Statement of Professor Colin A. Carter, to Domestic Policy Subcommittee, of the Oversight and Government Reform Committee, March 13th, 2008.

Is USDA Accounting for Costs to Farmers Caused by Contamination from Genetically Engineered Plants?

Good afternoon Chairman Kucinich and committee members. Thank you for inviting me to this hearing. My statement will address two key questions:

1) What are the potential economic impacts on farmers resulting from accidental contamination of their crops by unapproved Genetically Modified material? and

2) What are the elements of a comprehensive analysis of those economic impacts; how do we take a "hard look" at the issue of co-mingling and accidental contamination with regard to approving new GM crops?

Potential and Actual Magnitude of Economic Impacts from Accidental Contamination

Despite the successful commercialization of genetically modified (GM) crops in U.S. agriculture, and the successful coexistence of GM and non-GM crops, farmers in our nation have suffered huge financial losses in recent years due to accidental contamination of their crops with unapproved GM material. The most serious accidents were the accidental contamination of the U.S. corn supply by StarLink Corn in 2000 and then the 2006 accidental contamination of the U.S. long grain rice supply by Liberty Link rice. In both of these cases, the farmers were innocent victims of lax government regulations and poor stewardship by companies developing, testing, and selling GM seeds. In my view, as the Liberty Link case illustrates, the U.S. government may have underestimated the costs to farmers caused by accidental contamination when it established rules for the management of confined field trials of unapproved GM events, and then the government followed through with poor record keeping on field trials.

StarLink Corn

In September 2000, traces of StarLink corn were detected in taco shells in the United States and this led to immediate recalls of hundreds of food products. The problem quickly spread internationally to Japan, Canada, and South Korea where unapproved StarLink corn was discovered in food and animal feed. The StarLink contamination reduced demand from U.S. corn and lowered farm gate prices for corn. For instance, exports of U.S. corn to Japan fell about 8% in calendar year 2001, due to the StarLink contamination.

The U.S. Environmental Protection Agency (EPA) approved StarLink in 1998 for commercial production for animal feed but not for human consumption. This "split license" was flawed regulation from the beginning. Companies selling StarLink claim that they instructed growers to keep it separate from other crops, but a number of growers claimed they never received any such warning

The StarLink contamination was particularly disruptive because a large share of the market had zero tolerance for its use, and zero tolerance is virtually impossible to attain. Less than 1% of the total U.S. corn acreage was planted to StarLink, yet 70% of the inbound corn samples tested by Japan (our most important foreign market) between September and December 2000 tested positive for StarLink. Japan kept testing for StarLink for a long time and they kept finding it for months and months after the incident. So the contaminated corn was not quickly and easily isolated. Instead, it was everywhere in the corn supply. With my colleague Professor Aaron Smith, I have found that the StarLink contamination resulted in a 6% drop in the price of corn that lasted for at least 6 months; translating into a loss of roughly $500 million to the non-StarLink U.S. corn growers.

Liberty Link Rice

In August 2006, U.S. rice farmers were surprised when the U.S. Department of Agriculture Secretary announced that unapproved GM rice (Liberty Link rice) had been found in the 2005 crop of U.S. long-grain rice, and the carrier variety was Cheniere. Apparently the US government knew about the accidental contamination for some time before farmers were informed in August. Why the delay in informing farmers? In terms of farm level impact, there are many similarities between Liberty Link rice and StarLink corn.

Over one year after the 2006 Liberty Link contamination event, there remained concern in key markets over GM content in US long grain rice exports. Just like StarLink, the Liberty Link fiasco has demonstrated that it takes a very long time to clean up contaminated supplies. As long as a contamination like Liberty Link drags on, farmers are losing money.

The U.S. exports about 50 percent of its long-grain rice crop, so foreign market tolerance levels for adventitious presence of GM material is very important for this crop. The European Union (EU) was a significant importer of US rice but this trade came to a virtual halt following the Liberty Link contamination. The EU has zero tolerance for adventitious presence of an unapproved variety like Liberty Link.

In a matter of a few business days following the public disclosure of the Liberty Link rice contamination, the Chicago rice futures price dropped sharply–with the price falling close to 10% in just a few days. Unfortunately for farmers, they were just beginning their rice harvest and they suffered a loss in the value of their crop before they had a chance to market it.

The Liberty Link rice contamination was especially problematic because it found its way into the rice foundation seed supply – which is used to produce rice seed that is sold to producers for planting. Unfortunately the USDA could not explain how this happened. The contaminated seed ensured that the Liberty Link contamination was widespread throughout the Southern rice crop, and probably extended beyond Cheniere. All southern grain growers were impacted, as samples from the from the five-state growing region – Arkansas, Missouri, Mississippi, Louisiana and Texas – had tested positive for the unapproved genetically engineered trait.

Then, in March 2007, there was a further setback to the U.S. rice industry when the USDA announced that an additional popular variety of long-grain rice, Clearfield CL131, was found to contain Bayer's LL 604 rice. This was yet another of Bayer's unapproved genetically-modified rice seed traits not approved for commercialization, but instead was restricted to only field trial testing. The day after the March 2007 USDA announcement the rice futures market dropped sharply once again.

In total, Cheniere and CL131 were planted about 30% of the southern long-grain rice acreage in 2006. Due to the Bayer contamination events, these varieties could not be planted in the spring of 2007, causing additional financial losses for rice farmers for the next crop year.

The Components of a Comprehensive Analysis of Economic Impacts

The economic effects of deregulation of a GM crop on non-adopters and on domestic and foreign markets are important and essential to any decision whether or not to deregulate, and how to deregulate (e.g., with our without geographical restrictions, etc.). Non-adopters face risk of contamination of their crops through gene flow or accidental mixing, added segregation and testing costs of their non-GM crops, and loss of markets. The economic question boils down to the following: what are the benefits and costs of deregulation? In my view, the USDA is not necessarily taking a hard look at all aspects of this question.

Last year, Judge Breyer ruled in a case regarding the USDA's deregulation of GM alfalfa. This judgment provides suggestions as to how the USDA should better comply with the National Environmental Policy Act (NEPA). Judge Breyer's ruling clearly highlighted some important gaps in the current system, and as an economist, I agree with Judge Breyer's ruling on the key issues dealing with Genetically Modified alfalfa.

The alfalfa case is instructive but we have to be careful to distinguish between situations of unapproved GM crops used in confined field trials from those approved for commercialization but that may create negative externalities for non-adopters. Both situations can be affected by accidental contamination or accidental gene flow. But in the first case, all farmers stand to lose and it is often the legal responsibility of the developing company. In the second case it is a coexistence issue between GM and non-GM farmers. It is therefore a very different issue.

One major problem underscored by the alfalfa case is the lack of federal rules regarding accidental contamination of organic products with GM material: apparently the USDA does not even know how to handle this issue, as the agency argued that producers may not "necessarily" lose their organic certification if they unintentionally sell organic crops contaminated with GM. Some organic producers may not agree as the market test (e.g., for certification) may not be the same as the legal standard.

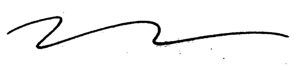
As Judge Breyer implies in the ruling, even if the USDA allowed contamination of organic alfalfa through high tolerance levels for adventitious presence, and sellers could still claim organic status when contamination occurs accidentally, this would not guarantee that organic production is sustainable because it would not correspond to what organic consumers believe they are buying. The "right to produce organic" is different from the "right to sell a product that is labeled organic", and so the rules should ensure that production of organic is possible with a reasonably low contamination level.

The USDA should provide better evidence on the benefits and costs of deregulation, especially when exports are an important market outlet for the crop in question, and there are regulatory barriers and/or possible buyer resistance in the foreign market. As we learned from StarLink and Liberty Link, this technology is not easily reversible, even if it is only at the field trial stage. How does the U.S. industry best respond to export risk when the GM material in question is not approved in major import markets? Only through comprehensive study can the USDA determine how the U.S. industry can best meet the standards in critical foreign markets.

The USDA might find that new GM crops could be grown but with certain geographical restrictions, buffer zones, and traceability and segregation rules. What are the trade-offs associated with deregulating a new GM crop? The U.S. government should begin by clarifying rules and responsibilities regarding: 1) the management of confined field trials of unapproved GM events; 2) coexistence at the approval stage, at the field level, and in the supply chain; and 3) the thresholds for adventitious presence for organic and non-GM.

I am not arguing that the round-up ready alfalfa case should be generalized to all future releases of GM crops and that a full-blown Environmental Impact Assessment be conducted in all cases. However, in going forward, the USDA should strive to consider which new crops constitute a significant net economic risk and which do not. Even in Europe (or Canada for that matter) approval of new GM crops does not entail a formal assessment of commercial market risks of introducing the new crop. But these other countries do consider contamination tolerance thresholds and aim to develop coexistence measures to ensure domestic and foreign thresholds can be met in practice. I caution that stringent market tests could easily transform into a precautionary principle approach, which would be a huge mistake.

To summarize, current procedures for approving and managing GM crops in the U.S. could be improved. Our mistakes over the StarLink and Liberty Link contamination incidents were major setbacks to the global biotechnology revolution in agriculture. These two big mistakes serve to illustrate the potential costs to farmers of accidental contamination. Our trading partners point to these two incidents as evidence that GM crops are not being properly managed in the United States. They are right; we are not doing a great job. The stakes are too high to put our head in the sand and defend the *status quo*. Genetically Engineered crops hold tremendous promise for the future of U.S. and world agriculture, but they must be managed and regulated in a way that assures the marketplace that any risks are properly managed.



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