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The role of a German multi-stakeholder standard for livestock products derived from non-GMO feed

Thomas J. Venus[a,*], Dusan Drabik[b], Justus Wesseler[b]

[a] Agricultural Production and Resource Economics Group, Technical University of Munich, Alte Akademie 14, 85354 Freising, Germany
[b] Agricultural Economics and Rural Policy Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

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ABSTRACT

In Germany, products derived from livestock who were fed GMO are not required to be labeled as GMO. However, non-GMO labeling requires compliance with the national public non-GMO production standard, including a confirmation that no GM feed was used. In addition to the national standard, firms can adopt a private collaborative certification standard set by a multi-stakeholder organization. Using a survey of German dairies, we show that firms with more suppliers were more likely to adopt the multi-stakeholder standard or to stay conventional if their perceived risk of reputation loss and liability issues for non-GMO production were higher. Firms with lower perceived risks were more likely to comply only with the public standard for non-GMO labeling (i.e., not adopt the private standard). We discuss how potential incongruent interests of the various stakeholders that set the private production and certification standard may have incentivized firms to adopt the non-GMO standard in the initial phase after the introduction of the labeling option.

1. Introduction

GMO-labeled food products are generally absent in the EU Member States. In Germany, for example, retailers have decided to exclude all GMO-labeled products from their product offerings (BMEL, 2014). However, retailers offer products, for which GMOs were used in the production (e.g., livestock products derived from animals fed with GM feed). These products do not fall within the scope of the EU GMO regulation and hence, are excluded from the mandatory labeling (European Commission, 2003a). To allow consumers to choose products for which GMOs were not directly used in the production (e.g., milk from cows fed without GM feed), some EU Member States have developed rules and guidelines to label these products voluntarily as non-GMO.

Since 2008, a national public production standard in Germany specifies the minimum requirements for voluntary non-GMO labeling of food products. In addition, a multi-stakeholder non-governmental organization, the German Association of Food without Genetic Engineering, which translates to *Verband Lebensmittel ohne Gentechnik* (VLOG), provides a quality assurance system and sets a collaborative private certification standard. Firms can produce non-GMO products as members/licensees (members, from now on) complying with the multi-stakeholder standard. As members, firms can use the national uniform label of VLOG. They can also use their firm-specific label regardless of the membership. As non-members, firms can produce non-GMO products provided they follow the national public minimum requirements; hence, non-GMO labeling in Germany does not require VLOG-membership and application of its quality assurance system.

However, assurance systems can reduce producers' uncertainty through clarification of aspects of monitoring, control, and certification (Henson and Humphrey, 2010). Multi-stakeholder standards have been playing a growing role as a type of collaborative standards (Fransen and Kolk, 2007; Boström and Hallström, 2013). Two prominent examples are the standards by the Forest Stewardship Council (FSC) and the Marine Stewardship Council (MSC). In this article, we address the importance of a multi-stakeholder organization and its quality assurance system for providing non-GMO products in Germany.

Our results for dairy companies in Germany indicate that a high perceived risk of liability issues or reputation loss through mislabeling is associated with a higher probability of producing non-GMO dairy products as a member of the multi-stakeholder organization. We find that larger firms are more likely to apply the multi-stakeholder standard if their perceived liability and reputation risks are higher. We illustrate the complexity of GMO product labeling in Germany and point to potential consequences for stakeholders in the supply chain. We embed our discussion in the recent literature on product labeling and private voluntary certification standards. We demonstrate how non-GMO labeling initially developed as a niche market for processors and farmer-

* Corresponding author.
E-mail addresses: Thomas.Venus@tum.de (T.J. Venus), Dusan.Drabik@wur.nl (D. Drabik), Justus.Wesseler@wur.nl (J. Wesseler).

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Table 1
Comparison of non-GMO labeling regulated under the Novel Foods Regulation and Germany's Genetic Engineering Act (GGEA).
Source: Based on Federal Ministry of Germany (1998, 2004).

	Novel foods regulation (before 2008)	GGEA (after 2008)
GM enzymes and additives in feed allowed	No	Yes
GM medical products for animals allowed	No[a]	Yes
Periods in which GM feed is allowed	Zero	Egg: 6 weeks Poultry: 10 weeks Dairy: 3 months Pork: 4 months Beef: 12 months (and maximally ¼ of animal life)
Threshold of adventitious presence of GM material	Zero	0.9 wt-% for feed 0.1 wt-% for food
GM enzymes and additives in food product allowed	No	No

Note:
[a] GM medicine for animals was allowed if no alternative non-GM version was available.

to-consumer direct marketing, and how retailers became the drivers of the non-GMO production later.

We focus on Germany for at least three reasons. First, Germany is a country with national legislation that facilitates non-GMO labeling and has a private multi-stakeholder standard in addition to the national legislation.[1] Second, Germany has become one of the largest non-GMO feed-importing EU Member States. Third, all major retail chains in Germany started or announced their intent to use non-GMO labeling for their store brands.

2. GMO regulation and non-GMO labeling in Germany

Since April 2004, the EU GMO regulation requires that food and feed products containing GMO ingredients be labeled with the words "This product contains genetically modified organisms" or "This product contains genetically modified [name of organism(s)]" (European Commission, 2003b). Traceability is required at all stages concerning products that fall under the mandatory labeling regulation (e.g., GM food, GM feed, and other GM raw materials). The EU regulation on traceability requires each supplier of GM products to inform his customers about the GM presence in the transacted product, and the supplier has to keep a list of the customers for identification purposes (European Union, 2004). Third-party certification to tests whether products are correctly labeled according to the EU labeling law takes place at several stages of the supply (Crespi, 2001; Roe and Sheldon, 2007; Schlicht and Felsner, 2015). In Germany, the federal states (e.g., Bavaria, Saxony) are responsible for performing random GMO monitoring of the final food and feed products.

Even though GM feed needs to be labeled, the use of GM feed does not require labeling the derived livestock product. Regulation 1829/2003 (recital 16) states:

> *"This Regulation should cover food and feed produced 'from' a GMO but not food and feed 'with' a GMO. […] Thus, products obtained from animals fed with genetically modified feed or treated with genetically modified medicinal products will be subject neither to the authorisation requirements nor to the labeling requirements referred to in this Regulation."*
>
> European Commission, 2003a

The EU regulation does not exclude the option of labeling food produced without the "use of genetic engineering processes" as non-GMO. Germany is one of the EU Member States that allow voluntary non-GMO labeling, including livestock products derived from non-GMO feed. Germany's Genetic Engineering Act (GGEA)[2] implements the EU GMO regulation into the German law and builds the basis for non-GMO food labeling. In the framework of Henson and Humphrey (2010), the GGEA describes a voluntary public production standard that goes beyond the mandatory EU labeling regulation. Even though products complying with the GGEA can be labeled as non-GMO, non-complying products are not necessarily GMO products according to the EU GMO regulation.[3] The GGEA specifies the general minimum standards required for non-GMO labeling in Germany. An example of the requirements is that animals must be fed exclusively non-GMO feed for a defined period before milking, laying eggs, or slaughtering. Furthermore, the GGEA specifies that suppliers that want to place non-GMO products on the market must use the wording "ohne Gentechnik" (i.e., without GMO). In 2009, the Federal Ministry of Food and Agriculture introduced a uniform non-GMO label that firms can adopt. A firm can also use its own label, but it must comply with the GGEA.

Before the GGEA came into force in 2008, non-GMO labeling had been regulated under the Novel Foods Regulation, which had not specified any thresholds for feeding (Table 1). The absence of a threshold implied a zero tolerance GMO policy (e.g., neither GM feed nor GM medicine or GM enzymes were allowed), which made labeling very expensive and legally uncertain.[4] Since the specification of minimum requirements in the GGEA, the compliance to label products as non-GMO has become less costly and less legally uncertain and follows the thresholds used for "organic" labeled food products.

The Federal Ministry of Food and Agriculture exclusively commissioned VLOG to issue and administer licenses for the use of the uniform non-GMO label. Founded in March 2010, VLOG is a multi-stakeholder organization whose members are retailers, processors, farmers, traders, consumers, and consumer and environmental NGOs. The organization operationalizes the GGEA. In March 2013, VLOG set the first version of its non-GMO production and certification standard. Food products can be labeled as non-GMO if they comply with the standard and the regulation on self-evident advertising.

The GGEA has been in force since 2008. In the initial phase after non-GMO labeling became part of the GGEA, non-GMO products were supplied in a niche market by farmer-to-consumer direct marketing and other processors (Venus et al., 2016). Greenpeace claims that the first large dairy company (Landliebe) after the GGEA came into force switched to non-GMO production and labeling because of Greenpeace's pressure (Lender, 2008).[5]

After the introduction of the uniform label in 2009 and the establishment of VLOG, the number of non-GMO labeled products and firms has steadily increased (Fig. 1). At the end of 2016, the organization had

[1] France also has a facilitating national non-GMO legislation. Croatia, Greece, and Luxembourg are preparing national non-GMO legislation. Austria developed guidelines that facilitate non-GMO labeling as well. Other countries have either a strict legislation that makes labeling very expensive (e.g., The Netherlands, Finland) or prohibit non-GMO labeling altogether (e.g., Belgium, Sweden). In some countries without national legislation, private firms have developed private non-GMO standards (e.g., Italy).

[2] The official German abbreviation of the EC Genetic Engineering Implementation Act is EGGenTDurchfG.

[3] The current GMO labeling regulation in Germany results in three possible product categories (Venus et al., 2016): products labeled as GMO following the EU mandatory labeling regulation; products labeled as non-GMO, following the national or private voluntary labeling standard; and non-labeled food products.

[4] This uncertainty was demonstrated in an interview with the CEO of the Upländer dairy, which offered non-GMO labeled dairy products under the Novel Foods Regulation over a short period (Gen-ethisches-Netzwerk, 2006). The dairy stated that the major challenge was to find feed suppliers (mainly soy, rapeseed, and maize) who comply with the zero-tolerance requirement.

[5] This is not specific to the GMO debate. Fulponi (2006) demonstrated that environmental interest groups play a significant role in other cases of adopting voluntary standards (e.g., animal welfare).