

INDUSTRIAL AGRICULTURE AND HUMAN SURVIVAL: THE ROAD BEYOND 10/10/10¹

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Despite decades of deception and mystification, a critical mass at the grassroots is waking up. A new generation of food and climate activists understands that greenhouse gas-belching fossil fuels, industrial food and farming, and our entire global economy pose a mortal threat, not just to our present health and well being, but also to human survival. Given the severity of the Crisis, we have little choice but to step up our efforts. As 35,000 climate activists at the historic global climate summit in April of 2010 in Cochabamba, Bolivia shouted, “We must change the System, not the climate.”

“Changing the System,” means defending our selves, the future generations, and the biological carrying capacity of the planet from the ravages of “profit at any cost” capitalism. “Changing the System,” means safeguarding our delicately balanced climate, soils, oceans, and atmosphere from the fatal consequences of fossil fuel-induced climate change. “Changing the System” means exposing, dismantling, and replacing, not just individual out-of-control corporations like Monsanto, Halliburton, and British Petroleum, and out-of-control technologies like gene-altered crops and mountaintop removal; but our entire chemical and energy-intensive industrial economy, starting, at least for many of us, with Food Inc.’s destructive system of industrial food and farming. “Changing the system,” means going on the offensive and dismantling the most controversial and vulnerable flanks of our suicide economy: coal plants, gas guzzlers, the military-industrial complex, and industrial agriculture’s Genetically Modified Organisms (GMOs) and factory farms.

Frankenfoods and Industrial Agriculture

Highly subsidized GM crops - comprising 40% of U.S. cropland, and 10% of global crops - and the junk food and unhealthy processed foods and beverages derived from them, are the most profitable and strategically important components of industrial agriculture. Taxpayer subsidized GMOs and factory farms allow Food Inc. (corporate agribusiness) to poison the public and pollute the atmosphere and environment. Subsidized GM and monoculture crops - along with cheap soy, corn, and chemical additives - allow the McDonald’s, Cargills and Wal-Marts of the world to sell junk food, meat, and beverages at much lower prices than healthy, non-chemical foods. GMO crops and their companion pesticides and chemical fertilizers are the cash cows and vanguard of a global farming and food distribution system that consumes prodigious amounts of fossil fuels and emits tremendous amount of climate-destabilizing greenhouse gases. GMOs provide the ideological and technological foundation for the factory farms and mono-crop plantations that are destroying the climate, the soils, and the planet. Either we bring them down, or they will bring us down.

According to Monsanto and the global **war on bugs**, war on biodiversity, chemical farming lobby, patented GMO seeds, crops, biofuels, animals, and trees can miraculously kill pests, reduce pesticide use, boost yields, alleviate world hunger, reduce petroleum use, and help farmers adapt to drought, pestilence, and global warming. As a growing "**Millions Against Monsanto**" corps understand, the Biotech Bullies are dangerous liars. Industrial agriculture,

¹ Straight to the Source, Organic Consumers Association, October 7, 2010

GMOs, and so-called cheap food have destroyed public health and wrecked the environment. Genetically Modified (GM) crops have neither reduced pesticide use, nor chemical fertilizer use. They kill pests, but they also give rise to superweeds and superpests. GM crops, like all industrial monoculture crops, use vast amounts of fossil fuel and water. GMO and their companion chemicals (pesticides and chemical fertilizers) destroy the greenhouse gas sequestering capacity of living soils and kill off non-patented plants, trees, and animals. Most GM crops, 90% of which are derived from Monsanto's patented seeds, are genetically engineered to boost the sales of toxic pesticides such as Roundup, and thereby increase toxic pesticide residues in foods. GM crops do not produce higher yields, nor provide more nutritious foods. GM soybeans, the most important industrial agriculture crop, along with corn, consistently have lower yields, while chemical-intensive GM food crops contain far fewer vitamins and essential trace minerals than organic foods. Nor has gene-splicing (unlike organic farming) produced plant or tree varieties that can adapt to global warming. Nonetheless GM crops remain Food Inc.'s propaganda "poster child."

The unfortunate bottom line is that 65 years of chemical and GM agriculture, a literal World War Three on public health, rural communities, and the environment, have nearly killed us. Humans and our living environment have been poisoned, not only by pesticides, nitrate fertilizers, greenhouse gas pollution, and contaminated factory-farmed food, but also by the mutant organisms and patented chemical residues that accompany these genetically modified foods and crops. Either we make the Great Transition to a relocalized economy whose foundation is renewable energy and solar-based (as opposed to GMO and petroleum-based) organic food and fiber production, or else we are destined to burn up the planet and destroy ourselves.

Despite mass media brainwashing ("Better living through chemistry... Monsanto can feed the world... GMO crops and trees can reduce fossil fuel use and climate-destabilizing greenhouse gases..."), consumers and farmers are seeing through the lies. Defying the efforts of the powerful industrial agriculture/biotech lobby, a growing number of activists and concerned citizens are connecting the dots and taking action. As a consequence **Monsanto** has become one of the most hated corporations on earth.

A **critical mass of research** reveals that genetically engineered crops, now covering almost 40% of U.S. cropland (173 million acres of GM crops) and 10% of global farm acreage (321 million acres), pollute the environment, **kill essential soil micro-organisms, generate superweeds and pests, decrease biodiversity**, aid and abet seed monopolization, encourage massive use of **toxic pesticides and chemical fertilizer**, spew out massive amounts of climate-destabilizing greenhouse gases, and seriously damage animal and **human health**.

Injecting genetically engineered hormones into dairy cows to force them to give more milk is reckless and dangerous. Monsanto's genetically engineered Bovine Growth Hormone **rBGH**, now marketed by Eli Lilly, increases the risks of breast, prostate, and colon cancer for those who consume the milk. It also severely damages the health of the cows. Residue levels of Monsanto's toxic herbicide, Roundup, found routinely in non-organic foods, destroy animal and human reproductive systems.

Haphazardly ramming indeterminate amounts of patented foreign DNA, bacteria, and antibiotic-resistant genes into the genomes of already non-sustainable energy and pesticide-intensive crops and foods (corn, soy, cotton, canola, sugar beets, alfalfa) in order to increase the

sales of Monsanto or Bayer's GMO companion herbicides or to facilitate monopoly control over seeds by the Gene Giants is not only non-sustainable, but criminal.

Rejection of this out-of-control GM technology is a major driving force in the rapid growth of organic food and farming, as well as the growing demand for mandatory safety testing and labeling of GMOs. In the EU, where GM-tainted foods must be labeled, GMO crops are almost non-existent (although large quantities of GM animal feed are still being imported into the EU from the U.S., Canada, Brazil, and Argentina).

Local and organic food production is now growing faster than GMO/industrial food and farming; improving public health and nutrition, reducing fossil fuel use and greenhouse gas pollution, sequestering billions of tons of CO₂ in the soil (up to seven tons of CO₂ per acre per year), and providing economic survival for a growing number of the world's 2.8 billion small farmers and rural villagers. The growth of organic agriculture and relocalized food and farming systems are encouraging, but obviously organics are still the alternative, rather than the norm.

As we enter into the Brave New World of global warming and climate chaos, many organic advocates are starting to realize that we need to put more emphasis, not just on the health and pollution hazards of GMOs; but rather we need to broaden our efforts and mobilize to abolish the entire system of industrial food and farming. As we are now learning, industrial agriculture and factory farming are in fact a primary (if not the primary) cause of global warming and deforestation. Even if we were able to rip up all of Monsanto's GMO crops tomorrow, business as usual, chemical-intensive, energy-intensive industrial agriculture is enough to kill us all. On the other hand, if we're going to take down industrial agriculture, one of the best ways to leverage our efforts is to target the most hated corporation in the world, Monsanto.

Besides contaminating our food, destroying the environment and moving, by any means necessary, to gain monopoly control over seeds and biodiversity, Monsanto and their Food Inc. collaborators are guilty of major "climate crimes." These crimes include: confusing the public about the real causes of (and solutions to) global warming; killing the soil's ability to sequester greenhouse gases; releasing massive amounts of greenhouse gases (CO₂, methane and nitrous oxide) into the atmosphere; promoting bogus industrial corn and soy-derived biofuels (which use just as many fossil fuel, and release just as many greenhouse gases as conventional fuels); monopolizing seed stocks and taking climate-friendly varieties off the market; promoting genetically engineered trees; and last but not least, advocating dangerous geoengineering schemes such as massive GM plantations of trees or plants than reflect sunlight.

The negotiators and heads of state at the December 2009 Copenhagen Climate negotiations abandoned the summit with literally no binding agreement on meaningful greenhouse gas (carbon dioxide, nitrous oxide, methane, and black carbon) reduction, and little or no acknowledgement of the major role that industrial food and farming practices play in global warming. Lulled by the world's leaders vague promises to reduce global warming, and still believing that new technological breakthroughs can save us, the average citizen has no idea how serious the present climate crisis actually is. A close look at present (non-legally binding) pledges by the Obama Administration and other governments to reduce GHG pollution shows that their proposed, slightly modified "business as usual" practices will still result in a disastrous global average temperature increase of 3.5 to 3.9 C by 2100, according to recent studies. This will not only burn up the Amazon, the lungs of the planet, but also transform the Arctic into a region that is 10 to 16 degrees C warmer, releasing most of the region's permafrost carbon and

methane and unknown quantities of methane hydrates, in the process basically putting **an end to human beings' ability to live on the planet.**

We are literally staring disaster in the face. In the follow up to the Copenhagen Climate Summit this year, which is to be held in Cancun, Mexico (Nov. 29-Dec. 10) we, as members of global civil society, must raise our voices loud and clear. We must make it clear that we are years, not decades away, from detonating runaway feedback mechanisms (heating up and burning up **the Amazon and melting the Arctic** permafrost) that can doom us all.

Industrial Food and Farming: A Deadly Root of Global Warming

Although transportation, industry, and energy producers are obviously major fossil fuel users and greenhouse gas polluters, not enough people understand that the worst U.S. and global greenhouse gas emitter is "Food Incorporated," transnational industrial food and farming, of which Monsanto and GMOs constitute a major part. Industrial farming, including 173 million acres of GE soybeans, corn, cotton, canola, and sugar beets, accounts for at least 35% of U.S. greenhouse gas emissions (EPA's ridiculously low estimates range from 7% to 12%, while some climate scientists feel the figure could be as high as 50% or more).

Industrial agriculture, biofuels, and non-sustainable cattle grazing - including cutting down the last remaining tropical rainforests in Latin America and Asia for GMO and chemical-intensive animal feed and biofuels - are also the main driving forces in **global deforestation** and wetlands destruction, which generate an additional 20% of all climate destabilizing GHGs.

In other words the direct (food, fiber, and biofuels production, food processing, food distribution) and indirect damage (deforestation and destruction of wetlands) of industrial agriculture, GMOs, and the food industry are the major cause of global warming. Unless we take down Monsanto and Food Inc. and make the Great Transition to a relocalized system of organic food and farming, we and our children are doomed to reside in Climate Hell.

Overall 78% of climate destabilizing greenhouse gases come from CO₂, while the remainder come from methane, nitrous oxide, and black carbon or soot. To stabilize the climate we will need to drastically reduce all of these greenhouse gas emissions, not just CO₂, and sequester twice as much carbon matter in the soil (through organic farming and ranching, and forest and wetlands restoration) as we are doing presently.

Currently GMO and industrial/factory farms (energy and chemical-intensive) farms emit at least 25% of the carbon dioxide (mostly from tractors, trucks, combines, transportation, cooling, freezing, and heating); 40% of the methane (mostly from massive herds of animals belching and farting, and manure ponds); and 96% of nitrous oxide (mostly from synthetic fertilizer manufacture and use, the millions of tons of animal manure from factory-farmed cattle herds, pig and poultry flocks, and millions of tons of sewage sludge spread on farms). Black carbon or soot comes primarily from older diesel engines, slash and burn agriculture, and wood cook stoves.

Per ton, methane is 21 times more damaging, and nitrous oxide 310 times more damaging, as a greenhouse gas than carbon dioxide, when measured over a one hundred year period. Damage is even worse if you look at the impact on global warming over the next crucial 20-year period. Many climate scientists admit that they have previously drastically underestimated the dangers

of the non-CO₂ GHGs, including methane, soot, and nitrous oxide, which are responsible for at least 22% of global warming.

Almost all U.S. food and farm-derived methane comes from factory farms, huge herds of confined cows, hogs, and poultry operations, in turn made possible by heavily subsidized (\$15 billion per year) GMO soybeans, corn, cottonseed, and canola; as well as rotting food waste thrown into landfills instead of being separated out of the solid waste stream and properly composted. To drastically reduce CO₂, methane, and nitrous oxide releases we need an immediate consumer boycott, followed by a government ban on factory farms, dairies, and feedlots. To reduce black carbon or soot emissions we will need to upgrade old diesel engines, and provide farmers and rural villagers in the developing world with alternatives to slash and burn agriculture (compost, compost tea, biochar) and non-polluting cook stoves and home heating.

We also need to implement mandatory separation and recycling of food wastes and “green garbage” (yard waste, tree branches, etc.) at the municipal level, so that that we can reduce methane emissions from landfills. Mandatory composting will also enable us to produce large quantities of high quality organic compost to replace the billions of pounds of chemical fertilizer and sewage sludge, which are releasing GHGs, destroying soil fertility, polluting our waters, and undermining public health

Nearly all nitrous oxide pollution comes from dumping billions of pounds of synthetic nitrogen fertilizer and sewage sludge on farmland (chemical fertilizers and sludge are banned on organic farms and ranches), mainly to grow GMO crops and animal feed. Since about 80% of U.S. agriculture is devoted to producing non-organic, non-grass fed meat, dairy, and animal products, reducing agriculture GHGs means eliminating the overproduction and over-consumption of GMO crops, factory-farmed meat, and animal products. It also means creating massive consumer demand for organic foods, including pasture-raised, grass-fed animal products.

The fact that climate change is now metastasizing into climate chaos is indisputable: massive flooding in Pakistan, unprecedented forest fires in Russia and the Amazon, melting of the glaciers that supply water for crops and drinking water of a billion people in Asia and South America, crop failures in regions all over the globe, record heat waves in the U.S. and Europe, methane leaking from the Arctic tundra and coastlines, killer hurricanes in the Gulf of Mexico and Central America, and steadily spreading pestilence, crop failures, and disease. The realization that every time we eat non-organic processed food, we are ingesting unlabeled, hazardous GMO foods and pesticides is indeed alarming. But the impending threat of industrial food and farming detonating runaway climate change (i.e. moving from our current .8 degree Centigrade average global rise in temperature to 2-6 degrees) is terrifying. Either we rein in industrial food and farming and GMOs, out-of-control politicians and corporations, and make the transition to an organic and green economy or we will perish.

The hour is late. Leading climate scientists such as Dr. James Hansen of NASA and the Intergovernmental Panel on Climate Change have delivered the final warning. “Business as usual” equals unimaginable disaster.

Leading greenhouse gas polluters (namely the US, Canada, Europe, Japan, Russia, India, and China) must slash CO₂, methane, soot, and nitrous oxide emissions by 20-40% as soon as possible, 50% by 2010, and 80-90% by the year 2050. Continued business as usual, especially in

the strategic GM and industrial food and farming sector, means we will inevitably burn up the Amazon and remaining tropical forests; acidify and kill the oceans; generate mega-drought, violent floods, crop failures, endless resource wars, melt the polar icecaps, precipitate a disastrous rise in ocean levels, and finally bring about the coup de grace that will kill us all, releasing massive amount of methane from the frozen tundra and shallow ocean floors of the Arctic.

Of course dismantling industrial agriculture and transitioning our food and farming system to one which is local and organic is not the only thing global civil society must do (since this will only take care of 50% of global greenhouse gas pollution), but it is the most crucial and effective measure we can take as food consumers and farmers. While we retool industrial food and farming, the global grassroots must also step-up our struggles in the other energy and greenhouse gas (GHG) sectors: stopping the construction of coal plants; stopping the deforestation in the Amazon, Indonesia, and Malaysia; changing the electrical grid from being powered predominately by coal to solar, wind, and geothermal; drastically reducing oil consumption in the transportation and housing sectors; and last but not least, dismantling the trillion dollar military-industrial complex. Let me repeat this last point. Until the U.S. and EU get out of Iraq and Afghanistan, and drastically slash U.S. and world military spending, we will never be able to free up sufficient resources to build an organic and green economy.

Either we radically reduce CO₂, as well as methane, nitrous oxide, and soot pollution (the so-called CO_{2e}--carbon dioxide equivalents) to 350 ppm (currently at 390 parts per million and rising 2 ppm per year) or there is no future. As scientists warned at the Copenhagen Climate Summit, "business as usual" and a corresponding 2-6 degree Celsius rise in global temperatures means that the carrying capacity of the Earth in 2100 will collapse to one billion people. Under these conditions, billions will die of thirst, cold, heat, disease, war, and starvation. Those who don't die may wish that they had.

Organic Farming and Ranching Can Reverse Global Warming

The currently catastrophic, but largely unrecognized, GHG damage from GMO crops and industrial food production and distribution must be reversed. This will involve wholesale changes in farming practices, government subsidies, food processing and handling. In the U.S. it will require the conversion of a million chemical farms and ranches to organic production. It will require the establishment of millions of urban backyard and community gardens, and the restoration of prairielands, forests, and wetlands.

If consumer rebellion and grassroots mobilization cannot force U.S. factory farmers to change the way they farm, process, and ship their products it will be almost impossible to deal with catastrophic U.S. greenhouse gas emissions and climate change.

On a very hopeful note, however, if farmers *do* change, stop planting GMOs, and make the transition to organic farming, farm and ranch land can become a significant sink or sequestration pool for greenhouse gasses, literally sucking excess greenhouse gases out of the atmosphere and the ozone layer and sequestering them safely in the soil, where they belong. The overly saturated global atmosphere now contains 800 billion tons of carbon. (For climate stability purposes it should only contain 700 billion tons or less of carbon). This is why the weather is changing. This is why we are experiencing a climate crisis. If we are to survive, we not only need to keep the remaining 3.2 trillion tons of carbon in the soil, where it is now (instead of allowing it to be released into the atmosphere as collateral damage from industrial agriculture),

but we must also capture and sequester (through organic soil and land management) at least 100 billions tons of excess carbon that are currently over-saturating the atmosphere.

Before the onslaught of industrial agriculture in the 1940s, U.S. farm and forest soils contained and sequestered twice as much climate-destabilizing carbon organic matter as they do today. Instead of the one or two percent organic carbon matter of industrial agriculture's farmland or rangeland today, traditional farm and ranch lands often had two to four percent or more. With organically managed farms and ranches, a green urban landscape, and nationwide reforestation we can literally suck excess greenhouse gas pollution out of the sky and put it back where it belongs, in the living soil.

Planet Earth has five pools or repositories where greenhouse gases are absorbed and stored: the oceans (which contain 40 trillion tons of carbon), the atmosphere (800 billion tons), the soils (3.2 trillion tons), plants and forests (650 billion tons), and hydrocarbon/fossil fuel deposits (4 trillion tons). **Obviously we are doomed if we burn up the remaining fossil fuels on the Earth and release the prodigious amounts of greenhouse gases currently stored in the soil, oceans, plants, and forests.**

Because U.S farm and forest soils are so degraded from chemical-intensive, mono-crop farming practices and over-logging they are only able to absorb and store half (or less) of the carbon matter than they would be capable of if they were organically managed. As a result of this reckless mismanagement, the atmosphere and the oceans are absorbing the bulk of the greenhouse gases that normally would be absorbed by farmland, rangeland, and forests. This has led to a catastrophic excess of GHGs in both the oceans and the atmosphere. This excess has caused changes in climate and extreme fluctuations in weather; including droughts and torrential flooding. It also causes oceanic acidification, oceanic dead zones, and dramatic declines in fish and crustacean populations.

Unfortunately, when they evaluate agricultural pollutants, pro-industrial farming, pro-biotech government bureaucrats in the EPA and USDA do not include many of the greenhouse gas emissions. They do not take into account the transportation, cooling, freezing, and heating of farm products as agricultural GHG emissions, even though our food travels an average of 1500-2000 miles to our tables and is routinely frozen and cooled to ensure its deliverability. They don't count the CO₂ and "black carbon" particle emissions from trucks, tractors, combines, and other equipment used on farms. They don't count the emissions from fertilizer manufacture or use, wasteful packaging, sewage sludge spread on farm and range land, or the methane emitted from factory farms and the billions of tons of rotting, non-composted food in our landfills and garbage dumps. Instead, they lump--and thereby conceal--all these farm and food related GHG emissions under the categories of industrial manufacture, transportation, or electrical use. As a result, the public spotlight never shines on mounting agricultural, food, garbage, and sludge pollution.

Because government officials deliberately fail to evaluate the real farm and food-derived greenhouse gas emissions, they are free to act as if the emissions coming from GMO crops and industrial food and farming are not significant compared to the U.S. total, even though they represent more than one-third of the total pollutants. Consequently, most lawmakers and the public don't realize how urgent it is to regulate and drastically curtail factory farm and Food Inc.'s emissions.

But for those of us who do understand all this, it's time to move beyond polite discussion and say it out loud: we must take down and dismantle Monsanto and Food Inc. We must get political and get organized. We must declare our independence from the Food-Biotech-Industrial Complex and build a new, relocalized, organic, and sustainable society.