers. So what does that make us... antique? Here’s what my nephew Sam came up with, and I love Sam, he’s hilarious, but he refers to our farm workers as the Ewoks. Now in case you didn’t make it to the third film in the Star Wars series, Return of the Jedi, the Ewoks are little furry, glittery-eyed, teddy bear-like creatures who live in trees and dress in crudely stitched buckskin wimples. They fight with bows and arrows, while the heroes in the film get to duel with hi-tech fluorescent shop lights.

OK, maybe a lot of the guys who work on our farm do have beards, and sometimes even ponytails, and they don’t go out into the fields wearing storm trooper outfits to protect themselves from pesticides. But. Make no mistake. They, you, we, are part of a powerful movement that can repair a lot of damage that agriculture has done to the earth. And there is *simply no way* that organic practices cause hunger.

Organic agriculture is currently growing by leaps and bounds. But please, let’s not refer to it as a trend. It’s been around for as long as agriculture’s been around, which is to say 10,000 years. There wasn’t any other kind of farming until people started using synthetic fertilizers, pesticides and herbicides. Our type of farming fed the world.

Organics as described today may seem like a reaction against the chemical inputs that its proponents do without, but I like a broader, more positive definition. It is a system that

takes all its cues from the biological systems that we can observe in nature, which go back to, well, the development of life on this planet. Notice that I don't specify who created or designed these systems – the big Him, the big Her or the big Bang. They are just there, and they are in charge. The organic gardener observes that leaves fall from the trees and other plants, and are there joined by animal wastes and, with the help of worms, beetles and a staggering number of bacteria and fungi, create soil that is not only fertile, but has a structure that makes it good at holding onto its fertility and just the right amount of moisture and air to make new plants grow. Disrupt or disregard this cycle, and nature says “No dice. Game over.”

But unless you are a hunter-gatherer, you don't just sit there and watch the leaves fall from the trees. Otherwise we would still be eating the skinny white roots of Queen Anne's lace rather than the delicious orange carrots that breeders have derived from them. Over the years we have learned more and more about making compost, using green manures, practicing crop rotations, providing biological diversity that helps to keep pests in check, using mulches and contour plowing to prevent soil erosion, avoiding compaction to protect the life of the soil, preserving the gene pool and countless other practices that are sure to be improved on in the future. Organic methods are holistic, that is, done with a broad perspective, keeping in mind the interconnectedness of all living things. Why would anyone want to put on blinders and *not* be aware of the life around them? It's like the people who talk about environmentalists as if they were a special interest group, as if only some of us were interested in breathing.

I'm going to describe very briefly what four critics of MOFGA-style farming have said, where they seem to be coming from, and why they are dead wrong. Then I'll talk a

little about how our side measures up, and how we have more allies out there than you might think.

Of the people who are publicly critical of organics, the prizes for blinder-wearing go to those whose clear ties to industry give them an obvious, single-minded profit motive. And first prize goes to MACA (the Mid-America CropLife Association), which represents chemical agriculture companies. When Michelle Obama planted her organic garden on the White House lawn, MACA sent her, and then published, an open letter urging her to use synthetic pesticides (or as they called them, “plant protection products”) to set a better example for gardeners. You have to be pretty oblivious not to realize how that sounds: urging the most famous mother in America to spray poisons on the veggies she’s growing to feed her children.

Second prize goes to someone I have come to think of as the “chicken man,” Scott Fleetwood, an “industry expert” writing in the blog Zester. Fleetwood, in defending the caging of birds on factory chicken farms, tries to address the question “Shouldn’t chickens be allowed to spread their wings?” Wing-flapping, he explains, helps to establish dominance in the pecking order and more access to food and water at the expense of the other chickens. So... “A cage-free system,” he says, “may actually increase stress on chickens.” This man is grasping for a way to justify a cruel system and ends up sounding like a fool.

The science guys are grasping for arguments too. The academic critics of organic often seem unable to step outside of the dominant mindset of current agricultural thinking. Jules Janick, the James Troop Distinguished Professor of Horticulture at Purdue, subscribes wholly to the Ewok theory of organic farming. He co-authored an

article in ISHS (the *Journal of the International Society for Horticultural Science*) with Claudia Silviana Mureçan, a rural development programme manager at the European Commission in Brussels, and they called the article, “Demonization of Science, Sanctification of Poverty.” According to the article we are all fuzzy-headed hippies who think in black and white terms about the world, romanticize subsistence farming and reject modern science. But its demonization of us is certainly black and white – and off base. We have our own science that we are advancing. The difference? Academic science gets funded and ours doesn’t. Why? Because it doesn’t result in patents. We’re outside the cozy partnership between the universities and industry funding. Organics is a more pure science, because for the most part there’s nothing in it to sell anybody. Janick and Mureçan conclude, “we love our home gardens but we are convinced that the feeding of enlarging populations will require factory production of food.” That’s supposed to sound altruistic, but hiding behind it is a great big lie.

The last attack I’ll mention comes from, of all people, Stewart Brand, best known for his *Whole Earth Catalog*, first published in 1968. All the old hippies like me remember it, a compendium of sustainable technologies, a kind of Sears Roebuck catalog for back-to-the-landers. The Stewart Brand of today is still curious about and supportive of new technologies, but now they include GMOs (genetically modified organisms) and nuclear power, which he enthusiastically promotes. (Maybe he should publish a “To Hell with the Earth Catalog.”) In an article in this month’s issue of *The Sun*, he sounds jaded, tired and unable to imagine a sane world. Like Janick, he too warns against romanticizing subsistence farming. Brand’s comment: “Many of us tried it in the sixties. By and large it sucked.” He goes on to say how much people’s lives improve when they move to the city

because they find better paying jobs, better education and better medical care. It sounds like the old World War I era song “How ya gonna keep ‘em back on the farm, now that they’ve seen Paree,” or as the song was once parodied, “How ya gonna keep them down on the farm after they’ve seen the farm.” But, instead of just giving up, why not work on ways to make small farming pay? Why not bring better infrastructure, distribution systems and social services to rural areas?

Yes, the world is a mess, and because the population is in fact exploding, it’s going to get messier. At some point it will peak and then decline, but no one knows when – or even more importantly, how. In part, it could happen voluntarily if women had the right to choose the size of their families, which is often not the case now. It could also happen violently through wars fought for scarce resources, through a nuclear holocaust or incurable diseases. It could happen as the result of climate change and its effects, which include everything from the flooding of coastal cities, to the further desiccation of dry continents, to the extremes of weather that are already affecting all of agriculture. By some miracle our adaptation to a different future could even happen in a rational, organized fashion, conserving the resources we need, stepping down our reliance on ones that we don’t, and developing a new economics that doesn’t worship at the altar of growth.

But at this point in time the reason world hunger exists is not that there isn’t enough food. Much of the crops that are grown are used for biofuels or to feed livestock, and much food is wasted, or never gets to the people who need it the most. The reasons are many and include corruption, greed, political instability, class inequality, inadequate transportation and just plain inefficiency. It would be great if we could fix all that. But in

the meantime, we do need to provide food self-sufficiency for everyone, and a lot of that solution hangs on providing help to the small market farmers and the subsistence farmers who make up the majority of the world's food producers. More food and more profits need to stay within local economies. And small producers are in a prime position to benefit from organic, sustainable techniques. Look at the success of organic agriculture in Cuba after chemical supplies were cut off by the collapse of the Soviet Union! But areas where land and water have been degraded by industrial agricultural practices and those where techniques such as slashing and burning forests are being used to produce global commodity crops like soybeans – haven't been so lucky.

OK, here's the good news. A lot of people (especially in NGOs) are working on making small-scale agriculture both sustainable and profitable. Maine's own Sustainable Harvest International, based about an hour from here in Surry, sends experts down to Central America to train people up as Extension agents, who in turn head out to the countryside to advise farmers. And check this out. A huge study called IAASTD (International Assessment for Agricultural Knowledge, Science and Technology for Development) was launched in 2002 by the World Bank. It involved 61 countries and over 400 agricultural scientists. It received very little press in this country, even though we took part in it. But it's easy to find on the Web, and trolling my cursor through its 500-plus pages I was happy to see that the main focus was on – sustainable food production, especially as practiced by small scale farmers! Guess which three of the 61 countries did not approve the report. Australia, Canada and yes, us. And the reasons our representatives gave? That the report did not emphasize GMOs as a major solution to the

problem of feeding the world. And because the report recognized that liberalized global trade policies hurt small farmers.

Another important world study that came out just this past March went even further. This one was led by the United Nations' special rapporteur on the Right to Food, Olivier de Schutter, and it was called "Agro-ecology and the Right to Food." Neither the words "sustainable" nor "agro-ecology" take biological approaches as far as organic does, but they contain more than they leave out and are a far cry from Janick's quick dismissal of anything that is not factory farming. Here's de Schutter's conclusion: "Today's scientific evidence demonstrates that agroecological methods outperform the use of chemical fertilizers in boosting food production where the hungry live – especially in unfavorable environments." See, we're not alone!

Ah, but here come the GMO people to tell us that yes it's true, chemical farming is so over, it's so despoiled the earth and we're here to *free you* from having to use pesticides by inserting pesticide genes into your crops that will do the work for you. Or plant Roundup Ready seeds and you can spray all the Roundup you want to kill weeds without killing your crop. And you won't even have to till! Oh goody, more toxic Roundup being sprayed all over the place, what a glorious future. Monsanto isn't trying to save the world. It's trying to sell products.

First let's get it straight that what Monsanto does when it engineers transgenic organisms is NOT just a little step beyond what Gregor Mendel did, messing around with peas in his monastery. Here's a good, simple distinction from our friend CR Lawn of Fedco Seeds: "Genetic engineering physically transfers DNA from one organism to another using laboratory-constructed artificial genes or genes from unrelated species. It

could not occur in nature without high-tech intervention.” And it’s not, CR goes on to say, the precise science it claims to be: “If you change any gene in a plant, generally you won’t just change one trait.” It “produces unexpected side effects.”

Nature doesn’t accept silver bullets. We won’t know the ultimate side effects of GMOs on us for a long time, but we’ve already seen biology fighting back. We already have superweeds that have acquired resistance to Roundup. Also pest resistance, such as the resistance of the western corn rootworm to Monsanto corn. Plus, GMO seeds are proprietary. It’s difficult or impossible for researchers to get hold of them for testing. They’re like Gollum and the ring in Lord of the Rings (“my precious, my precious...”). And if a farmer next door plants them and his crop accidentally pollinates yours, Monsanto can sue *you* for patent infringement. I’m happy to say that a major suit against Monsanto for this practice is in the courts now, with MOFGA as one of the plaintiffs.

As for all those fabulous high yields from transgenic crops, the ones that are going to feed all those starving people, they’re pretty much a myth. Plenty of studies that show that, although I suspect if I start playing the “my study can beat your study” game you’ll soon be heading out to get another helping of fries.

Suffice to say, it is hard to put our faith in modern industry-based science when it has brought us so many disasters. Remember how we were supposed to love margarine? Now we know it has bad fats. Remember Golden rice, that was engineered to contain carotene so that malnourished people could get enough vitamin A? Another misguided effort. Do you know what’s absolutely loaded with carotene? A large variety of common weeds such as dandelions. You can find nutritious weeds almost anywhere. (Isn’t organic farming supposed to engender an especially rich supply of them?) And how about all

those antibiotics fed to livestock to make them more productive? Thanks to them we now have antibiotic resistant bacteria in our bodies. Do something stupid and nature strikes back.

But honestly, I'll bet a lot of the farmers here today aren't even tempted by the chemical candy dangled in front of us because we're doing just fine without it. The acre and a half that my husband, Eliot Coleman, and I produce vegetables on typically grosses \$80,000 per acre. That's a very high yield, and it's achieved by traditional methods such as crop rotations, the buildup of organic matter in the soil, and the reapplication of compost after each of many succession crops are harvested. The reason our market garden is so small is that it's planted on land that would be considered marginal for crop production – heavily wooded with spruce and fir when he bought it, with a topsoil layer only a few inches deep and a pH of 4.3. It has taken a lot of work to create soil that productive, and we're still looking for ways to improve our yields. Currently our focus is on restoring the animal component of the farm which Eliot initiated when he began it in 1968, this after a hiatus in which we focused more on refining winter production. By feeding them with crops we grow and using their manure for fertility, we hope to achieve the ideal of a closed circle of on-farm carbon inputs that are sequestered in the soil. We consider this not only a remedy for hunger, but also a remedy for the creation of greenhouse gases that cause climate change.

We're also trying to get our labor costs down. It is a fact that small farms like ours are labor-intensive. If the population is going to boom, then there should be plenty of people to get the work done, especially if unemployment stays high. But that makes it hard for the farmer's bottom line. So Eliot is working on developing new small-scale, low-energy,

mechanized equipment, somewhere between the hand tools used by home gardeners and those used in large-scale farming. Our goal is to use less hired labor, and send some of our young employees on to start farms of their own.

And young people are doing that in droves. MOFGA's internship and journey person programs attract more and more new applicants each year. There are conferences just devoted to young farmers. College students all across the country are demanding some kind of exposure to agriculture, or at least some commitment on the part of school toward sustainably produced local food. Perhaps it just represents a small elite, but it does contribute to the preservation of agricultural literacy in this country, something that had been ebbing with every passing decade. And it might reinforce the idea that growing sustainable food is a proper subject for scientific study.

Some of the critiques of organic agriculture have had some substance to them because organic is not always done well. Usually this occurs when it is simply imitating the industrial model, substituting bagged organic fertilizers for synthetic ones, and natural plant-based pesticides for chemical ones. (Some anti-organic attacks, such as a recent one in *Scientific American*, focus on that situation; as in, "How can you charge more for organic food when you use lots of pesticides too?") When studies comparing organic and conventional use large-scale, organic-by-the-numbers farms, their yields and other outcomes don't differ all that much. Even small organic farms don't always do a good job, mistaking "natural" methods for laissez faire ones. And the need for more sophisticated study of biological agronomy is crucial.

The organic way is often spoken of as if it were a medieval time warp, a nostalgic journey to a simpler time. But as I see it, it's a going back to the point at which modern

agriculture lost its way and then a going forward in a more intelligent direction. To me it's the industrial practices that are primitive, simplistic, reductionist. Here's an example. Everybody got excited to learn that phytonutrients such as beta-carotene, which is found in carrots and other vegetables, had the potential to protect us against cancer. So someone created beta-carotene in pill form. What happened? The people who took the pill had higher rates of cancer. That's because you can't take one tiny little piece of knowledge, isolate it in a lab, turn it into a product, and get a successful result. That's because the processes that make up the carrot, and how it interacts with the soil, and with us, are far more complicated than we can presently understand .

We are discovering so much in modern times about the life of the soil (formerly known as "dirt"). How long had we been looking upwards at glittering galaxies, looking for life, when there were undiscovered civilizations, most of them microscopic, underneath our feet. Who knew that there was something called glomalin that bound soil into crumbs and thereby created good tilth. There is much to learn and invent with regards to soil fertility, crop interactions, season extension, and the effects of different agricultural practices on the healthfulness of crops. Not on Planet Lipitor, but here.

And as much as possible we need to keep food local. Join MOFGA. Buy Moo Milk (which stands for Maine's Own Organic Milk, a great cooperative). Sourcing food close to home, in addition to farming sustainably, will enable the world's people to survive as the flawed industrial systems fail. And they're going to fail. They don't work. But no, say the economists, you have to keep goods flowing both in and out of communities. Fine! Let Italian shoes flow into my closet (I wish!) but keep apples and tomatoes here. Let's build simple greenhouses next to schools, as my town of Brooksville and all the towns

surrounding it have already done. Let's follow Alice Waters' excellent example about gardening and cooking literacy for young students. But oh no, here comes Caitlin Flanagan writing in *The Atlantic* a couple of years ago about Waters' Edible Schoolyard project in Berkeley, California. Flanagan imagines the son of a Latino immigrant showing up for school, striving to rise above his origins, only to be sent "out to the field, where he stoops under a hot sun and begins to pick lettuce." A lot of people associate farming with oppression and have turned it into a class issue.

The ironic fact that well-off foodies were the first Americans to start eating foods such as mâche and arugula – which are greens foraged by rural people abroad, in places where they grow wild – has sometimes made it hard for everyone to embrace the real food/local food/organic food movements. The fact that foodies are sometimes annoying has made some people avoid embracing anything that they have championed. The taste of real vine-ripened tomatoes has won over many naysayers, but the perception that such luxuries purchased at farmers' markets are beyond the budget of the common man still persists. People are outraged if you criticize supermarket food, because that is what people who watch their budgets closely can afford. But often real food is NOT more expensive, and even when it is, it reflects food's true cost to the farmer who grew it, without the government subsidies that allow industrial food a lower price point. In effect, these critics are saying, of low-income shoppers, "Let them eat junk."

My answer to all this is simple: show people how to grow their own. There are so many good reasons to do this. You can grow more interesting varieties, not just the standard ones found in most produce bins. Food tastes better just by being fresher and picked ripe, and even better than that if you have grown it well in a fertile, living soil. It

will be there when you need it in the kitchen, right outside your door. You and your family will have the pleasure of growing it, and get some good exercise and fresh air in the process.

You would think an idea like this would be pretty hard to argue with, but some people work very hard to come up with reasons why change for the better can't happen. "You're out of touch," someone accused, after I'd published a brief article on the subject. I'd explained how the idea of Daylight Savings time originated in 1918 so that people could have an extra hour of daylight after work to tend their War Gardens (later called Victory Gardens in World War II). The reader went on, "Some people work 12 hour days or have a long commute or both people in the family work and have barely enough time to say hello to their kids." Well, maybe growing a significant amount of your own food could let you afford fewer hours at a job and more at home. Not everybody likes to garden, which is fine. But it's not surprising that when times are tough, during war or hard times, the idea quickly becomes more appealing. The surge in home gardening that sprang to life in 2008 when the economy plunged has not abated, according the Bruce Butterfield of the National Gardening Association, when he was interviewed recently for *The New York Times*. The article describes home gardeners in eastern Kentucky who have taken to growing their own to save money, and farmers' markets that are wholly different from the chic sort you might find in rich urban areas. They're supplied by people who sell the extra from their home gardens for extra cash, and "are geared to shoppers who want to buy in bulk at the lowest possible price in order to pickle, can, dry and freeze." I predict we'll see a new interest in nuts and bolts crops that store well, such as rutabagas, that are there for you as insurance all winter long.

“But what if you live in an apartment in a city or town, without a yard?” people plead. “What can you do then?” One answer is to get a plot at a community garden. These are great for beginning gardens because there are experienced gardeners among the participants who are happy to share plants, seeds and advice. Sure, there are not always such plots nearby, and the ones that exist sometimes have long waiting lists. But let’s not stop there.

Eliot and I play a game called “the invisible farm.” It involves finding places for crops we don’t have room for, in the jigsaw puzzle of our little farm, often by finding a spot we didn’t think would be vacant at a particular time, before another planting has to go in. Well, the same game can be played with urban agriculture. If you search most towns and cities, there are many acres of land that you would not think of as arable. Look at parks and the lawns of public buildings such as libraries and town halls. Hospitals and schools sometimes have extensive grounds, industrial parks even more so. Consider tearing up paved areas. The Edible Schoolyard is built on an acre that was once asphalt. So was the original set of the TV show *The Victory Garden*, in the parking lot of the Boston public TV station WGBH. If there are waiting lists, clearly it is time for urban gardens to multiply. Look at Detroit, where suddenly large numbers of lots became empty and waiting to be planted. And planted they were. This is likely true of other cities to some degree. New Haven, for instance, has a lot of empty space available.

New gardeners sometimes get discouraged because their first efforts don’t bear much fruit the first year. It takes practice. But if we plant a garden in a sunny spot with good drainage, amend the soil well, gather organic matter and make compost, and keep the beds weeded by frequent cultivation, it’s hard to go wrong.

Best of all, we're a community, whether we're farmers, gardeners or loyal members of a CSA. If you want to see how constructive change can go forward in the organic community, pick up a copy of *Fertile Ground*, which celebrates 40 years of MOFGA. (You can also get it online at our Country Store.) How do we do it? We share tools, both for the hand and for the mind. We don't live in a fortress, clinging defensively to our precious patents. And we are the future.