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Anatomy of a 'Gene Spill':

Do We Really Need Genetically Engineered Food?

BY PETER ROSSET

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Kraft Foods announced a nationwide recall of taco shells yesterday after confirming that they contained a genetically engineered corn not approved for human consumption. The recall covers **Taco Bell** Home Originals Packages… Kraft, a subsidiary of **Phillip Morris**…[sells] the Taco bell product line…under license from the Taco Bell restaurant chain, a unit of **Tricon Global** Restaurants… Kraft bought the shells from…Sabritas, a subsidiary of **PepsiCo.** The flour came from a mill owned by Azteca Milling…Azteca is controlled by Gruma S.A. of Mexico, the world's largest tortilla producer, but is partly owned by **Archer Daniels Midland,** the giant Illinois grain processor. The corn in question, known as Starlink…[was] developed by **Aventis CropScience**… Aventis CropScience S.A…unite[s] the crop protection business of **Rhône-Poulenc** with the crop protection activities of **Hoechst Schering AgrEvo.**

—The New York Times, September 23 and 30, 2000, and http://www.aventis.com

gene spill *n* (2000) [COMPARE oil spill] : an accidental release of an artificially engineered genetic construct into the environment or the human food system.

On Monday, September 18, 2000, a coalition of biotech critics announced laboratory tests detecting the presence of genetically engineered (GE) corn, of a variety not approved for human consumption, in Taco Bell brand taco shells. [1] The StarLink corn variety in question produces a bacillus thuringiensis (Bt) insecticide protein called Cry9C, a potential human food allergen because it is not broken down by the digestive process. Later the same day, Aventis CropScience, the biotech giant which produces StarLink seeds, responded by challenging the credibility of Genetic ID, the independent laboratory which had found the illicit presence of the variety.[2] On September 22 Kraft announced a recall of the taco shells,[3] and on September

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29 the USDA and the EPA jointly announced that Aventis, at their 'urging,' had agreed to buy back the entire year's harvest of StarLink corn from embattled farmers.[4] On October 2 the FDA belatedly revealed that its own laboratories had confirmed the results of Genetic ID's disputed tests, announcing that it would now begin test a few other processed food products for the first time.[5] It wasn't long before the original testers found traces of StarLink elsewhere, notably in Safeway brand taco shells, and more product recalls followed.[6] As many as 350 flour mills around the country have apparently received shipments of this GE corn variety, and there are doubts as to how careful they have all been in terms of keeping it out of the human food supply.[7]

The New York Times pointed out that this incident "shows how difficult it can be to contain genes once they get into the field and how hard it can to keep different varieties of crops from co-mingling." [8] The usually pro-biotech newspaper speculated that corn for human consumption could have been wind pollinated by the StarLink variety grown nearby for animal feed, its only approved use, or that genetically modified seed could have "been left in barges or trucks that are later used to carry non-modified crops." In a later story the paper added the possibility of intentional misrepresentation of one corn variety for another, driven by the profit motive, as corn for human consumption receives a higher price than for animal feed.[9] Farmers point out that true separation of GE and non-GE crops in the food chain, or 'segregation' as it is called by industry, is a 'myth,' impossible to achieve in practice when one considers the multiple use of planters, combines, augers, grain elevators, trucks, mills, storage bins and facilities, etc.[10] Kraft itself has called for an end to the approval of varieties that are only acceptable for animal consumption, given the difficulty of assuring that they do not enter the human food supply.[11]

Unfortunately, genetic pollution is not easy to contain. Unlike an oil spill, a gene spill cannot be contained by throwing a boom around it. Once genes are taken out of the laboratory they can move from plant to plant by natural pollination, even hybridizing with related but different species, winding up in genomes in which they have never been tested and where they may have unpredictable effects.[12] One can imagine a Bt pesticide gene, like the one in Starlink, moving into wild plants in neighboring ecosystems, which would then begin to express insecticidal properties with unknown effects on non-pest insects and the food chains that depend on them.[13] Or if the Cry9C insecticide protein were to continue to appear unpredictably in our food supply, serious food allergy reactions could arise in an apparently random pattern that would be inexplicable to epidemiologists unaware of an underlying distribution of GE contaminated processed food products. In this way, industry could continue to blithely tell us that no one has fallen sick from consuming a GE product, an easy 'fiction' to maintain as nobody is conducting the epidemiological studies needed to detect such illnesses.[14]

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Corporate Concentration: 'Accidents Will Happen, But Only Hit and Run'

In studying this case we are struck by the dense network of transnational corporations (TNCs) involved, and the relationships between them—symptomatic, we feel, of larger problems in our food system. A food processor (Kraft) owned by a tobacco company (Phillip Morris), pays a licensing fee to the world's largest fast food corporation (Tricon, which owns Taco Bell, KFC, and Pizza Hut), itself a spin-off from PepsiCo, and buys the taco shells from a direct subsidiary of Pepsi (Sabritas), who bought the flour from the company (Gruma) who produces over half of the tortillas consumed in the world[15] and is partially owned by the nation's largest grain processor (ADM), a major campaign contributor to both political parties, found guilty at various times of price fixing and anti-trust violations.[16] ADM in turn bought the corn from farmers who bought the seed from a biotech conglomerate (Aventis CropScience), formed by the merger of two chemical companies (AgrEvo and Rhône-Poulenc), one of whom

(AgrEvo) is itself the product of the previous merger of the Hoechst and Schering pharmaceutical and pesticide giants.[17] Where does the buck stop? Who is to blame? If GE Food Alert hadn't paid for independent testing, who would have?

At Food First we have become increasingly concerned about the two-decades-long wave of mergers and buyouts in the global food and agriculture system. As fewer companies come to dominate each step in food production, whether supplying farmers with seeds and chemicals, processing food, or retailing through supermarkets, there are fewer checks and balances in the system.[18] When an industry is competitive—when there are many companies producing similar products, each with a small market share—consumers have a better shot at getting what they need and want, and government regulators are less likely to be in the pockets of giant conglomerates. But when oligopolies or monopolies achieve preeminent positions in the market, they can unilaterally raise prices and cut costs, allowing quality to deteriorate because consumers are captive—they have no choice. And the windfall profits that accrue to dominant market positions make it possible—and necessary to protect those profits—to influence regulators through the revolving door between government and industry, campaign contributions and outright payoffs.

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As the bottom line supersedes concerns for safety, the environment, and consumer needs, accidents (intentional or not) happen. We need only remember the toxic spills and superfund sites left by chemical conglomerates or the oil spills caused by negligent oil companies to understand this principle.

PHOTOGRAPH BY BIOTHAI

Thai farmers on the "Long March for Biodiversity" protest GE crops.

The same process of economic concentration in the food system also breeds the exclusion of those too poor to be a 'market,' and so is a prime driving force behind hunger the world over.[19]

As the food industry becomes as concentrated as the chemical and petroleum industries, we see similar phenomena cropping up more often. Whether it is Alar on apples, or food poisoning outbreaks from fast food hamburgers, corporate power and negligence with new technologies—farm chemicals in one case and factory farming in the other—is increasingly putting our food supply at risk and our federal regulators to sleep. GE foods have entered our diet without any significant pre-market testing being mandated by FDA, EPA or USDA, thanks to a 1992 Bush administration ruling (vigorously defended by Clinton and Gore) that they are "substantially equivalent" to normal foods and do not require special testing. This was an entirely political determination, one with which many of the FDA's own scientists disagreed.[20] In fact, it so weak that a federal judge recently ruled that GE foods are legally "unregulated," thus government appointees violated no regulations in ignoring significant scientific disputes about their safety. There is good evidence that the revolving door between corporate payrolls and our government regulatory agencies has played a substantial role in ensuring such lax oversight.[21]

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Does the World Need GE Food?

At Food First our in-depth research into this topic has convinced us that in both Northern countries and the Third World, *there is no compelling need for GE products to enter our food system,* either now or in the foreseeable future. Contrary to biotech industry advertising,[22] hunger today is not caused by a shortage of food, nor will it be addressed by producing more. We produce more food per man, woman, and child on this planet than ever before in human history, more than anyone could ever need, yet hunger is on the rise, even in America where surplus production is the rule. The evidence is clear: people are hungry because of poverty and inequality—they simply cannot afford the abundance that surrounds us.[23] If we truly care about hunger, than we must tackle inequality head on, including the increasing inequality being generated by the runaway corporate concentration described above.

Of course local food production must be raised now in some parts of the world, and perhaps everywhere some day in the future. While industry would have us believe that their 'best case' 25-35 percent increase projected from adoption of GE crops is the best we can do,[24] our research shows that these yield predictions may well be inflated, and that there are far more productive alternatives, based on agroecological, sustainable agricultural practices and small

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farms, which are more efficient and more compatible with social justice goals.[25] On the specific question of hunger in the nations of the South, our research has shown the claims of increased production and reduction of hunger and malnutrition—as in the case of vitamin A containing 'golden rice'—to be questionable at best, and most likely false.[26]

Considerable Risks

In reviewing the evidence, we have also found that there are substantial potential ecological and human health risks associated with GE crops. We call them *potential risks* because such a tiny proportion of research funds are being directed at studying these risks that we simply do not have information to judge the real magnitude of the threat GE crops do or do not represent. Among the many ecological risks are the movement of genes into other organisms through pollination, and their horizontal transfer by viruses; the problems associated with increased herbicide use in herbicide tolerant GE crops; the development of resistance to Bt by insects; the effects of Bt insecticide on soil microorganisms essential to maintaining soil fertility and on the predators that normally control pest populations; the creation of new viruses through recombination with GE constructs; and a host of others.[27] Among the health concerns are the development of new food allergens, as could be the case with the Cry9C protein found in the taco shells, and of new toxins or

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carcinogens; the possible risks associated with exposure to high levels of the particular Bt proteins found in GE crops; issues of antibiotic resistance due to the marker genes inserted into GE organisms; the creation of novel disease organisms; and many others.[28]

We Have the Luxury…

When we weigh the potential and largely unstudied risks with the fact the there is no compelling need for GE foods, here or in the Third World, we are left with a simple position that no one, who does not stand to receive an immediate economic benefit from investments in biotechnology, should oppose: we should demand an immediate moratorium on commercial use of GE crops and GE foods until such time as each product has passed environmental and health safety tests which have been agreed upon by all parties to the debate. If the biotech industry is sincere about their altruistic motives, they should support such a proposal, as it would not stop on-going laboratory research.

Because there is no compelling need, we have the luxury of being able to say "stop!—let's take a time out until we are assured that they are safe." If they prove not to be safe, then we do have better ways of growing food. In the meantime it would behoove us to redirect part of the overwhelming proportion of R&D funds going to biotech toward the more promising alternative food production methods.[29]

Third World Protest

We are often told that while is easy for Northern consumers to say they don't want GE foods, it would be imperialism of the worst sort to impose our health and ecological concerns on the hungry people's of the South. Yet it is precisely in the Third World where peasant and poor people's movements have been most militantly outspoken in saying they don't want this latest technological export from the North.

When a group of Filipino farmers were asked recently for their thoughts on genetically engineered rice seeds, a peasant leader responded with what might be called the Parable of the Golden Snail. It seems that rice farmers have long supplemented the protein in their diet with local snails that live in rice paddies. At the time

TAKE ACTION

Please take a moment to send a postcard or letter with the following message to the FDA. Feel free to send similar messages to your elected officials and newspapers.

Commissioner Jane Henney
Food & Drug Administration
Docket No. OOP-1211CP1
Dockets Management Branch
5630 Fishers Lane
Room 1061 (HFA-305)
Rockville, MD 20852

Dear Commissioner Henney,

I urge you to keep genetically engineered food ingredients or crops off the market and out of the food supply unless:

1. Independent safety testing demonstrates genetically engineered crops have no harmful effect on human health or the environment.
2. Genetically engineered crops are labeled to ensure the consumer's right to know, and
3. The corporations that manufacture these crops are held liable for any harm.

For more information, please consult the web site of Food First/Institute for Food and Development Policy, at http://www.foodfirst.org.

Sincerely,

We Can't Wait.

In the future, only a few companies will be able to shape the developments in this industry—Aventis, the… ag-biotech business created by Hoechst and Rhône-Poulenc will be one of them…. The global agrochemicals market is increasingly moving from traditional chemical crop protection to the production of genetically improved seed…. [Aventis] will create an interesting combination of market strength, expertise, and patents…. Thanks to R&D success by Hoechst and Rhône-Poulenc, Aventis will be launching new herbicides, fungicides, and insecticides in coming years. With the LibertyLink, Aventis has a system that combines the two mainstays of the crop science business—the herbicide Liberty and the genetically modified seed for corn, canola, and sugar beet.

(taken from http://www.aventis.com)

An immediate moratorium on commercial use of GE crops and foods until each product has passed environmental and health safety tests.

of the Marcos dictatorship, Imelda Marcos had the idea of introducing a snail from South America that was said to be more productive and, as such, a means to help end hunger and protein malnutrition. But no one liked the taste, and the project was abandoned. The snails, however, escaped, driving the local snail species to the brink of extinction—thus eliminating a key protein source—and forcing peasants to apply toxic pesticides to keep them from eating the young rice plants. "So when you ask what we think of the new GE rice seeds, we say that's easy," the leader said. "They are another Golden Snail." [30]

Two years ago in India, the Karnataka State Farmers' Association, which claims 10 million Indian peasants as members, announced its "Cremate Monsanto" campaign. Since then they have been publicly burning Monsanto's experimental GE plots. In Brazil, the powerful Landless Workers' Movement (MST) has made stopping Monsanto soybeans a top priority, vowing to destroy any genetically engineered crops planted in the state of Rio Grande do Sul, where the sympathetic governor has banned them. Meanwhile, a Brazilian federal court judge has suspended commercial release of Monsanto's GE soy pending further testing.[31]

Last September more than 1,000 local farmers participated in the "Long March for Biodiversity" across Thailand, from Bangkok to Songkhla, Phetchaburi, Roi Et, Loei, and Chiang Mai. In their declaration they stated that "as human beings, we are both part of and highly dependent on biodiversity. Rice, corn, and other staple crops, food crops, medicinal plants and all other life forms are significant genetic resources that shape our culture and lifestyle. We oppose any plan to transform these into genetically modified organisms." [32]

A open letter sent to the UK media written by Tewolde Gebre Egzhiaber, Chief Spokesperson for Africa and the Like-Minded Group of nations in the Biosafety Negotiations, opened by saying: "We the undersigned, are appalled at the use made of the poverty of the rural people of the South to justify genetically modified food to Northern consumers." [33] The letter went on to say:

We, as informed Southerners, know that the South's poverty is caused by deep-seated structural economic imbalances which were established during the periods of slavery and colonialism and are continuing now. We know that though individual technological inputs can help in food production, given that other conditions are equally as important, those single technological inputs are insignificant on their own.

Since it is the transnational corporations which are the beneficiaries of the long history of inequity that has plagued us in our position of disadvantage, I believe that it is our responsibility to reject such a misleading oversimplification of the solution to our problem; especially the use of our condition, by those very beneficiaries of the inequity, to justify the continuation of the benefits that they derive.

Of Drugged Bananas, Taco Fiascos, and Golden Snails

In a October 7 editorial called "Final Warning: We Can't Ignore the Taco Fiasco, Next Time it Could be Serious," [34] the respected British *New Scientist* magazine argued that "the alarming feature of the [taco] case is that it reveals the utter inadequacy of controls…." The future is even more frightening, the editors cautioned, as the biotech industry is now working on plants that would produce everything from drugs and plastic to biofuels. How will we protect our food supply, they ask, if "a banana containing a potent drug is likely to look the same as the banana in your packed lunch?"

We would all do well to heed the Parable of the Golden Snail, and our own memory of technological magic bullets like nuclear power and DDT.

As human beings, we are both part of and highly dependent on biodiversity. Rice, corn, and other staple crops, food crops, medicinal plants and all other life forms are significant genetic resources that shape our culture and lifestyle. We oppose any plan to transform these into genetically modified organisms.

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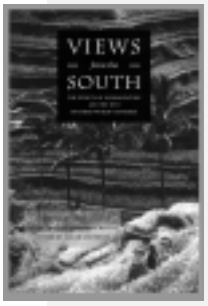

For all its talk of being dedicated to the welfare of the Third World and the global poor, WTO rules and agreements actually further a "new colonialism." In *Views from the South,* Third World activists and scholars describe in pointed detail the effects of the WTO and other Bretton Woods institutions.

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