

Consumer-Oriented GM Products Can Hurt Producers

Despite their important agronomic benefits to agricultural producers, GM products (GMPs) have been facing a, rather strong, consumer opposition. This opposition varies significantly between countries and so does the countries' regulatory response to products of biotechnology. While the US treats biotech products as substantially equivalent to their conventional counterparts and does not require their segregation and labeling, the European Union (EU), based on its "precautionary principle" and consumers' "right to know", has instituted a mandatory labeling regime that is regarded as the strictest in the world.

Apparently, the focus of the first-generation GMPs on conferring agronomic benefits to producers (while providing no perceived advantages to consumers) did little to promote the market acceptance of these products. Consumer opposition is expected to decrease with the introduction of second-generation GMPs, as these products aim at providing direct consumer benefits by enhancing the quality of a product. Important examples of these consumer-oriented GMPs include the vitamin A enriched rice and maize (a.k.a. golden rice and golden maize), high protein wheat, and high-oleic soybeans.

CAFIO-PRG Research

Previous CAFIO research analyzed the market and welfare impacts of the introduction of these consumer-oriented GMPs into the food system of countries that, like the US, do not require segregation and labeling of the first-generation, producer-oriented GMPs. Recent CAFIO-PRG research focuses on the effects of the introduction of these new GMPs in markets that (like the EU, Australia, Brazil, China, Japan, and Russia) mandate the segregation and labeling of the first-generation GM products.

In particular, our recent study examines the effects of the introduction of labeled second-generation, consumer-oriented GMPs on the markets of organic, conventional, and GM food products and identifies the winners and the losers from their introduction into the agri-food system. In so doing, the study explicitly considers the empirically relevant (1) heterogeneity in consumer preferences for GM, conventional, and organic products, and (2) differences in producer agronomic characteristics.

CAFIO-PRG Findings

The CAFIO-PRG research shows that:

- No matter the GM labeling regime, the introduction of consumer-oriented GMPs drives the producer-oriented GMPs that share the same agronomic characteristics out of the market.
- The effect of the new GMPs on the markets for conventional, GM and organic products is case-specific and dependent on: (a) the consumer valuation of the quality-enhancing attribute of the new GMP, (b) the level of consumer aversion to GMOs, (c) the strength of consumer preference for organic products, and (d) the production costs and marketing margins in the different supply channels.
- While the policy on the labeling of the first-generation GMPs does not affect the general market effects of the second-generation GMPs, it does affect their welfare implications. Specifically,
 - When the new GMPs end up co-existing with their conventional and organic counterparts then: (a) producers of GMPs and consumers of conventional and organic products gain, (b) producers of conventional and organic products lose, and (c) consumers of the GMP may gain or lose depending on their aversion to GMOs and the price of this new product.
 - When the new GMPs drive the first-generation GM and conventional products out of the market, (a') all consumers and those producers that switch to the new GMP gain while (b') organic producers lose.
 - When the new GMP dominates the market, (a'') all consumers and previous producers of GM and conventional products gain, while (b'') some inefficient previous organic producers lose.

Konstantinos Giannakas, CAFIO-PRG Director (<http://cafio.unl.edu/prg>) & Rim Lassoued, Ph.D. student, University of Saskatchewan