

When an article such as Johnathan Rauch's "Can Frankenfood Save the Planet" posits a technological solution to world hunger, I feel compelled to point out that modern famine is a structural problem with food distribution, not an issue of undersupply. Despite all of the advances in agricultural technology over the last thirty years, structural problems in the world's food distribution system have caused terrible famines in countries like Bangladesh and Ethiopia. The monetary costs associated with integrating new agricultural technologies into subsistence based agricultural systems often exacerbate this problem. Suddenly people cannot afford their food anymore. The nation of Zambia compellingly illustrates the various considerations that developing countries face when struggling with food technology decisions and may offer an excellent example of how best to move forward.

When, in September 2002, Zambia declared that it would not accept genetically modified American crops as famine relief for the millions of its citizens facing starvation, there was a great outcry from American relief organizations. Fear of 'poison' food was the way the issue was trivialized by Zambian politicians and American agribusiness alike, yet a careful reading of the Zambian government's position reveals that its motivation was to prevent the de facto distribution of genetically modified food without more carefully considering the impacts; financial, agricultural and otherwise, of doing so.

Adopting genetically modified crops transforms agricultural technology in the country of the adoptee with all the attendant increases in capital and manufacturing costs associated with such a paradigm shift. Like many of their 'green-revolution' predecessors, genetically modified crops have substantial irrigation and fertilization needs. Some of these fertilizers even act as a form of patent control where genetically modified crops will not express their genetically enhanced characteristics until certain 'trigger' fertilizers are applied. The costs of these fertilizers as well as the genetically modified seed itself are high. In a nation such as Zambia where eighty five percent of the population is involved in subsistence agriculture, only the largest industrial farms can afford to farm genetically modified crops.

Zambian leaders had every reason last September to believe that portions of genetically modified maize distributed as famine relief to individual families would be set aside for planting in the upcoming year. Without having made the conscious decision to do so, under the pressure of averting a food crisis, Zambia faced the potential of inadvertently adopting genetically modified crops as their subsistence crops. The specter of this uncontrolled distribution raised the potential for the loss of the 'GM-free' designation that Zambian products enjoy on the European Union's market. The EU is Zambia's main export partner, and it does not readily accept imports of genetically modified foods.

Zambia's decision to reject genetically modified foods protected the stability of the government's relationship with its largest trading partner and shielded their small farmers from exponential increases in their food production costs.

It was proudly reported in the April 11, 2003 *Zambian Times* that very few people had died of undernourishment in the fall of 2002 despite the government's rejection of genetically modified famine relief. Over thirty thousand tons of non-genetically modified food, primarily from the EU, was purchased and distributed throughout the country. The world's market contained plenty of food to feed Zambia's hungry population.

Zambia illustrates how the effective application of government and non-government resources, careful planning and efficient food distribution can prevent a terrible human tragedy. It highlights that increasing worldwide crop yields is simply not a pressing need- improving distribution is. The only community advocating otherwise is that community of corporations who are attempting to create demand for their genetically modified products in order to recoup their development costs. Absent this pressing need, there is plenty of time for the independent scientific community to test the downstream effects of genetically modified foods on large-scale eco and economic systems. These long-term tests are necessary to avoid unintended adverse consequences and build world confidence in this useful, but not well understood, technology.

Sincerely,

Jason Ryan
Quincy, MA