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Approved By:
Paul Spencer
Prepared By:
Leif Erik Rehder

Report Highlights:
German society remains conflicted regarding plant biotechnology and this is reflected in mixed policies and messaging. Public rejection is widespread, there is no commercial biotech crop production, the government has banned the planting of some EU-approved biotech crops, and practically no foods labeled as “GMO” are sold in Germany. Germany’s has world-class companies that develop and supply biotech seeds globally but these too are pulling back. In January, the German firm BASF announced that is it moving its biotech crop research operations to the United States. German’s voting record in the EU on approving new biotech varieties has, until lately, been generally positive. Germany’s livestock industry is a major consumer of imported biotech soybeans for use as animal feed. However, the industry is under steady pressure to move away from biotech feeds.

Section I. Executive Summary

Germany is the most populous and economical powerful country in the European Union (EU) and is quite influential in agricultural policy, both within the EU and globally. Germans are usually willing to innovate and open to new technology but agricultural biotechnology (also called GMOs) occupies a unique political space. German society remains conflicted regarding plant biotechnology and this is reflected in mixed government policies and messaging. Public rejection of biotech crops is widespread. For nearly a generation, German environmental and consumer activists have protested against the use of biotechnology in agriculture, both in Germany and globally. Biotech test plots - which are used both as a research tool and are a required part of the EU regulatory approval process - are routinely destroyed by vandals, to the point where test plots are today no longer attempted in Germany. The Federal government has banned the planting of an EU-approved biotech corn. Some local governments and organizations within Germany have instituted biotech free zones.

There is little prospect of developing a German market for biotech crops beyond soybeans. Beyond this, political, business, regulatory, and social barriers raise questions about the long-term competitiveness of German plant biotechnology. Germany has given rise to world-class developers of biotech crops, such as Bayer CropScience, BASF, and KWS. These companies are major suppliers of biotech seeds and technologies to markets outside of Europe. However, in January 2012, BASF announced that it is moving its agricultural biotech operations from Germany to the United States, citing poor and deteriorating attitudes toward GM crops and poor marketing prospects in Europe.

Germany is a major consumer and importer of plant biotech products, using more than 6 million metric tons of (biotech) soybean meal for animal feed.

Section II. Plant Biotechnology Trade and Production:

Trade

Germany is a major livestock producer and is dependent upon imported soybeans and soybean meal as a feed protein source. Germany's consumes more than 6 million metric tons (MMT) of soybean meal equivalent annually, nearly all of it produced from biotech varieties. The main suppliers are Argentina, Brazil and the United States. Although soybeans are the largest U.S. agricultural export to Germany, official data suggest the U.S. share of the German soybean market was only about 16 % in 2011.

For the past several years, the German Green Party, supported by a range of NGOs, has introduced policy proposals to end the importation of soybeans into Germany. The use of biotechnology in soybean production is a driver behind this movement. Under several proposals, soy imports would be replaced by domestically produced pulses and other protein crops. Fully replacing imported protein feeds does not appear to be a realistic option in the near term, however. (See GAIN Report GM 12003, Green Movement to End Soybean Imports – An Analysis.)

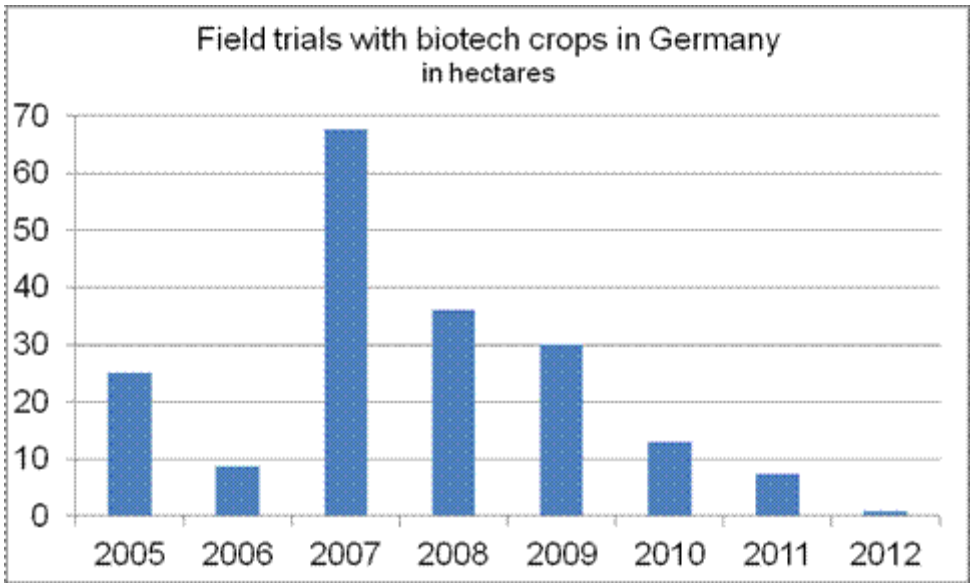
Cultivation and Research Hindered by Vandals, Liability

There is no commercial production of biotech crops in Germany. In addition, biotech seeds are not produced in Germany for sale abroad. However, German seed companies -- including Bayer CropScience, BASF, and KWS – supply biotech seeds to farmers worldwide from production sites outside of Europe. KWS, for example, is a leading supplier of biotech sugar beets used by U.S. farmers.

Earlier in 2011, there was a very small planting of the biotech "Amflora" industrial starch potato, which is produced by the German company BASF. A two hectare Amflora test plot in Saxony-Anhalt was also destroyed earlier by biotech opponents.

Monsanto's MON 810 insect resistant corn was cultivated in Germany until April 2009, when it was banned by Food, Agriculture, and Consumer Protection Minister Ilse Aigner. In May 2009 the Higher Administrative Court rejected Monsanto's appeal to lift the cultivation ban.

Germany companies and universities have in the past conducted small field trials of biotech plants but the number has decreased over the past few years. In 2007, experimental releases totaled nearly 70 hectares but by 2012, the area had dropped to 1 hectare. The crops being tested were sugar beets, potatoes and corn.



Source: German Field Register

German law requires the exact location of a test plot be made public on the internet, which makes it easy for vandals to act (here is a link to the mapping system). For example, in July 2011, two test plots with wheat and potatoes were destroyed by activists in the eastern German states of Mecklenburg-Vorpommern and Saxony-Anhalt. In this case, a large group drove to a remote rural location and detained a security guard while the crops were destroyed. Subsequently, some of the perpetrators gave anonymous press interviews, portraying their extra-legal acts as morally justified because they save Germany from the dangers of biotechnology and corporate control of farming. There have been no convictions in these cases. Vandalism is a significant barrier to conducting field trials in Germany.

In addition, under German law, those planting test plots may be held liable for honey that tests positive because of pollen from biotech crops. This potentially imposes further control costs and liability, contributing further to disincentives placed on researchers and developers.

Biotech-free areas

Groups of German farmers and initiatives have declared about 211 regions in Germany as biotech-free zones. The first biotech free region in Germany was founded in 2004. The total area covered by these biotech-free zones in 2012 amounts to about nearly 1.2 million hectares of arable land with over 30,000 participating farmers. This is equivalent to more than 7% of Germany's farmland (arable land and grassland). Biotech-free areas are formed by voluntary agreement among farmers to not plant biotech crops in the region and there is no legal enforcement mechanism connected to the declaration. In part, these declarations are used to

help promote a regions image and attract tourism. Biotech-free areas are especially popular in the southern state of Bavaria.

A few of the state-level (Laender) governments in Germany also seek to become biotech-free. The governing coalitions of political parties for the states of Baden-Württemberg, Rhineland-Palatinate, Mecklenburg-Vorpommern and Saarland all have 'biotech free' in their coalition agreements. In Thuringia, North-Rhine Westphalia and Bremen, growing biotech crops on state owned land is prohibited. Hamburg also supports biotech-free zones. With the exceptions of Thuringia and Hamburg, the Green Party is part of the governing coalition in these states. For more information see: http://www.gentechnikfreie-regionen.de

Germany's influential Catholic and Protestant churches have also taken strong anti-biotech positions and biotech crops are generally not allowed on church-owned lands (churches have significant agricultural holdings in Germany). Land rental contracts usually forbid farmers from growing biotech crops on church owned land or to refrain totally from biotech crops if only part of the land they work is rented from a church.

BASF moves biotech operations to U.S.

On January 16, 2012 BASF announced the transfer of 140 jobs from its Limburgerhof Plant Science Center in Germany to Raleigh, North Carolina. After years of struggling against anti-GM biases in Europe, the company elected to relocate its Plant Science operations to "where the market is." Following BASF's announcement, some regional German politicians protested the decision, but only weakly. BASF is currently developing GM traits for corn, soybeans, canola, etc., but no longer seeks to market crops with GM traits in the EU.

Section III. Plant Biotechnology Policy:

As the largest EU member state, Germany plays a significant role in the regulatory acceptance of biotech crops in Europe. This includes voting at the EU level on approvals and transferring and incorporating EU laws into German legislation, establishing liability for biotech 'contamination,' and enforcement. Member states also carry out initial risk assessments for a biotech crop.

Within the EU, biotech crops are authorized on a case-by-case on the basis of the particular uses defined by the applicant. The EU regulatory framework for biotechnology primarily works through regulations and directives. (Our GAIN report dated July 29, 2011 has much more detail on the EU regulatory process.) The Federal Office of Consumer Protection and Food Safety (known by its German abbreviation BVL) is the German authority responsible for regulating GMOs. The BVL is an autonomous part of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV).

In practice, the BVL receives a notification of a biotech approval request, passes the notification dossier to the European Food Safety Authority (EFSA), checks the completeness and quality of the data supplied in the dossier, evaluates the risk analysis of the notifier, and issues its own statement to the EFSA. BVL also evaluates the safety of GMOs that are used in contained systems (i.e., for research or industrial production). It also issues environmental release permits and conducts environmental monitoring. The BVL does this under the authority of Germany's Genetic Engineering Act, which implements EU guidelines as national legislation.

While primary responsibility for biotechnology policy in Germany rests with BMELV, the Ministries of Economics, Health, Research and Environment are also involved in the opinion and decision-making process and need to approve Germany's voting decision in EU committees and councils.

The German voting patterns on approvals at the EU level in some ways contrasts sharply with its local regulation of biotech crops. In the case of MON 810 for example, Germany voted to approve it and German farmers cultivated MON 810 for several years. However, against scientific evidence, MON 810 was banned in by Germany in April 2009. Since the mid 1990's, there have been about 50 biotech product approvals voted upon at the EU level. There have been only two German objections in recent years (for EH 92-527-1 potato and TA 45 rapeseed) but in May 2012, Germany abstained from the vote for the approval of MON87701xMON89788.

Current Political Situation

In 2009, Chancellor Merkel's Christian Democratic Union (CDU)/Christian Socialist Union (CSU) party was re-elected and entered into a coalition with the Liberal Democrat Party (FDP). Their 2009 coalition agreement states, "Biotechnology has been established worldwide as an important new industry for research, business and agriculture and we want to responsibly utilize the potential of green genetic engineering. The protection of people and the environment remains the primary objective of Germany's genetic engineering law. We support a greater scientific focus and more efficient authorization procedures for genetically modified organisms at the EU level." While the coalition agreement contains some positive language about biotechnology, this has not translated into practical political support for its utilization in Germany.

Coexistence

Germany's policy of “coexistence” between biotech and conventionally-grown and organic crops is complex and is becoming increasingly untenable. German federal and local governments have put into place an assortment of planting bans, segregation distances, and other requirements. For instance, Germany requires a minimum distance of 150 meters -- a football field-and-a-half -- between biotech and conventional fields, and a minimum distance of 300 meters between biotech and organic cornfields.

In December 2010, a scientific policy advisory board for the German Ministry of Food, Agriculture, and Consumer Protection published additional recommendations for coexistence. While not binding, the recommendations call for economically unrealistic segregation and cultivation measures. The report recommendations underscore how coexistence regulations can be used to discourage farmers from cultivating biotech crops.

Testing for Biotech Events

Germany has a decentralized system for testing and controlling the illegal entry of biotech products into Germany. The control authority with the competence to ensure that no unauthorized biotech product enters the German retail market is with the 16 German states (Laender). The Laender have own monitoring and sampling plans. Since the experts know what kind of products potentially contain biotech events they specifically sample for these products. Sampling is primarily done at the wholesale and the processing level.

Germany fully enforces EU rules relating to biotech crops and uses the Rapid Alert System for Food and Feed (RASFF) is used to report food safety issues to consumers, the trade, and other member-states. In the case of biotech crop, Germany’s 16 states (Laender) test for unauthorized biotech products and report violations via the RASFF. There were 18 notifications in 2011. These were primarily noodles from China containing unapproved biotech rice.

Germany Rejects EU Commission ‘Opt Out’ Proposal on Cultivation

In July 2010, the EU Commission proposed allowing EU members to decide individually whether or not they allow the cultivation approved biotech crops based on certain criteria. Subsequently, related proposals were made under the Denmark presidency. Chancelor Merkel’s office has thus far opposed giving member states more flexibility in planting biotech crops. The fear is that it would lead to a policy patchwork in Europe and undermine EU single market principles.

The Honey Case

A European Court of Justice ruling in September 2011 (Case C – 442/09, Karl Heinz Bablok and Others *versus* Freistaat Bayern) found that biotech plants contained in honey should be considered as food ingredients. As such, pollen containing traces of MON 810 corn requires an authorization. (Monsanto's original application for authorization to cultivate MON 810 did not include pollen.) The decision created uncertainty because an EU directive (Council Directive 2001/110/EC) says that pollen is a natural constituent of honey, an opinion shared by other international standard setting bodies. The European Commission asserts that the judgment cannot be appealed.

Testing is very technically challenging and includes counting and identifying pollen particles in honey and then making assumptions about the percent of biotech crops represented within the population of pollen isolated. There is no standardized test at the German or EU level but the Laender of Lower Saxony has nonetheless pressed ahead with its own method.

In Germany the opponents of biotech welcomed the court's decision as a clear victory for consumer protection and agricultural production without biotech. Environmental and organic groups also stress that the decision has confirmed the zero tolerance level of non-approved biotech in the EU. Many in the honey trade, however, view the decision as counter to the facts (pollen is a natural part of honey) and unworkable. The German Beekeepers Association advocates for a ten-kilometer separation between biotech field trials and beehives.

Honey demand in Germany exceeds domestic supply. About 80 % of the consumed honey is imported. Most of it comes from Argentine, Mexico, Chile and Brazil, where biotech crops are common. With the court's decision, this honey is no longer marketable if it contains many types of biotech pollen. To resolve the administrative problems associated with the case, and to avoid trade disruptions, the Commission could amend a Directive relating to honey to clarify that pollen is a natural constituent of honey and not an ingredient. Such an amendment would require the agreement of both the Council and the Parliament.

Government Support for Biotech Crops

The German Federal Ministry for Education and Research (known by its German abbreviation BMBF) supports scientific institutes, companies or individual researchers through specific funding programs. Biotechnology is one of the key technologies of a strategy, which was adopted by the federal government in 2006 and has continued since 2010 under the title "High-Tech Strategy 2020". Under this strategy, the German Federal Government seeks to lead in Europe in terms of number of biotech enterprises, sales and employment figures. To advance research, the federal government has just launched a "National Research Strategy

Bio Economy 2030". At present, there are 25 different ongoing programs to financially support scientists with research projects in this field.

Statistics by the ministry show that the overall German biotech sector but figures for 'green biotech' are not provided. In 2010 there were 538 companies with 15,480 employees. Compared to the year before they was a 10 % increase in sales. The total turnover in 2010 was nearly € 2.4 billion ($ 3.3 billion).

Section IV. Plant Biotechnology Marketing Issues:

For nearly a generation, German consumers have been exposed to consistent messaging from non-governmental organizations that biotech crops are dangerous, a product of exploitive capitalism, and even immoral. As a result, the use of biotech crops in foods is a highly contentious and politicized issue. Opponents to biotechnology often point to polling results that show that about 70 percent of the German population is in opposition to this technology. Other polls, if questions are asked differently, come to the result that over 80 percent of those interviewed did not see any problem in biotech labeled products being on food retail shelves. Consumer attitudes regarding biotech are based on general values and efforts to convince may be perceived as an attack on the legitimacy of personal values. Since biotech crops were first introduced in the mid 1990s, attempts to educate consumers and opponents about the benefits of biotech crops and about science in general have proven ineffective.

According to the Federation of Food Law and Food Science, an estimated 60 to 80% of all food in German supermarkets has come in contact with biotech products in some way. The Union of German Academies of Science has concluded that objections to biotech in agriculture lack any scientific basis, and agricultural biotech tends to find stronger support among consumers with postgraduate degrees. Because there are exceptions to EU labeling requirements (e.g. food enzymes produced from GMO micro organisms), many German consumers do not believe there are biotech foods on the market.

Although the European Union has approved 31 biotech plants that would theoretically be legal to sell in Germany, practically no labeled biotech foods are on the market. One contributing factor is the concentration of the food retail sector and its vulnerability to narrowly focused consumer activists. The German retail food sector is dominated by five large retailers, which have more than 90 percent of the market. Germany also has the world's highest share of discounter in food retailing. Within this low-margin but concentrated industry, anti-biotech NGOs would likely target any retailer offering GMO-labeled products. This presents an unacceptable brand risk that further hinders the introduction of biotech labeled foods.

Labeling – Voluntary Programs Market Against GMOs

Germany applies EU regulations for labeling biotech foods (Regulations (EC) 1829/2003 and 1830/2003). No 'GMO' labeled foods are currently sold in Germany. However, under EU rules, foods require a label only if biotech crops are used as an ingredient. For example, there is no labeling for meat or dairy products coming from animals fed with biotech feeds.

In 2008, the German government legislated a voluntary "gene technology free" labeling program. In August 2009, the Ministry for Food, Agriculture and Consumer Protection introduced a standard label to help consumers better identify products and to standardize the information consumers receive. The program also has the effect of discouraging the use of biotech feeds in animal production.

Food manufacturers can now use an official label on their products if they comply with strict requirements. Interestingly, the label may not be used for products for which no biotech varieties exist, such as oranges or basmati rice, among others. The administration of this program is largely entrusted to the "Verband Lebensmittel ohne Gentechnik e.V." (non-Biotech Foods Association). As of May 2012, the Association claims that 103 companies are using the label. Eggs and cheese are the most popular products sold under this labeling scheme.

A private example for the use of non-biotech labeling as a marketing tool is "Landliebe". Landliebe is a popular German brand of dairy products sold by Campina GmbH, a subsidiary of the large Dutch dairy cooperative Campina. Campina became the target of public criticism in Germany for sourcing milk from farmers using biotech feeds, such as soybeans. In October 2008, Campina reacted by buying only non-biotech animal feeds for use in the production of milk sold under the Landliebe brand. Campina is now making biotech-free claims with its Landliebe milk, cream, butter and yogurt using its own label. Many other dairy products sold by Campina do not make biotech-free claims.

Section V. Plant Biotechnology Capacity Building and Outreach:

Since 1997, the USDA/FAS Office in Germany has sent numerous groups of policy makers, scientists, representatives' from consumer organizations, farm leaders, journalists and other interested parties to the United States to learn about the U.S. system for regulating

biotechnology. In addition to these trips to the United States, FAS Germany has organized a number of speaker programs for U.S. policy makers, biotech scientists and farmers to inform interested parties in Germany about the experience in the U.S. with biotech crops. The FAS Office in Germany has also participated in a number of podium discussions and seminars on biotechnology.

Program: Germany – The Future of Green Biotechnology

In March 2012, the U.S. Embassy in Berlin organized a biotech outreach titled, 'Germany – The Future of Green Biotechnology.' It featured Dr. Liebergesell, a scientist and regulatory affairs expert with DuPont who is a German national and has worked for the last decade in the United States.

Dr. Liebergesell met with German parliamentarians, gave press interviews, and lectured at public events in Berlin, Munich, and Frankfurt. Other speakers and panelists came from companies, industry associations, and both the national and state-level parliaments. This program was held following BASF's decision to move over 100 biotech-related R&D jobs to North Carolina, thus highlighting the economic and competitive costs of rejecting agricultural biotechnology.

Lessons learned from this program include:

- International corporations are withdrawing from the German market in increasing numbers, making it unattractive also for smaller ventures and companies that act a subcontractors.
- Green Biotechnology is a topic that is not high on political agendas either on the federal or regional level.
- At several universities research on Green Biotechnology is still conducted, though with very limited scope; incentives for scientists are high to emigrate to other countries.
- There are several alliances and biotechnology networks, but most are either relatively small or do not have a focus on agricultural biotechnology