
Trade and Markets for Genetically Engineered Crops: A USDA Perspective

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I am pleased to have the opportunity today to speak to you as part of this panel about the complex issues of trade and markets for genetically engineered (GE) crops. I speak from the perspective of the United States Department of Agriculture, which has multiple roles in the agricultural sphere that bear on these issues. These range from research to regulation to rural development to marketing and impact the entire food and feed production chain.

USDA supports the safe and appropriate use of science and technology, including biotechnology, to help meet the agricultural challenges and consumer needs of the 21st century. USDA plays a key role in assuring that GE plants and products derived from these plants are safe to be grown and used in the United States. Once these plants and products enter commerce, USDA supports bringing them to the worldwide marketplace.

In a larger context, USDA provides support for all agricultural products and production methods. That means we also support organic and identity-preserved non-GE production as well. It is important to note that these identity-preserved methods yield high-value products for which there is consumer demand. This in turn has led to new economic opportunities for farmers, which are important for rural revitalization. Given the fact that the average age of US farmers in 2013 was 58.3 years, bringing new farmers into agriculture is important for the health of farming communities and therefore important to USDA.

These realities, combined with the complexities of coexistence of biotechnology-derived crops and non-GE/organic crops and the continuing public debate around GE crops, mean that it is important to consider GE crops and crops produced using other production methods as interrelated components of our overall agricultural environment.

Other speakers have already talked about the enormous adoption of GE crops here and their increasing adoption around the world. But it is important to note as well that lack of confidence about GE crops affects our domestic markets and affects all of agricultural trade. And therefore issues around coexistence in a US context contribute to domestic debate on GE crops, and these issues are of great concern to USDA.

The United States remains the world leader in the development and commercialization of plant biotechnology products. Our regulatory system, which has been discussed at previous NABC conferences, employs science-based decision making, addresses stringent legal requirements, and incorporates public input as well.

Other countries are also making significant advances in the research and development sphere. Notably, Brazil has become the second-largest producer of GE crops and has developed its first domestically derived GE products. China—though it poses difficult biotech trade issues for the US, has slowed commercialization of some key domestic GE crops, and is experiencing some anti-GE sentiment among its citizens—is nonetheless committed to biotechnology development. Biotechnology is designated as a strategic emerging industry in China. While the total amount of Chinese government expenditures on biotechnology is unknown, it is believed to far exceed public sector investment in biotechnology in any other country, including the United States.

USDA's overall approach to trade involving agricultural biotechnology-derived products has several key features:

- Support for science-based decision making
- Vigorous support in the international arena for our regulatory decisions, including specific engagement with markets where we have issues
- Continued international engagement in key multilateral forums
- Partnering with like-minded countries to develop coordinated approaches toward major trading partners that are not making science-based decisions
- Working with key target countries just considering their domestic approaches to GE crops to help them establish science-based decision-making systems as well as to support them in their development of technologies specific to their own agricultural problems

In terms of market problems we continue to face around the world for US agricultural commodities and products with GE content, clearly the European Union (EU) and China present our greatest challenges. In brief, agricultural biotechnology remains a sticking point in our trade relations with the EU despite years of engagement. The case the US successfully launched with our co-complainants Canada and Argentina in the World Trade Organization in 2004 has not resolved what are essentially political issues in the EU around the use of biotechnology in agriculture.

There is continued difficulty in agricultural trade with the EU, and US corn exports to the EU remain essentially blocked, but soy exports—needed for animal feed—have generally continued. Equally worrisome are the active efforts on the part of the EU to

internationalize its approach to biotech regulation and to raise concerns among third countries that their use of GE crops could have deleterious consequences for their trade with the EU. Quite recently, the EU has proposed allowing individual member states to use non-science-based criteria to ban the use of GE crops determined to be safe by the EU's own safety authorities (EFSA). Such a step would appear to effectively fracture the essential common market idea of the European Union. Both US industry and government leaders have expressed grave concerns about this proposal.

With China difficulties persist also, after years of regular engagement at the technical, senior staff, and political levels, including even White House involvement. Although China is the largest importer of US plant-based agricultural commodities, the US continues to have trade issues with such exports to China. These issues derive from a systematic problem, namely, the Chinese requirement that products first be approved in their country of origin before safety reviews can even be started in China. This requirement guarantees asynchronous approval times in our two countries. Asynchrony then raises the likelihood that a product not yet approved in China could lawfully enter commerce in the US and wind up in exports to China, potentially leading to trade issues. I should note that US industry incorporates stewardship plans into product launches to prevent such situations from occurring, but reliable stewardship is contingent on an efficient, predictable, and transparent regulatory process in China—which is not what we in fact see.

In addition, in China new draft regulations for their GE crop approval process call for taking social and economic concerns (which may not have anything to do with science) into account in their decision making. These are also disturbing developments.

Late in 2015, President Obama raised the issue of regulatory problems with China's President Xi Jinping. One projected outcome from that meeting is an upcoming Strategic Agricultural Innovation Dialogue, which is to occur at the vice-ministerial level later this year. This is to be a high-level discussion on innovative technologies. The United States intends to have continued dialogue around agricultural biotechnology at this meeting.

Before I leave the topic of the status of biotechnology in other countries, it is worth noting briefly, as have other speakers today, that research on GE crop varieties as well as adoption of GE crops is moving forward around the world beyond the Americas, importantly in Asia and to a lesser extent in Africa. Field trials are taking place in a large number of countries.

USDA, the United States Agency for International Development, and the US Department of State are involved in capacity building and/or public diplomacy efforts that, broadly, (1) offer support for the development of science-based regulatory systems; (2) work with local stakeholders to identify local agricultural priority problems amenable to GE solutions; and (3) foster the development of public-private partnerships to leverage available useful technologies to address those problems. The United States government recognizes that increasing a country's familiarity with useful GE crops can help overcome hurdles retarding biotechnology adoption.

A few notable examples of recent developing country GE adopters are the Philippines and Vietnam, which have both allowed the planting of GE corn, and Bangladesh, which has recently commercialized *Bt* eggplant (*brinjal*). The United States provided technical support to these countries as they worked through the development of their own regulatory systems for GE crops and completed their safety assessments for these crops. Other capacity-building efforts by US agencies continue, such as ongoing efforts in Southeast Asia, particularly in Indonesia and Malaysia, and in Africa, with the South African Development Community (SADC) Member States (Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia, and Zimbabwe), helping to facilitate field trials, and in the case of the SADC region, working toward regulatory harmonization.

To more clearly understand the complexities surrounding GE varieties in trade, it is important to consider how new GE events affect commodity trade.

The United States excels at production of agricultural commodities like corn, soybeans, and wheat. Commodity products—that is, non-identity-preserved bulk shipments—make up the bulk of US grain trade. Efficient commodity production depends on high-yielding and resilient varieties, commingling product from many sources, speed in handling, and efficiencies of scale.

US exports of two major crops, corn and soy, both mostly planted to GE varieties, exceeded \$37 billion in 2014—a positive counterweight against our overall \$505 billion trade deficit last year.

Worldwide commodity trade is constrained by asynchronies between potential exporting and importing nations in their approvals of new GE events.

The ability of exporters to keep GE events that are commercially grown, especially for commodity purposes, out of a particular export stream is limited. That means that traces of GE crops lawfully grown in one nation may show up in export streams going to importing nations where those GE events have not been approved. Such low-level presence (LLP) poses significant risk for trade disruptions.

Importing nations have a range of options:

1. Reject a shipment with LLP
2. Allow the shipment in and ignore the LLP
3. Conduct a risk assessment to guide future actions, which may or may not include full approval of the LLP product
4. Use some other basis to allow conditional imports of the shipment

The potential of shipment rejections poses significant economic risk for international grain trade. Shippers may incur substantial costs, including demurrage at initial destination ports and/or rerouting to alternate markets, and market uncertainties substantially increase the cost of doing business.

Additionally, the use of sensitive testing protocols for trace amounts of unapproved events imposes substantial costs on the industry and poses additional uncertainties due

to potential false positive results, sampling errors, technical difficulties, and the risk of different testing results being obtained at origin and at destination.

The US approach to addressing these issues focuses primarily on working with trading partners to minimize asynchronies in approvals. Efficient and predictable regulatory systems and simultaneous submissions in different market countries will eliminate most potential instances of LLP-related trade problems. That is the key first step.

Countries also need to be able to predict and address LLP incidents should they arise. The availability of information about a new material is key for regulators to be able to ensure the material's safety before addressing any legal issues it may pose. The United States actively encourages foreign developers to consult with our relevant regulatory agencies—the Food and Drug Administration and sometimes the Environmental Protection Agency—so that safety considerations can be examined early for materials that may show up in trace amounts.

So the overall picture is complex. Technology advances are necessary and are demanded by farmers. Innovation is essential to maintain US competitiveness. However, each new product potentially poses coexistence challenges and, in a marketplace where asynchronous approvals predominate, potentially poses trade problems as well: each new product may be a source of LLP. It is vital, therefore, that coexistence and trade challenges be addressed to maintain US competitiveness and to meet the global challenges of climate change and food security.

Speaker Profile: Michael Schechtman received a B.A. from Harvard University in biochemical sciences, a Ph.D. in molecular biology from Cornell University, did postdoctoral work in the Biology Department, Stanford University, and was formerly a member of the biology faculty at Syracuse University.

He serves as Biotechnology Coordinator for the Office of the Deputy Secretary of Agriculture. He was Executive Secretary of USDA's Advisory Committee on Agricultural Biotechnology. He was formerly Team Leader for Policy and Senior Microbiologist in the Regulatory Coordination and Technical Documentation Unit at the Animal and Plant Health Inspection Service at USDA, working on regulatory policy coordination and development regarding organisms produced through biotechnology. He was a member of the US delegation to the Biosafety Protocol negotiations under the Convention on Biological Diversity. He is also on the External Board of Directors of the US Agency for International Development Agricultural Biotechnology for Sustainable Productivity Project.