The Potential Impacts of Mandatory Labeling for Genetically Engineered Food in the United States

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Genetic engineering (GE) can be defined as the manipulation of an organism’s genes by introducing, eliminating, or rearranging specific genes using the methods of modern molecular biology, particularly those techniques referred to as recombinant deoxyribonucleic acid (rDNA) techniques.
The purposes of this paper are to

(1) explore the scientific, legal, and economic aspects of requiring food labeling in the United States based on the use of a process (i.e., GE) rather than on some attribute of the food product itself

(2) clearly discuss the complex considerations that come into play when contemplating mandatory GE food labeling in the United States
Adoption of GE crop varieties in the United States, 1996–2013

(HT = herbicide-tolerant; Bt = Bacillus thuringiensis).

Recent state-based food labeling activity
There are three main themes that are often associated with mandatory GE labeling, with the following arguments for and against it:

**Public Opinion**

**PRO:** Polls show an overwhelming majority of people support mandatory labeling of GE foods when specifically asked whether “the federal government should require labels on food saying whether it's been genetically modified, or ‘bio-engineered.’”

**CON:** In unprompted polls in which participants are asked what additional labeling they would like to see on food, more than 99% of respondents do not volunteer a desire to see mandatory labeling of GE foods.
**Consumer Choice**

**PRO:** People should have a choice regarding what types of products they purchase and consume. Many believe that this should include the choice to “vote with their wallets” about how the food was produced even if it does not result in any change or consequence for the food product itself.

**CON:** U.S. consumers who want to avoid GE products already have that choice available through voluntary non-GMO and organic labeling. In countries that have implemented mandatory GE labeling, GE products have generally been removed from the market, so choice has been reduced.
Right to Know

PRO: People have the right to know what is in their food. Mandated calorie and nutritional content panels on packaged foods are examples of labels to inform consumers about food composition.

CON: The right to know what is in food is different than the right to know what processes were used in its production. Furthermore, this uniquely singles out GE technology—not other production methods and processes—for right to know.
Food Safety

- GE crops are “the most extensively tested crops ever added to our food supply.” American Association for the Advancement of Science (AAAS)

- The U.S. National Academy of Sciences concluded in 1987, and reaffirmed in 2000 and 2004, that GE poses no new or different risks to food safety.

- “There is no evidence that unique hazards exist either in the use of rDNA techniques or in the movement of genes between unrelated organisms ... The risks associated with the introduction of rDNA-engineered organisms are the same in kind as those associated with the introduction of unmodified organisms.” American Medical Association (AMA)

- A 2011 summary report covering a decade of publicly funded research, 130 research projects, and 500 research groups similarly concluded there is no scientific evidence of higher risks of GE crops to the environment or for food and feed safety. European Commission 2011
Food Labeling

- In the United States, the Food, Drug, and Cosmetic Act (FDCA) grants authority for food labeling to the FDA.

- Production methods or processes that create no material difference in products require no special labeling.

- Although some may consider the insertion or manipulation of genes in a laboratory a “material difference” per se, the science of food safety has not identified differences in the composition or safety of food derived from commercialized GE crops that would necessitate mandating a process-based label on GE food.

- The FDA allows voluntary process-based labeling as long as it is not false or misleading.
Legal Issues

There are three major legal issues associated with state laws requiring mandatory process-based GE labeling:

1. **Commerce Clause of the U.S. Constitution**
   - forbids individual states from unduly burdening interstate commerce

2. **Supremacy Clause of the U.S. Constitution and FDCA Preemption**
   - federal law prevails in any conflict with state law

3. **The First Amendment Protection of Commercial Speech**
   - prohibits government compulsion of commercial speech unless the speech is factual, uncontroversial, and reasonably related to a legitimate government interest
National GE Labeling Law

• If the United States were to mandate labeling of GE food, the country would have to show a scientific health threat in order to be in compliance with international trade law.

• Many of the GE labeling laws in the 64 countries around the world that require GE labeling likely violate the World Trade Organization (WTO) and its 1994 Sanitary and Phytosanitary (SPS) Agreement, which frowns on process-based labels mandating disclosure of information on production-process issues that do not relate to food safety.

• The United States has lost two recent WTO decisions that ruled against U.S. laws requiring production-process labeling on dolphin-safe products and country-of-origin (COOL) labeling. Both laws were designed to inform consumers about process or origin information not impacting the food product itself.
Economic Issues

1. The Costs of Non-GE Foods
   - Organic and non-GE foods provide interested consumers information and choices, but they are more costly than conventional foods.

2. The Costs of Alternative Purity Standards and Tolerances
   - The incremental costs associated with the production and distribution of non-GE foods are not fixed and are heavily dependent on the GE purity standards and tolerances used.

3. The Costs of Mandatory GE Labels
   - This depends on how food manufacturers, food retailers, and other food merchants would choose to act if mandatory GE labeling was put in place.
   - Appraisal of the added costs for mandatory labeling involves the following: (1) an estimation of the share of the food market that might become non-GE (2) an estimation of the costs that would be incurred to procure ingredients and reformulate products
4. **Potential Changes in the Costs of Mandatory Labeling**
   - In some states there is a clause that effectively introduces a time limit allowing products containing less than 0.9% GE content to be exempt from labeling until July 1, 2019—it is unclear what happens after that time.

5. **The Cost Implications of Labeling Exemptions**
   - Many of the state labeling bills contain labeling exemptions for different categories of food (e.g., milk, meat, and eggs from animals that have eaten GE feed; alcohol; restaurant meals; organic food), and the implementation costs of GE labeling will be affected by which of these are exempt.

6. **Who Pays?**
   - Given the proposed rules and exemptions, younger and more affluent consumers who spend more on organics and food away from home would be least affected by the costs resulting from mandatory GE labeling.
   - The incremental costs of any mandatory GE labeling regime in the U.S. market would exact a greater burden on low-income families.
Summary and Conclusions

• All domesticated crops and animals have been genetically modified in some way; there is no science-based reason to single out GE foods and feeds for mandatory process-based labeling. Wide-ranging evidence shows that GE technology is equally safe to conventional breeding.

• Mandatory labeling based on process abandons the traditional U.S. practice of providing for consumer food preferences through voluntary product differentiation and labeling.

• Market-driven voluntary labeling measures (e.g., organic, Non-GMO Project, Whole Foods initiative) currently provide consumers with non-GE choices in the U.S. marketplace.
Summary and Conclusions

• Current labeling authority is federal; state mandatory labeling laws may be invalidated for conflicting with preemptive federal authority and may also violate First Amendment rights.

• Labeling at the national level has trade implications and needs to be harmonized with international trade agreements that frown on mandatory labeling for a production process when there is no scientific evidence that the process relates to food safety.

• Mandatory GE labeling would increase U.S. food costs. The size of this increase will depend on choices made in the marketplace by suppliers and marketers, and what products are included in labeling requirements.

• If, as in other countries, sellers move to non-GE offerings in response to mandatory labeling, food costs could rise significantly and these increased costs would exact a greater burden on low-income families. If, on the other hand, food suppliers choose to label virtually all products as containing GE without testing or segregation, increases in costs might be minimal.
Questions/Discussion

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