

“You’ll Need an iPad if You Want to be a Farmer”

## Toward the Agro-Police State

by Carmelo Ruiz-Marrero

Monsanto is not just about seed. In 2013 the US biotech giant bought the Climate Corporation for \$930 million. This is how the company describes itself:

The Climate Corporation aims to help farmers around the world protect and improve their farming operations with uniquely powerful software and insurance products. The company’s proprietary technology platform combines hyper-local weather monitoring, agronomic data modeling, and high-resolution weather simulations to deliver climate.com, a solution that helps farmers improve their profits by making better informed operating and financing decisions, and Total Weather Insurance, an insurance offering that pays farmers automatically for bad weather that may impact their profits.”

“Monsanto hopes to apply the Climate Corporation’s data analysis insight across the company, to create what a Monsanto executive called ‘the next level of agriculture,’” according to an October 2, 2013 *New York Times* piece appropriately titled “Big Ag Likes Big Data.” “A farmer should be able to

field recommendations on how to maximize yield and manage risk.

In 2012 Monsanto bought a similar company, Precision Planting, for \$210 million. The biotech behemoth was after the company’s FieldView platform, a hardware/software package that monitors the performance of farm machinery and pretty much tells the farmer how to do everything, determining even the spacing between crop rows.

According to the *Wall Street Journal* (May 23 2012), “The deal... is part of Monsanto’s foray into a growing field called ‘precision agriculture,’ which refers to the use of computer technology and global-positioning systems to help farmers efficiently use seeds, fertilizer and chemicals.”

With the purchase of these two companies, Monsanto has developed a technology platform called Integrated Farming Systems, which has already unveiled its premier product: the FieldScripts system.

According to Monsanto:

FieldScripts integrates innovations in seed science, agronomy, data analysis, precision agriculture equipment and service to provide farmers with hybrid matches and a variable rate planting prescription to improve corn yield opportunity. FieldScripts will be the first offering from Monsanto’s Inte-

grated Farming Systems research platform. FieldScripts uses seed science and precision agriculture equipment to accurately plant less seed in low potential areas and more seed in high potential areas.

By recommending the best hybrids for the field and providing a prescription for variable rate planting, FieldScripts is able to help farmers maximize yield potential.

FieldScripts is apparently still in “beta” stage, undergoing field testing through its Ground Breakers program in Illinois, Indiana, Iowa and Minnesota.

---

### A hardware/software package pretty much tells the farmer how to do everything...

---

grow on farmland square meter by square meter, for lots more yield, planting seeds at different rates for each meter,” Kerry Preete, Monsanto’s executive vice president of strategy told NYT. “We’re a data company at heart, breeding seeds and helping farmers optimize yields and manage risk.”

The Climate Corporation, founded in 2006 by scientists and engineers from Google and other high-tech corporations, manages 50 terabytes of data at any given moment in order to process weather data from 2.5 million locations and 150 billion soil analyses, which generate 10 trillion data points to simulate weather.

According to a Monsanto press release:

The Climate Corporation’s expertise is in data science. The company turns a wide range of information into valuable insights and recommendations for farmers. For example, recommendations may be planting a few days earlier or changing an irrigation schedule.

The acquisition of The Climate Corporation represents Monsanto investment in supporting farmers by offering them novel options in the way they manage risk on farm – including weather, which is the single biggest risk farmers face on an annual basis. The Climate Corporation’s data science expertise is an important complement to our Integrated Farming Systems’ research platform that provides farmers with field-by-

---

### Monsanto has developed a technology platform called Integrated Farming Systems...

---

Once ready for commercialization, Monsanto will sell it through its Dekalb subsidiary.

Welcome to the brave new world of precision farming, in which every farmer will need a wifi connection and an iPad. Precision ag, as it is often called, is the collective name of a series of new agricultural data and crop monitoring technologies. The alleged benefits of these new techno packages include increased yields, better information for decision making on the farm, reduction in the use and overuse of agrochemicals and fertilizer, and increased profits. It relies on cutting edge technologies like geographic information systems (GIS), remote sensing, wireless internet, portable computers, high-speed data processing, and global positioning (GPS).

### Farm drones

Not surprisingly, this techno-agriculture tends to cross paths with military technology, like pilotless drones. There's Precision Hawk, a robotic plane so small and light (weighs three pounds and has a wingspan of four feet) that it can be launched by hand, like a paper airplane. It needs no remote control, its artificial intelligence (AI) allows it to pilot itself and make its own decisions in real time. "Our proprietary AI detects weather conditions in the air and creates its own optimal flight path while in the

---

### "The unmanned aerial systems can be programmed to fly low over fields and stream photos and videos to a ground station..."

---

air," says the corporation. The Hawk "Continually monitors itself while in flight: checking battery life, operational weather/wind limitations, structure cracks, fatigue analysis and other internal performance checks."

The drone's visual, multispectral, thermal, lidar (laser radar) and hyperspectral sensors have numerous agricultural applications, including monitoring soil type and moisture, nitrogen deficiencies, plant height and health, leaf area, canopy cover, and much more. In order to make sense of all this data, the Hawk comes with a cloud-based application called Precision Mapper.

"The unmanned aerial systems can be programmed to fly low over fields and stream photos and videos to a ground station, where the images can be stitched together into maps or analyzed to gauge crop health," according to a September 13, 2014 *Los Angeles Times* article. "They can also be modified to land and take soil and water

samples. One day they could be used as precision crop-dusters."

### Bad news for farmers

However, not everyone is happy about these tech developments. Some critics fear that precision farming will become a risk to environmental sustainability and rural communities by forcing farmers into new forms of dependence and debt, and establish a de facto agricultural police state run by agribusiness corporations.

These objections are not new at all. As early as 1996 social scientists Steven Wolf of the University of California, Berkeley and Fred Buttel of the University of Wisconsin published a paper titled "The Political Economy of Precision Farming" in the *American Journal of Agricultural Economics*. [1] "Precision farming has less to do with mitigating agricultural pollution than with advancing industrial modes of production," said Wolf and Buttel.

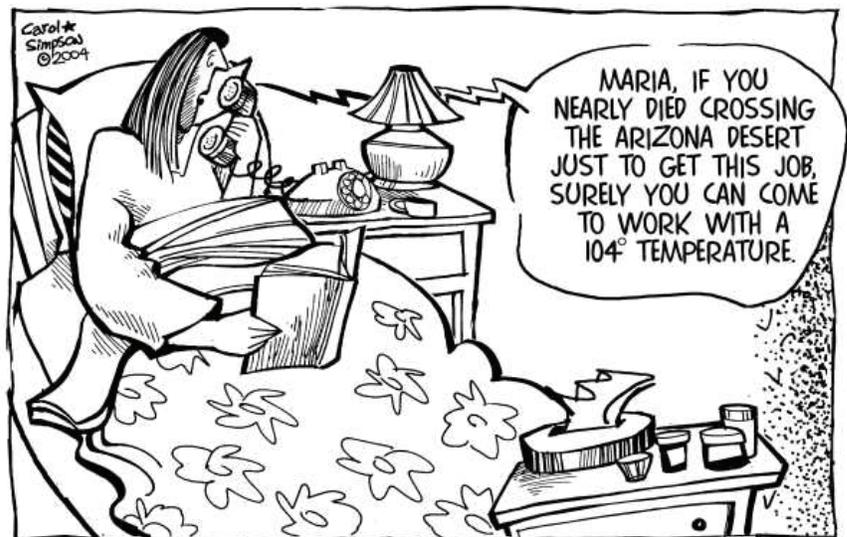
In 1997 Wolf and rural sociology professor Spencer D. Wood of the University of Wisconsin, published a critical paper on precision farming in the *Rural Sociology* journal. "Precision farming legitimates chemically-based agriculture in an era of rising environmentalism," they warned. As for sustainable farming, precision ag goes in the opposite direction, said Wolf and Wood: "Precision farming supports further integration of on-farm activity into a coordinated system of industrial manufacture." [2]

"Precision farming technology reinforces the uniformity and chemical-intensive requirements of industrial agriculture," said RAFI, a North American NGO in its March 1997 bulletin. "It is an industrializing technology that builds further links of dependency between the farmer, the agrochemical industry and off-farm information providers." In 2001 RAFI changed its name to ETC

---

### "Precision farming legitimates chemically-based agriculture in an era of rising environmentalism."

---



Group.

In 2002 I interviewed ETC Group research director Hope Shand on the subject. "Precision farming is about commodification and control of information and it is among the high-tech tools that are driving the industrialization of agriculture, the loss of local farm knowledge and the erosion of farmers' rights," she told me. In her view, precision ag seeks to legitimate and reinforce the uniformity and chemical-intensive requirements of industrial agriculture under the guise of protecting the environment and improving efficiency." With precision farming, farmers increasingly depend on off-farm decision making to determine precise levels of inputs. For example, dictating what seed, fertilizer, chemicals, row spacing, irrigation and harvesting techniques are used, and other management requirements," Shand explained.

In October 2002 Corpwatch published my article "Precision Farming: The Marriage Between Agribusiness and Spy Technology." Some passages are worth repeating today:

Will farmers want, or be able, to understand the advanced gadgetry of precision farming? In Puerto Rico, for example, only 14% of farmers have college degrees, and a higher percentage might be illiterate altogether. The average Puerto Rican farmer is 55 years old, according to the US Farm Census. Many are probably too traditional to embrace advanced software, satellite imaging and other new technologies.

... what farmer will be able to afford precision farming technology, whose basic packages start at \$15,000 to \$20,000? How can American family farms, facing extinction by economic strangulation, afford these dazzling technological advances?

What will happen to rural America and farming communities worldwide if food processors, retailers and other major purchasers of agricultural produce start requiring suppliers to use precision farming and identity protection technology? Large American industrial farms, heavily capitalized and subsidized by the US government with tens of billions of dollars a year, will easily afford the technology. But struggling family farms could be put out of business.

"The reality is that farmers do not control precision farming," notes Hope Shand of the ETC Group. "Rather, precision agriculture is more likely to dictate decision making, control and management of the

**GREEN POLITICS —  
FIND IT ON LINE !**



Each issue of Green Politics brings a mix of news on grassroots struggles against corporate power and the degradation of the environment. There will be insightful reports on today's movements for a democratic, ecologically sane society.

All issues of *Green Politics* can be seen and downloaded at the Green Party, USA website — <http://www.greenparty.org>

CHECK US OUT!

farmer." She compares precision agriculture to a kind of high tech feudalism: "Precision farming reinforces bioserfdom and the role of the farmer as a 'renter of germplasm.'"

In the aforementioned 1997 ETC Group report the organization also forecast the rise of "identity protection" or "identity preservation" regimes that will keep tight surveillance of commercial seeds, to ascertain their precise lineage, genetics and origin. Far from being a goodwill effort to segregate GM from non-GM seed, the purpose of this vigilance will be to ensure the collection of royalties from the use of patented seed and assign liability in

case of any mishap (as in GM seeds showing up where they are not supposed to).

In 2004 the Europe-based GRAIN non-governmental organization declared that agribusiness and food corporations will use identity preservation systems to enforce a form of food apartheid, in which the privileged will eat healthy overpriced organic fare while the rest of the population will eat overprocessed garbage:

At the end of all this, a small circle of big corporations and joint ventures will emerge with complete control of food systems and agriculture, controlling the GM crop sector as well as the GM-free

---

**The purpose of this vigilance will be to ensure the collection of royalties from the use of patented seed.**

---

sector, which will become a market niche that will cater to the well off, as has happened to a great extent with organic agriculture. Just look at Romania, where the only certified non-GM seed available is the one provided by Pioneer Hi-Bred from the United States!" [3]

The main problem with precision ag and the hype that surrounds it is the faulty assumptions that it rests on. The problems of agriculture are not caused by a lack of technology, or even by a lack of productivity (overproduction has as a matter of fact been a more frequent problem for farmers). The root problems are political and economic in nature. These include neoliberal trade policies that flood local markets with cheap imported food products, the high cost of land, the extortion of mortgage banks, the lack of institutional support on the part of governments, and the consolidation of agribusiness corpo-

rations into global cartels that manipulate prices and markets. No super seed, software app or pilotless plane will solve these problems.

Carmelo Ruiz-Marrero is a Puerto Rican author, investigative journalist and environmental educator. He is a Research Associate of the Institute for Social Ecology and a Senior Fellow of the Environmental Leadership Program. He directs the bilingual Biosafety Blog (<http://bioseguridad.blogspot.com/>) and the Latin America Energy and Environment Monitor (<http://monitorenergiayambiente.blogspot.com/>). This article originally appeared in *Food First*.

Notes

1. Wolf, Steven A. and Frederick H. Buttel. The Political Economy of Precision Farming, *American Journal of Agricultural Economics* 78(5), December 1996.
2. Wolf, Steven A. and Spencer D. Wood. Precision Farming: Environmental Legitimation, Commodification of Information, and Industrial Coordination, *Rural Sociology* 62(2), 1997.
3. GRAIN, Enfrentando la Contaminación, April 2004. <http://www.grain.org/fr/article/entries/146-enfrentando-la-contaminacion>

---

## Borneo's Killer Dams

by Amanda Stephenson

Sarawak, Malaysia, is located on the island of Borneo, the third largest island in the world. Sarawak is home to thousands of endemic species, 40 indigenous groups, and one of the largest transboundary rainforests remaining in the world.

The state is also suffering from one of the world's highest rates of deforestation—only 5% of its primary forests remain. Now, Sarawak's forests and their inhabitants face another threat: the damming of its rivers for hydroelectric power.

The Malaysian government and its state-owned energy utility Sarawak Energy Berhad (SEB) plan to build 12 large dams, due to produce 7,000 MW (megawatts) of electricity. Six of them are scheduled for completion by 2020. These dams are part of a development initiative known as SCORE (Sarawak

ment began a corruption investigation into the project.

A recent Oxford study found that “even before accounting for negative impacts on human society and environment, the actual construction costs of large dams are too high to yield a positive return.”

---

### Construction costs of large dams are too high to yield a positive return.

---

Corridor of Renewable Energy), created to “stimulate global and domestic investment in traditionally rural areas.” SCORE's long-term energy generation strategy includes harnessing a potential 20,000 MW of hydroelectric power.

According to an analysis by International Rivers, the proposed mega-dams will flood 2,300 square kilometers of tropical rainforest. The 1,200 MW Baram dam, the next dam slated for construction in Sarawak, will flood an area of 412 square kilometers. The projected 12 dams will produce 7,000 MW of electricity in Sarawak, although local energy demand is now just 972 MW and is only projected to reach 1,500 megawatts by 2020. The 2,400 MW Bakun dam, commissioned in 2011, is being operated well below capacity.

Much of this energy will be generated in an attempt to attract energy-intensive investments from industries such as aluminum smelters. However, as International Rivers reports:

In March 2012, the mining giant Rio Tinto cancelled its plans to build a \$2 billion aluminum smelter that would have used electricity from the Bakun Dam not long after the Malaysian national govern-

### Rainforest and river species threatened

The rainforests of Borneo are home to hundreds of indigenous plant and animal species found nowhere else in the world, including the endangered Bornean orangutan, the rhinoceros hornbill, the Bornean sun bear, the Bornean pygmy elephant, and the Bornean clouded leopard.

These forests are a vital refuge for 221 species of terrestrial mammals, 420 species of resident birds, and 254 reptile species, among others. According to the World Wildlife Fund, “Between 1995 and 2010 over 600 species have been discovered—that is three species each and every month.”

---

### Those displaced were forced to pay nearly \$15,000 for government-built homes.

---

If SCORE's dams are built, they will flood endangered wildlife habitat, disrupt migratory patterns of fish and birds, and fragment species populations, causing them to decline. This will not only be a loss to locals but a loss to the whole world.

### It's ethnocide

To create these dams, tens of thousands of indigenous people from 20 different ethnic groups will be removed from their traditional lands and homes.