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Why Do G.M.O.'s Need Protection?

By MARK BITTMAN

Mark Bittman on food and all things related.

TAGS:

AGRICULTURE AND FARMING,AGRICULTURE DEPARTMENT,GENETIC ENGINEERING,HOUSE OF REPRESENTATIVES, SENATE

Genetic engineering in agriculture has disappointed many people who once had hopes for it. Excluding, of course, those who've made money from it, appropriately represented in the public's mind by Monsanto. That corporation, or at least its friends, recently managed to have an outrageous rider slipped into the 587-page funding bill Congress sent to President Obama.[1]

The rider essentially prohibits the Department of Agriculture from stopping production of any genetically engineered crop once it's in the ground, even if there is evidence that it is harmful.

That's a pre-emptive Congressional override of the judicial system, since it is the courts that are most likely to ask the U.S.D.A. to halt planting or harvest of a particular crop. President Obama signed the bill last week (he kind of had to, to prevent a government shutdown) without mentioning the offensive rider [2] (he might have), despite the gathering of more than 250,000 signatures protesting the rider by the organization Food Democracy Now!

The override is unnecessary as well as disgraceful, because the U.S.D.A. is

already overly supportive of genetically engineered crops. When a court tried to stop the planting of genetically engineered beets a couple of years ago pending adequate study, the U.S.D.A. allowed it. And the secretary of agriculture, Tom Vilsack – who, in fairness, does not seem happy about the rider but was powerless to stop it – was quoted in this (excellent) Politico piece as saying, "With the seed genetics today that we're seeing, miracles are occurring every single growing season."

True enough. But "seed genetics" refers not only to genetically engineered seeds but to seeds whose genetics have been altered by conventional means, like classical breeding. In fact, as I said up top, genetic engineering, or, more properly, transgenic engineering – in which a gene, usually from another species of plant, bacterium or animal, is inserted into a plant in the hope of positively changing its nature – has been disappointing.

In the nearly 20 years of applied use of G.E. in agriculture there have been two notable "successes," along with a few less notable ones.[3] These are crops resistant to Monsanto's Roundup herbicide (Monsanto develops both the seeds *and* the herbicide to which they're resistant) and crops that contain their own insecticide. The first have already failed, as so-called superweeds have developed resistance to Roundup, and the second are showing signs of failing, as insects are able to develop resistance to the inserted Bt toxin — originally a bacterial toxin — faster than new crop variations can be generated.

Nothing else in the world of agricultural genetic engineering even comes close to the "success" of these two not-entirely-successful creations. Furthermore, at least in these cases, their pattern of success (and high profits) followed by failure was inevitable.

Don't take my word for it. Let me summarize extensive conversations I've recently had with Doug Gurian-Sherman, a senior scientist and plant pathologist at the Union of Concerned Scientists: Roundup Ready seeds allowed farmers to spend less time and energy controlling weeds. But the temporary nature of the gains was predictable: "There was no better way to create weeds tolerant to glyphosate (Roundup) than to spray all of

them intensively for a few years," Gurian-Sherman told me. "And that's what was done."

The result is that the biggest crisis in monocrop agriculture – something like 90 percent of all soybeans and 70 percent of corn is grown using Roundup Ready seed – lies in glyphosate's inability to any longer provide total or even predictable control, because around a dozen weed species have developed resistance to it. "Any ecologist would have predicted this, and many did," Gurian-Sherman said.

In the case of seeds containing the Bt toxin, insect resistance took longer to develop because breeders, knowing that insects evolve faster than new crop species can normally be generated, have deployed several variations of the Bt toxin in an effort to reduce the "selection pressure." But, says Gurian-Sherman, "We're starting to see that resistance now."

Aside from the shame of Congress, there is another important issue here. Many steps could be taken right now to improve yields while diminishing the need for herbicides and pesticides, including sophisticated rotational systems, targeted applications of chemicals and other methods tested and demonstrated in the U.S.D.A./Iowa State University Marsden Farm study (about which I wrote last year). Acknowledging that — and recognizing that, at least for now, classical breeding methods remain superior to genetic engineering for whole crop improvement — is not the same thing as making inflated claims about the hazards of genetic engineering to human health, as some opponents of genetic engineering have taken to doing.

There is far from any scientific consensus on this, because there's currently little or no reliable evidence that food manufactured with ingredients from genetically engineered plants is directly harmful to humans[4]. That's not the same thing as saying that the potential isn't there for novel proteins and other chemicals to generate unexpected problems, which is why we need strict, effective testing and regulatory systems.

It's also why the pre-emptive "biotech rider" is such an insult: Congress is (again) protecting corporations from the public interest. This is all the more reason that food derived from genetically modified organisms should be so labeled, especially since the vast majority of Americans want them to be.

Still, we should abhor the use of genetically engineered seeds without adequate testing, and protest against hijacking the Constitution to guarantee the "right" to unregulated use of genetically engineered seeds. It's smart to prudently explore the possible benefits and uses of genetically engineered materials in agriculture, and to deploy them if and when they're proven to be a) safe (otherwise, no) and b) beneficial to society at large (otherwise, why bother?). I don't believe that any G.E. materials have so far been proven to be either of these things, and therefore we should proceed cautiously.

We should also note that far less expensive – sometimes 100 times less expensive – conventional breeding techniques have outstripped genetic engineering techniques over the last 20 years, during which G.E. techniques have gotten far more publicity. (Conventionally bred drought resistance has raised yields around 30 percent in the last 30 years; Monsanto's drought-resistant corn, says Gurian-Sherman, promises at most a 6 percent increase, and that only in moderate drought.) We're using more pesticides than ever (something like 400 million pounds in the last 15 years), and net yields from applied genetic engineering in the United States are only a bit higher (and then only in monocrop systems) than net yields from seeds developed using more conventional techniques.

All of this explains why producers of genetically engineered seeds feel they need protection. (One can only hope that this is temporary, since the rider expires at the end of this fiscal year; though it's hard to see it going away without a whole lot of noise.) Their technology is not that great (did Polaroid, or Xerox, or Microsoft need protection?) and their research costs are high. They need another home run like Roundup Ready crops – serious drought tolerance would be an example — yet there isn't one in sight.

Genetic engineering has its problems. Like nuclear power, it may someday become safe and productive or – again like nuclear power – it may become completely unnecessary. Our job as citizens is to support the production of energy and food by the most sustainable and least damaging methods scientists can devise. If that's genetic engineering, fine. But to date it hasn't been; in fact, the technology has been little more than an income-generator for a few corporations desperate to see those profits continue regardless of the cost to the rest of us, or to the environment.

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1. Incredibly, it was done anonymously. No member of Congress has taken responsibility.

2. Nor did he mention another horrendous House-inserted provision that gives increased market power to our three largest meatpacking corporations at the expense of small farmers and ranchers, and hogties U.S.D.A. attempts to put the brakes on the worst abuses of big meatpackers.

3. This from a technology that its advocates promised would be revolutionary, a technology that some believe is our only hope of increasing yields quickly enough to "feed humanity" later this century. (Not that we need to increase yields to feed humanity, and not that we're feeding "humanity" now. But that's another story.)

4. On the other hand, there has been no monitoring of humans for harm, so the very often heard claim by many G.E. advocates that the technology has harmed no one is, says Gurian-Sherman, "flat out wrong scientifically."

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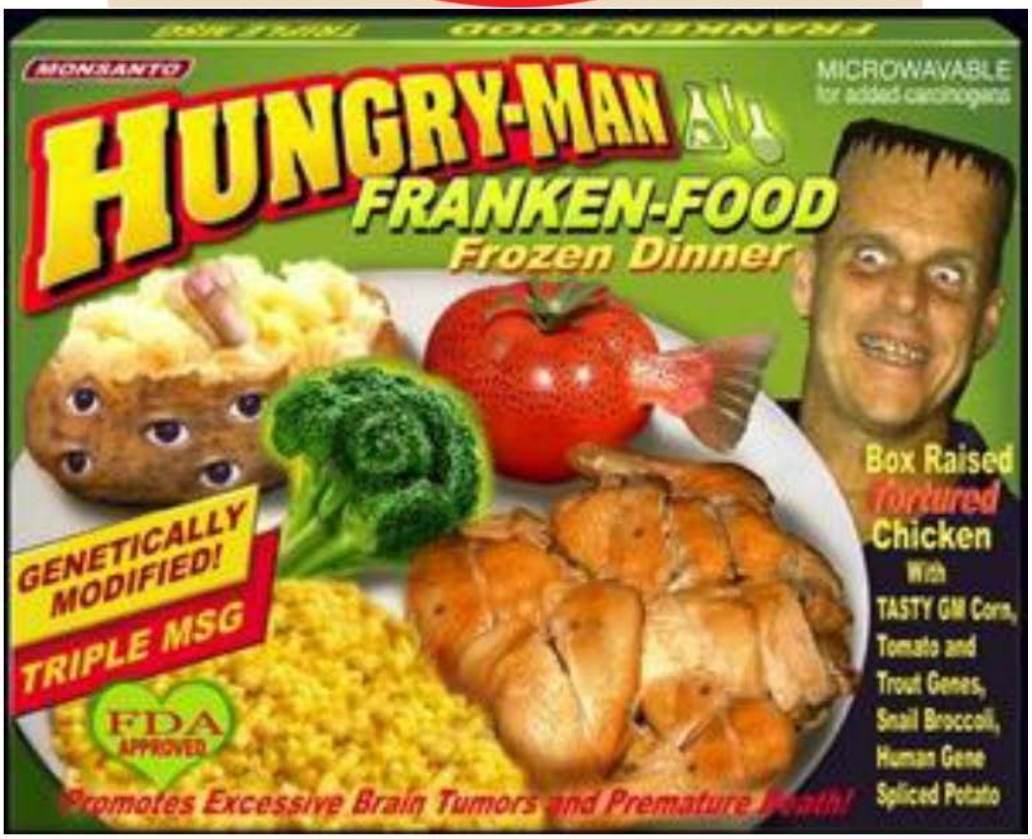

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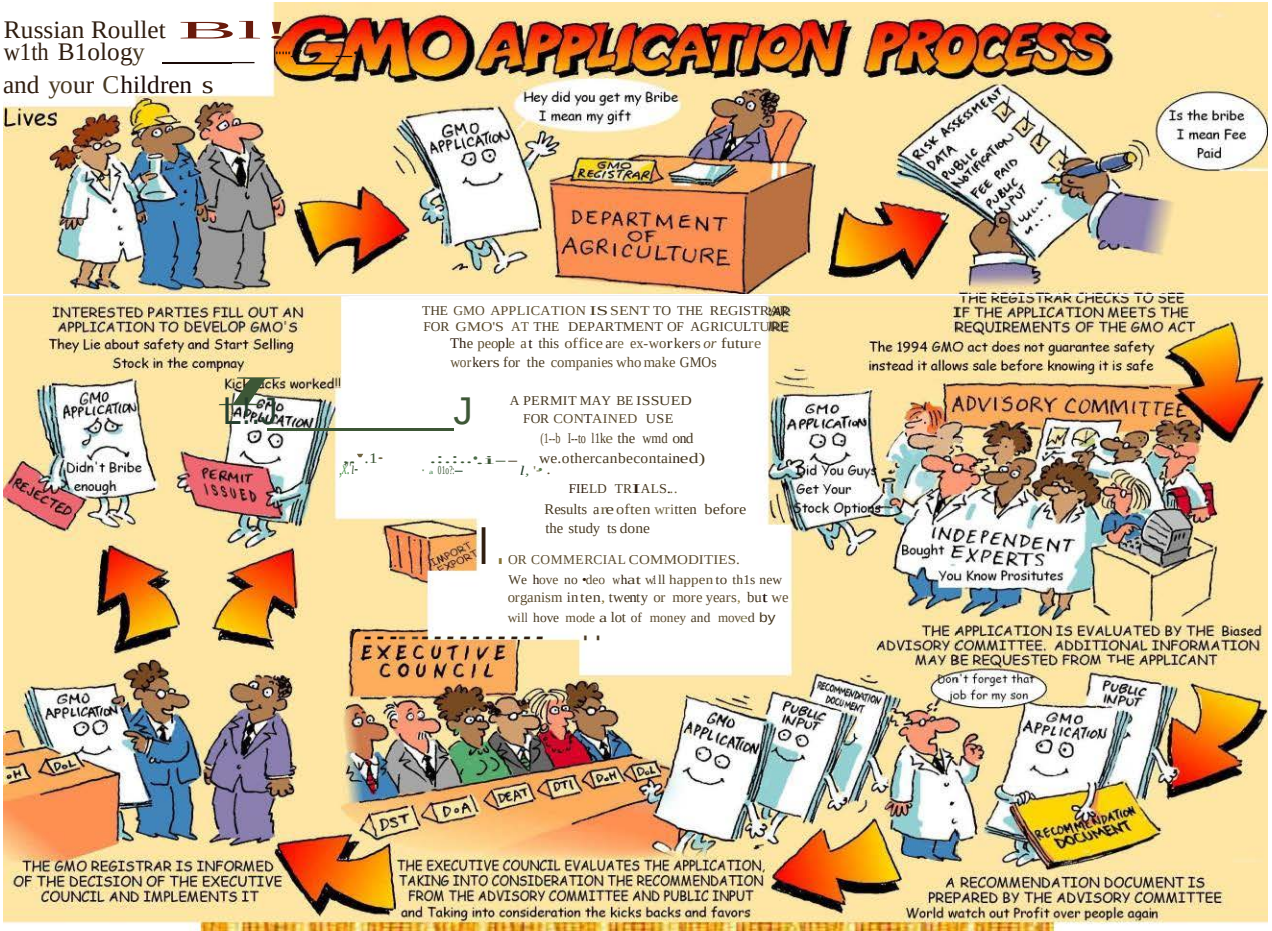

REAL FOOD

IT'S HARDER TO FIND THAN YOU THINK

Most of the food consumed in this country has been chemically treated, genetically engineered, or heavily processed – and none of it requires a warning label. It's hardly even real food anymore, and it is negatively impacting our health. Find out how you and your family can reduce your risk and make healthier choices.

THE GE THREAT

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