Global Warming, “Grass” Farming and a Planned Economy

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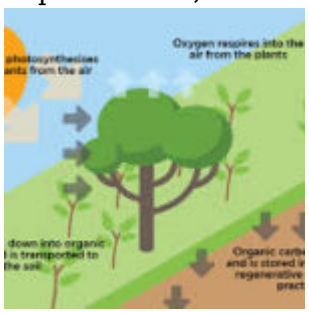

As the Global Climate Strike date (Sept. 20) approaches, the question that will be on the minds of millions will be: “Is there a possible way to avoid a disaster that could threaten the existence of life on earth?” Michael Pollan’s book *The Omnivore’s Dilemma* helps provide an answer, and that answer is “yes,” but with some qualifications. Here’s why:

A short history of corn

Pollan starts with an explanation of corn, which is the largest crop grown in the United States. Corn seems to have evolved from the grass called teosinte. It is a most unusual plant, starting with the unusual way in which it recruits carbon from the atmosphere, also known as photosynthesis. Most plants create carbon compounds that have three carbon atoms. Corn has a simple trick: It creates compounds with four such atoms. That sounds like a minor detail, until one realizes that the process of photosynthesis also involves the plant’s releasing water into the atmosphere. Since corn absorbs one-third more carbon atoms for photosynthesis than do most other plants, it also is far more efficient in relation to how much water it releases. Also, whereas a single seed of wheat produces about 150 wheat seeds, a single corn kernel produces up to 300 new ones.

Then there’s the evolution aspect. Corn has evolved to be completely reliant on human beings. That’s because its seeds (kernels) are tightly encased in leaves and cannot be released on their own. Also, because the corn seeds grow half way up the plant, they absorb more of the plant’s energy, meaning that the growth of the plant, itself, takes up less energy related to the production of the corn seeds (the kernels) than in other annuals (wheat, barley, etc. all of which die at the end of their growing season).

These features (plus a few more) made early societies like the Aztecs dependent on corn. As Pollan

puts it, “corn has succeeded in domesticating us.” And because of its complex pollination system, corn proved easy to hybridize. The Native Americans hybridized thousands of different species of corn, adapted to different soils and climates. Also, corn is an easy crop to store for long periods of time.

US Agricultural policy and corn monoculture

Under FDR, US agricultural policy was to keep the small farmers in business by in effect paying them not to grow too much in order to keep prices higher. Under Reagan, that changed to direct price subsidies. No matter how much a farmer grew, a certain price was guaranteed and if they got a lower price, the federal government paid the farmer the difference. This induces the farmer to grow ever more. Economies of scale means that growing massive amounts of a single crop creates more profits. Corn is a natural for monoculture because of the amount it produces from a single kernel. The fact that it depletes nitrates from the soil at a higher rate than other crops is not a deterrent because of the development of modern  chemistry; chemical fertilizers take care of that (to a point). And if monoculture attracts pests, then modern pesticides can take care of that too. The resulting soil depletion (also due to plowing the soil) are compensated for by ever increasing doses of chemicals. These facts lead to a policy that rewards the huge growers.

“So the plague of cheap corn goes on, impoverishing the farmers (both here and in the countries to which we export it), degrading the land, polluting the water, and bleeding the federal treasury, which now spends up to $5 billion a year subsidizing cheap corn,” writes Pollan. In 1970, the US produced 4 billion bushels of corn. By 2005, that was 10 billion, according to Pollan. (By 2013-14 it had increased to 13 billion bushels.)

As for what to do with all the surplus corn, again modern chemistry takes care of that, partly through breaking down the corn into such products as high fructose corn syrup, which is added to huge numbers of processed foods. But the single greatest user of corn and corn by-products is the beef industry; 60% of the corn produced in the US goes to feed cattle on the feed lots, known as “Concentrated Animal Feeding Operations” or CAFO’s.

Here, the cattle are concentrated by the thousands in huge, open air pens and fed a mixture of products, most of which cows did not evolve to eat. Corn and corn by products are the major ingredient. Because cows (which are ruminants) evolved to eat grass, not corn, they do not digest the corn easily and are subject to infection and disease as a result. That’s partly why they have to be fed antibiotics on their way to their date at the slaughter house.

These methods not only produce unhealthy meat, they also deplete the soil by killing off the bacteria and insects that maintain soil fertility and health. By plowing the earth, they help increase erosion. There is also the run-off of nitrates and pesticides which damage the environment, including causing algae bloom in oceans.

Not directly mentioned in Pollan's book, but of significance here, it is estimated that 9% of global greenhouse gas emissions comes from agriculture. We will see the relevance below.

Organic farming

Organic farming, which as of 2005 was an $11 billion per year industry, has been popularized as a solution. Although in some ways it is really a fraud (such as with "organic, free range chickens" who are cooped up in a hen-house and given access to a tiny patch of bare dirt which qualifies them to be labeled "free range"), it is a step forward. For one, it doesn't damage the soil as much. Also, the farm workers aren't exposed to as many chemicals, nor are those who eat the product.

Pollan also says that it has been shown that organic vegetables are, in fact, higher in nutritional value. That may be because the plants are forced to produce their own defenses against pests – defenses which translate into nutrition for us. Another possible reason might be that the soil is healthier and provides more nutrients.

It does little or nothing for the issue of global warming, however. That's because, according to Pollan 80% of the fuel used for agriculture is used to bring food to the market. According to the US Department of Agriculture, 30% by weight of all hauling by rail, roadways and waterways is so used. The transport sector is the single largest emitter of greenhouse gas (at 29% of the total). But these figures are misleading; they underestimate how a transformation in agricultural practices can be a huge step away from global climate disaster.

"Grass farming"
No, we're not talking about growing and smoking pot! We're referring to what is also known as *regenerative farming.* To understand this, we have to return to the beginning.

And in the beginning, there was… the bison. And there were the wolves. And there were thousands of square miles of grasslands at least in North America; similar conditions existed elsewhere. It is estimated that in the US these grasslands (and some other areas) supported up to 60 million bison, which are also a ruminant, like cattle. The bison were forced by predators – mainly wolves – to bunch up together and also to frequently be on the move. This accomplished several things: It prevented the bison from grazing the grass down to the very roots, which would have prevented the grass from regenerating itself as well as from the more ground-hugging types from growing altogether. It also meant that the bison were a constantly moving fertilizer (manure) spreader.

Joel Salatin

Enter Joel Salatin, about whom Pollan spends a major portion of his book. Although he calls himself a "grass farmer", Salatin raises not only beef, but hogs, chicken (both broilers and egg layers), turkeys, rabbits and vegetables. Salatin mimics nature by how he raises his animals through "managed grazing". He divides his pastures into small "paddocks" enclosed with mobile electric fences and moves the cattle from one paddock to another every few days.

How does all this relate to the issue of greenhouse gas emissions and global climate disaster? Let's get back to the roots, literally – the roots and the dirt they grow in.

Joel Salatin with his contented cattle

When Pollan visited his farm – named "Polyface Farm" – the first thing Salatin did was take him out to a field and get him down to dirt level. He emphasized that healthy soil is not simply a soil with proper NPK (nitrogen, phosphorous, potassium) amounts and balance (as modern chemistry claims). Nor is it inert; rather it is in constant change, more like a living organism than a "thing." Pollan explains the importance of humus, which is "what's left of organic matter after it has been broken down by the billions of big and small organisms that inhabit a spoonful of earth – the bacteria, phages, fungi and earthworms responsible for its decomposition" if they haven't been killed off by harsh chemicals. Pollan explains that this decomposition is only part of the process. "A whole group of other organisms slowly breaks humus down into chemical elements plants need to grow, elements including but not limited to, nitrogen, phosphorus, and potassium. This process is as much biological as chemical, involving the symbiosis of plants and the mycorrhizal fungi that live in and among the roots; the fungi offer soluble nutrients to the roots, receiving a drop of sucrose in return…. [Humus also enables the soil to]hold water in suspension so that rainfall remains available to plant roots instead of instantly seeping away." Think: water and soil retention vs. water runoff and soil erosion.

Salatin explains to Pollan that grass grows in phases – slowly at first, then a sudden spurt and then another slow stage where it becomes "woody" and less sweet. He explains that it's vital to have the cows graze at the peak of the first growth phase, after it's started to grow but before the growth levels off. This accomplishes a couple of things: It allows the lower-to-earth grasses such as clover to

grow. A legume, clover fixes nitrogen to the soil with its roots. This rotational grazing also stimulates the just grazed grass to grow again. In doing so, the grass puts most of its energy into growing above the soil, shedding much of its roots, which then decay below ground, enriching the soil.

First cows, then chickens

After the cattle, Salatin brings in the chickens who, among other things, eat the fly larvae growing in the cow manure. Scratching and clawing at the manure to get at the larvae, they also help spread it. Also, by eating the larvae, they eliminate a huge mass of flies, thereby eliminating the need for Salatin to bathe his cattle in pesticides. They, too, leave their nitrogen-rich droppings in the paddock as they happily run about doing what chickens were born to do.

Carbon "sequestration" (removal)

Here's *where the issue of carbon emissions and sequestration (removal of carbon from the atmosphere) comes in.*According to Pollan "if the sixteen million acres now being used to grow corn to feed cows in the United States became well-managed pasture, that would remove fourteen billion pounds of carbon from the atmosphere each year, the equivalent of taking four million cars off the road." Given that there are about 270 million cars in the US, that is just a drop in the bucket. But it shows how "grass farming" could be a major step in the right direction, if combined with other fundamental economic and political changes.

These changes include one that Salatin insists on: Selling locally only. Since as Pollan explains, 80% of the fuel used in bringing food to the market is used by processing and transporting the food, consuming locally grown foods would be another important step.

Up to individual consumers?

Simply leaving it up to individual consumers to "consume locally" is a non-starter. It might make a few people feel morally just doing so, but it won't counter all the pressures that agribusiness and their allies bring to bear. In addition, businesses from Cargill to Dow Chemical have too much influence to ever allow such methods to become generalized. From imposing all kinds of "health" requirements on slaughterhouses that enable only the biggest to survive, to socializing the real costs (in terms of environmental degradation, human health, etc.) thereby enabling them to sell cheap, industrial agriculture will remain the order of the day under capitalism. But Salatin's "grass farming" (he actually backtracks and says he's not even farming grass; he's farming solar power!) shows what's scientifically possible.

The largest recipients of farm subsidies. It's big business.

Harvesting subsidies

There are powerful interests opposed to these methods. First are the recipients of agricultural subsidies. According to Forbes, by 2018, "Over $11 billion in farm subsidies flowed to just 6,618 lucky recipients who received at least $1 million since 2008."Of the 23 largest recipients, these subsidies ranged from $10 million to $23.8 million. Nor did the money even go to rural residents. "Residents living in America's five most populated cities received $18 milion in farm subsidies" and 25% of the subsidy money went to somebody who received at least $250,000.

As for the smaller farmer, like a drug addict hooked on meth, once she or he is hooked on government subsidies to raise corn, it's nearly impossible to get off. That's because after just a few years the soil has become so depleted (and also compacted by the use of heavy equipment) that it would take years to recover. Meanwhile, the mortgage and other debts have to be repaid. And big farm or small, the over 90 million acres of farmland devoted to raising corn involve massive investment in that particular crop.

According to Pollan, just two companies – Cargill and ADM – buy one-third of all the corn produced

in the US. They control the corn-growing process from start to finish. All this means that there are powerful investments in keeping US agriculture as it is.

Chemical industry
Then there is the chemical fertilizer industry, which invests $3.8 billion annually in new facilities (according to their report). As far as pesticides and herbicides, the EPA stopped releasing reports on their total sales 20 years ago, according to Pesticide Action Network. However, they report that in 2012, agribusiness spent $12.6 billion on pesticides (90% of the total) and the expenditures for pesticides as a percentage of overall farming costs is increasing.

Corn is also essential to the food processing industry, as Pollan explains. He also explains the profits involved. Whereas 40% of the retail price of an egg (= unprocessed food) goes to the farmer whose chickens laid the egg, only 4% of the price of the ubiquitous corn sweeteners go to the corn farmer. (This also proves the labor theory of value!) As Pollan quotes farmers, “there’s money to be made in food, unless you’re trying to grow it!”

According to the capitalists – including Bill Gates, who salutes the chemical fertilizer industry – all these methods are necessary in order to provide inexpensive food. But is it really so cheap? The reality is that they have once again privatized the profits while socializing many of the costs – costs which include algae bloom from nitrate runoff into lakes and oceans, health care costs, and the costs of long term environmental damage including but not limited to global climate change.

Two truly revolutionary steps
Two revolutionary steps are necessary: One is to gear food production to social – including environmental – need rather than private profit. This would have to coincide with a conscious and systematic plan for such production. But neither of these steps is possible in isolation; they could only be realized in the context of a planned economy based on social and environmental need. And in any case, even if it were possible to plan food production based on human and environmental need inside a profit-driven (i.e. a capitalist) economy, just that change alone wouldn’t solve the global climate change crisis. What’s needed for that is the transformation of the entire economy, including transportation, industrial production, etc. through such planning.

Such a plan would have to include an integration of the countryside with more urban areas. True, more labor is required for grass or regenerative farming, but huge amounts of labor are potentially being freed up through the introduction of computers and mechanization in other industries.

Then there's another issue: This writer, who grew up in New York City, worked for a couple of summers on dairy farms as a teenager. My experience tells me how enormously healthy, both physically and mentally, such work is, especially for young people. Yes, "getting back to nature" should be part of a planned economy!

Another part would have to be preserving wilderness areas. Three quarters of Polyfarm is actually forest. And Salatin explains how the forest areas are necessary for soil and general environmental health of the rest of the farm.

All of this and more would have to be considered in planning an economy.

As shown by the failure of the Soviet Union and similar governments, such a plan can only succeed if it is managed and controlled by the workers themselves, including such farmers as Joel Salatin. In other words, through a workers' state.

And how we get there is a whole other topic!

Further reading
If you found this article interesting, you would be interested in the following:

David Walters has written further on the topic of regenerative agriculture. See *Developing a Marxist approach to global agriculture: A primer on the role of animals in maintaining soil health*.

Also relevant is the article *Can the green new deal save the planet*?

In *The Environmentalist Manifesto* we expose the role of the non profits and the union bureaucracy in tying the environmental movement to the Democratic Party and to big business, thereby watering down that movement.

Finally, for a Marxist approach to how a workers state can develop, see our pamphlet *What is Revolution?*

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