Regulating GMOs

Almost 20 years after their introduction in 1996, should food containing GMO ingredients be labeled?

*Story & photos by **Paige Nelson,** field editor*

Like it or not, genetically modified organisms (GMOs), genetically engineered (GE), biotechnology, transgenics, whatever you want to call them, are part of our food chain and have been for almost 20 years. Well, in certain segments of the food chain, that is.

According to the U.S. Food and Drug Administration (FDA), no GE animals have been approved for food or for any other purpose. However, GE animals are being extensively studied for applications in biopharmacy — producing substances (in their milk/blood) that can be used as pharmaceuticals for humans or animals.

Other GE animals may eventually be sources of scarce cells, tissues or organs for transplantation into humans. Still, and possibly most important to agriculture, others are being developed for food. These animals may be disease-resistant or have improved nutritional qualities in their meat or milk. Think bovine spongiform encephalopathy (BSE)-resistant cattle roaming the range.

However, there is no clear way of knowing if or when any of these options may be commercialized.

"Due to confidentiality laws, FDA is restricted in the information it can provide about [GE animal] applications that may be under review. We cannot offer a timeline for when FDA will complete its review of these applications," FDA's Megan Bensette states.

While GMO beef may be a hypothetical food source, GMO plant varieties have been on the market since the mid-1990s.

Though hotly debated across dinner tables, social media, the halls of Congress and between countries, it is only logical these plant GMO food sources be recognized as increasingly strong market shareholders, especially in the animal-feeding business. However, the labeling of those products has sparked a different debate.

►GMO plant varieties have been approved for consumption since 1996.

►Japan is the United States' No. 1 market for corn. Because of the synchronous GMO review process between Japan and the United States, oftentimes when a new GMO commodity reaches Japan's ports, it has already been approved for use.

GMO labeling debate

"Biotechnology is an essential tool for farmers to have in the toolbox if we plan to feed an estimated 10 billion people by the year 2050 in an environmentally sound, sustainable and affordable way. Unfortunately, threats exist to our ability to fully utilize this technology in the form of proposed federal and state laws, as well as some state laws that will soon be implemented if we don't act," said House Ag Committee Chairman K. Michael Conaway in a statement.

"Our policy clearly states, 'We require all GMO seed to be clearly labeled.'"
— Chandler Goule

In 2014 Vermont passed a state law requiring all foods produced either entirely from or in conjunction with genetically engineered products to be labeled, exempting raw agricultural commodities and foods consisting entirely of or derived from a non-GE animal (meat or milk).

The bill's language states the necessity of the law due to lack of adequate independent testing and verification of GMO foods by the FDA, citing that the FDA allows food manufacturers to submit safety research, which may be subject to influence from the manufacturer's financing of the research.

According to Conaway, 26 other states are considering similar legislation.

Cornell University recently released a study examining the potential costs incurred to New York state consumers if a similar bill were to be passed in New York state. The study found the legislation would apply to 50% of supermarket products and likely increase a family of four's annual food

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expenditures by $500, as well as raise the state's costs by $2.4 billion.

In March of 2015, House Representatives Mike Pompeo (R-Kan.) and G.K. Butterfield (D-N.C.) introduced *The Safe and Accurate Food Labeling Act of 2015.* According to the National Council of Farmer Cooperatives and National Grain and Feed Association, such legislation would create a national science-based standard for the labeling of food containing GMO ingredients, preempting any state legislation that would create a patchwork of conflicting and non-science-based labeling standards.

Much like the Certified Organic program administered by the USDA, this bill would create a voluntary certification process manufacturers could use to label food and feed as not containing GMO ingredients, but does not require food and feed containing GMO properties to be labeled as such.

"Having a national law that would establish uniform science-based standards for labeling, which is what has been proposed in the House, makes eminent sense because we have this panoply of different legislative proposals that have been introduced by the states," says Floyd Gaibler, U.S. Grains Council (USGC) director of trade policy and biotechnology.

He emphasizes that the issue is not simply that there could be 50 different versions, but hundreds of varieties of regulations if every state and locality were to decide to label differently. The food value chain could suffer large costs if required to segregate products for the requirements of different labeling laws.

"For example if you have one state that required that the meat that was fed with genetically engineered feed has to be labeled, then you would incur additional costs, either in the costs of securing non-GMO feed or segregation of livestock, and a lot of livestock products do cross state lines, all of which would severely disrupt the livestock meat value chain," says Gaibler.

While many agriculture organizations, including the American Farm Bureau Federation (AFBF), applauded the introduction of the latest GMO-labeling legislation, the nation's second-largest general farm organization, the National Farmer's Union (NFU) did not.

"NFU appreciates Congressman Pompeo's efforts to reduce consumer confusion and standardize a GMO label, but cannot support a bill that lacks mandatory labeling. We now call on Congress to bridge the numerous proposals that are currently pending for the benefit of producers and consumers," NFU President Roger Johnson said in a statement.

Chandler Goule, senior vice president of programs for NFU, echos his statement, sharing that NFU policy is clear in requiring that all GMO seed be labeled.

"I had a producer stand up this year [at the NFU annual convention] saying he grew GMO corn, he grew GMO soybeans, and he still supported [mandatory] GMO labeling. I think there's a lot of misconception out there that biotech and crop science producers don't support this, and they do," Goule adds.

He says consumers continue to want more information about where their food comes from, not less. Using organic products as an example, he says they are willing to pay for an extra label, too.

"We have a lot of people that go toward organics. Something that's organic is basically a label saying it's non-GMO. I do think the consumer will pay for that labeling information. I think a lot of that will be absorbed by the system.

"When you're asking them to put on a sticker, the cost to the industry usually gets blown way out of proportion, especially when you compare it with the demand that is coming from the consumer," Goule says.

GMO international trade

While the labeling debate here at home continues, similar debates and requirements over GMO labeling swirl around the world.

"There are a number of countries that do have labeling requirements for a certain

GMO feed: Is it safe for your cattle?

Today, findings from a review of data gathered from more than 100 billion animals show 70%-90% of each year's genetically engineered (GE) crop is consumed by livestock.

Alison Van Eenennaam, geneticist for the University of California–Davis and her research associate Amy Young compiled a comprehensive review of GE feedstuffs and published their findings in the *Journal of Animal Science* in November 2014.

In "Prevalence and impacts of genetically engineered feedstuffs on livestock populations," Van Eenennaam states that out of the 9 billion food-producing animals fed annually, more than 95% of them consume GE feeds.

"Numerous experimental studies have consistently revealed that the performance and health of GE-fed animals are comparable with those fed isogenic non-GE crop lines," she writes.

After reviewing data sets for more than 100 billion animals that had consumed GE feeds since their introduction in 1996, and comparing them with results of livestock productivity and health from before the GE feed introduction, Van Eenennaam could find no unfavorable trends regarding livestock health and productivity. Furthermore, she adds, "No study has revealed any differences in the nutritional profile of animal products derived from GE-fed animals."

►Findings from data gathered from 100 billion animals that consumed genetically modified feed showed no unfavorable trends regarding livestock health and productivity.

amount of GM components in food products, but most of the grain that we export goes for feed, which in turn then is obviously used for livestock production," Gaibler explains.

Gaibler says he is not aware of any country that requires the labeling of feed to determine if it's been sourced from GMO or non-GMO seed.

However, he says there is a necessity for synchronous biotechnology regulation in the feed-exporting game. Japan, he says, is our No. 1 market for corn. When a new GMO variety of corn is introduced, Japan begins its review process of the variety at the same time the United States begins its review process.

"In almost all instances, they have their review and approval process completed by the time it's done here, so that once the event (product) is commercialized and produced, there's no problem then for that commodity when it reaches the ports of Japan," Gaibler clarifies.

"Likewise, we're fairly synchronous with most markets with some major exceptions," he adds.

Countries like Brazil and Argentina are accepting of GMOs, says Goule, while China and the European Union (EU) represent a more complicated picture surrounding GMO tolerance.

As always with international trade, things can change and complicate quickly.

For example, says Gaibler, if Japan were to decide to adopt a more strict labeling policy, it could wreak havoc on the meat and feed exporting industry.

"If meat is exported to Japan vs. the corn that is fed to livestock in Japan, are they both going to be treated the same in terms of whether there has to be a label or not? There needs to be equity there in terms of how that's approached. Ideally, logically and scientifically there's no rational basis for having any label associated with either the grain that is fed here to livestock or that is fed to livestock in Japan," he says.

Goule disagrees, saying a label is critical to keeping markets open and Asian Rim countries are pro-label.

"We've had several instances where biotech traits have shown up in foreign countries, and we've lost market access to those," he attests.

"When you go to Japan, not only is there a picture of the rancher, there's a barcode there that tells you exactly where that meat came from, what it was fed, how old it was when it was slaughtered."

► Some GE animals may be able to produce human or animal pharmaceuticals in their blood or milk.

Both Goule and Gaibler agree that the EU will have to relax its stance on GMO imports if they are to stay competitive.

Prior to 1996, the EU was a top importer of feed grains from the United States, affirms Gaibler.

> **"The problem is that you can have not just 50 different versions; you could have multiple hundreds of versions if every state and locality decided to label it somewhat differently."**
> ***— Floyd Gaibler***

"We had 50%-75% of that market, but once beginning the adoption of biotechnology occurred in the U.S., our import shares have dropped dramatically to the point that some years, there's hardly any meaningful amount that gets imported."

Gaibler explains the EU's GMO approval process as having two steps. First, the European Food Safety Authority conducts the risk-assessment process. He says that step is similar to the USDA, FDA and Environmental Protection Agency (EPA) review process here at home, and it is science-based. Next, the 28 member states are asked to give final approval for the GMO events that passed the risk assessment.

This is where the fun starts, as an event must have an enhanced majority. He says in most all instances there is never a clear majority for or against an event. Now it is left to the European Commission to decide the final fate of a GMO event.

"This process should take 19 to 21 months, but in reality, it's gone from an average of four years to an average of 69 months for this last group of 19 import authorizations," explains Gaibler. "We have a systemic problem in terms of having an asynchronous process that will review and approve the products that are commercially approved [in the United States] but not yet approved [in the EU]. If they're detected in shipments that go to the EU, [those shipments] can be rejected because [the EU] has no working low-level-presence policy that would allow them to accept limited amounts while they finish the review."

Recently the EU heard arguments for an "opt-out" policy that would allow individual member states to restrict or prohibit the use of GMO-approved imports, says Gaibler. If approved, this proposal could also raise questions about internal shipment of feed and products within the EU member states — making GMO importation even less desirable. The result, Gaibler says, would be a further deterioration of market loss for the United States on what should be a long-term reliable feed and protein customer.

A few things are clear. GE animals have not been approved for food consumption or human use, and some sort of labeling law concerning GMOs is needed (mandatory or voluntary). Some countries like GMOs; others don't. Has there ever been a more contested, debated, disputed topic surrounding food than GMOs?

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Editor's Note: *Paige Nelson is a freelance writer and cattlewoman from Rigby, Idaho.*