USDA Foreign Agricultural Service
GAIN Report
Global Agriculture Information Network
Template Version 2.09

Required Report - public distribution

Date: 6/26/2006

GAIN Report Number: GM6021

Germany

Biotechnology

Annual

2006

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Report Highlights:
With the new German government in place since November 2005, there is renewed optimism for the growing of biotech crops in Germany. Farmers have a problem with the corn borer and the industry can provide a promising solution. In 2006, 979 hectares have been planted to biotech corn varieties, three times 2005 levels. The harvested crop will be used for feeding. Based on the EU labeling rules the resulting livestock product does not need to be labeled as “biotech”. The food chain is still extremely reluctant to place “biotech” labeled food products on the shelf.

Includes PSD Changes: No
Includes Trade Matrix: No
Unscheduled Report
Berlin [GM1]
[GM]

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Section I: Executive Summary

A growing number of German farmers are expressing interest in planting Bt corn varieties since they have a problem with the corn borer and the biotech industry offers them a solution with a wide range of advantages. In 2006, almost 1,000 hectares are planted to Bt Corn, which is an increase of about 600 hectares over 2005. However, research, production, and consumption of plants and plant products resulting from genetic enhancement of crops are still controversial issues in Germany. The scientific community and members of the conservative political parties have been generally supportive of biotechnology. However, they are counter-balanced by the Green Party and environment/consumer-related NGOs, such as Greenpeace, which are very pro-active and vocal in expressing their concerns about this technology.

Consumer opinion polls in Germany regarding biotechnology fluctuate widely, depending on the wording of the questions. If opinion polls are more detailed and scientific information is included in the questionnaire, responses show a much more supportive and understanding view of biotechnology. The political and the industry focus is currently on intensifying efforts in the field of white biotechnology (basically the use of organic matter such as enzymes, bacteria, and plant tissue for industrial purposes, excluding open field planting), providing opportunities in the field of environmental protection, cost reducing chemical processes, improved utilization of available limited resources, and waste reduction. In Germany white biotechnology is perceived positively, in part because Germans believe it does not create unmanageable risks. Another field of interest to the German biotech industry could be the production of renewable fuels and other products for non-food use. The industry perceives that such products will receive a higher level of acceptance since they do not enter the food chain.

In Germany the regulatory framework for biotech products is set by EU regulations and directives (see GAIN report E35091), which in their current form are generally supported by the majority of German politicians. The European Commission however decided that co-existence rules would be determined and set by the individual Member States. In the spring of 2006, the German government finalized its new genetech law, which fully transfers the EU genetech directives into national law. Since the industry views the German law as restrictive for research, production, and trade the new government announced the intention to amend the law to make the rules more user friendly. An agreement between the government and the industry seems to be achieved that the government will no longer demand the forming of a fund to cover financial risks resulting from adventitious presence of biotech crops in organic conventional production. The industry in cooperation with the farmers will develop market-oriented solutions which cover eventual financial damages. Examples for such solutions are contract farming, marketing arrangements for biotech containing crops or damage cover agreements by the seed suppliers. The strict transparency requirements for a public field register for biotech crops are not expected to be lifted or weakened.

For seven years, German farmers have been commercially growing a limited amount of Bt corn (only 300 to 500 hectares). Most of the crop is consumed on the farm as silage. Many of these farmers face criticism by biotech opponents. Biotech field releases for research purposes are frequently destroyed, making biotech companies hesitate to start new research programs in Germany.

Currently, there are hardly any biotech-labeled food products found on German retail shelves. The retail business refrains from stocking biotech labeled products because they fear that anti-biotech activists may demonstrate in or outside their stores. Consolidation and competition in the German retail market is very intense and the prime marketing tool for the retailers is price. Since profit margins are very narrow in Germany, retailers try to avoid having any negative impressions of their products in the market.

Section II: biotechnology Trade and Production

Commercial Production of Bt corn in Germany

Despite political opposition of the Green Party and to a somewhat lesser extend also by the governing Social Democrats Party and lack of support by leading German farmers associations, a small number of farmers planted 979 hectares of biotech corn varieties on a commercial basis in 2006. With almost three times as much area as in 2005, this can be interpreted as growing interest in the technology by German farmers. Originally at the beginning of 2006 farmers had registered about 1,800 hectares for Bt corn planting. A number of farmers later refrained from planting their fields with biotech varieties, claiming they were pressured by biotech opponents not to grow biotech crops.

Currently the only commercial biotech crop in Germany is corn and the only biotech trait approved for production is insect tolerance. Not all of the German corn production regions are affected by European corn borer infestation and the root worm has not yet arrived on German farm land. Current farmers' interest in Bt corn planting is predominantly in regions with large farm sizes, mainly in the eastern third of the country. Farmers in Southwest Germany are reportedly less interested in Bt varieties since that region is also a major corn seed production area and these farmers wish to be safe that their corn seeds are free of biotech contact.

Since 2003, genetech varieties are using the biotech trait MON810. Previously, varieties containing the trait Bt176 were used. Since 2005, five corn varieties have been registered with the German Federal Seeds Register and may be planted to an unlimited area. In previous years, a special planting permit was required for a limited amount of corn seeds.

In 2004, an extensive monitoring program accompanied the planting of about 300 hectares of Bt corn. The goal of this monitoring program, sponsored by federal research and state funds, was to determine the extent of the flow of corn pollen into neighboring fields. The industry intended to prove that biotech corn does not create a considerable problem for coexistence with non-biotech varieties. The result of the tests showed that biotech content in corn samples taken more than 20 meters from the biotech plants were below 0.9 percent, the threshold which constitutes the need for labeling the harvested product as biotech.

To avoid any kind of liability problems for the production of biotech corn in 2005 and 2006, the German feed milling and grain trading company Maerka Kraftfutter made the public promise to purchase the corn from fields neighboring biotech corn fields up to a distance of 500 meters. The purchase price will be equivalent to normal market prices in the region, regardless of biotech content. Maerka also markets and processes domestically harvested biotech corn into commercial feed compounds and labels these products as 'contains biotech corn'.

Research on Biotech Crops

According to German government reports, so far a total of about 160 research applications requesting to use field released biotech crops have been filed in Germany. This is well below the 2,100 applications requested EU-wide. Significantly more field releases were approved in France, Spain, Italy, and the United Kingdom. The applications for field releases in Germany covered a wide variety of plants, such as poplar trees, grapes, grains, oilseeds, beets, potatoes, pulses, and others. Most of these field releases were for research, and not yet at

the level of biotech event application approval. The next biotech events awaiting EU approval are amylo-pectin starch potatoes.

Applications for field releases during the past two years concentrated on potatoes and corn. These are crops, which have a low out-crossing risk in terms of coexistence. The biotech industry has pretty much stopped or reduced field studies with higher out-crossing potential, such as rapeseed, which have the potential to create a major controversy with biotech opponents. Despite the efforts to promote consumer, processor, and environment friendly biotech traits, anti-biotech activists of the NGO Greenpeace continue to destroy test plantings of wheat and potato field releases. The goal of the researched biotech event in wheat was an increased resistance against grain fusarium, which if successfully developed would reduce possible health risks for consumers. The work in potatoes concentrates on improvement of the starch composition but also pharm-potatoes have been field released in northern Germany in mid June 2006. Due to strong opposition to biotechnology in plant production, leading biotech companies announced that they intend to relocate research and in particular field test efforts to countries outside of Europe. However, this does not imply that the biotech companies and the seed breeders have given up on biotech in Germany.

Genetech-free Zones

Aside from the commercial production and research areas for biotech crops, groups of German farmers have declared about 93 regions in Germany as biotech-free zones. The total area covered by these biotech-free zones amounts to about 861,000 hectares with 25,400 participating farmers. A large number of these regions are located in Bavaria and are primarily composed of grassland for dairy production. These zones are formed by the voluntary agreement of farmers to not plant biotech crops in the particular region. In part these declarations are used for tourism purposes. Other non-biotech regions were initiated by organic farmers. We understand that there is no legal enforcement mechanism connected to this declaration that would prevent a farmer from growing biotech plants. Also the Christian churches are an active NGO opposing genetechnology on church-owned land. http://www.gentechnikfreie-regionen.de/

Section III: Biotechnology Policy

Leadership for biotechnology policy in Germany rests with the Federal Ministry for Food, Agriculture and Consumer Protection (BMELV). However, 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. This split of responsibility also applies to Germany's role in the Biosafety and Biodiversity committees. The German regulatory office for biotech authorization and risk assessment is under the political leadership and supervision of BMELV.

The willingness to promote or at least tolerate the presence of biotech foods and feeds and the planting of live genetically modified organisms is highly dependent on the political leadership of BMELV. In recent public statements, Minister Seehofer, BMELV, has expressed his support for intensified research on green biotech but is still reluctant to also strongly promote the planting of biotech crops. However, in contrast to the previous German government the current governing politicians no longer express their straight opposition against the technology. The coalition contract between the Christian Democrats Party and the Social Democrats clearly states that the new government is generally supportive of research in biotechnology and wishes to guarantee fair opportunities for the production of conventional, organic, and biotech seeds.

Regulatory Framework

The regulatory framework for biotechnology is set by EU regulations and directives. While regulations directly apply in all EU member countries, directives have to be transferred and incorporated into national laws. This incorporation process requires that national laws have to be crafted or existing laws need to be amended accordingly. Directives provide the opportunity for member countries to exercise some discretion and strengthen or weaken the EU requirement without altering the basic scope of the EU directive.

The German government took advantage of this discretion while crafting its national genetech law. In particular, rules about liability, coexistence, and a public register for fields planted to biotech crops have been crafted in a way that many farmers generally interested in growing Bt corn and an increasing number of researcher refrain from working with biotech varieties or develop biotech events in Germany.

In summary, the current German genetech law makes farmers financially liable if they grow biotech crops and these biotech events pollinate in neighboring fields regardless whether the farmer fully complied with good farming practices. If neighboring farmers wish to sell their 'biotech-contaminated' crop as biotech-free conventional or organic crop, they might suffer financial losses. The farmer suffering damages is not required to prove from which field exactly the biotech pollen originated.

In lengthy negotiations between the BMELV, the biotech industry, the seeds producers and the farmers association it has been agreed in June 2006 that the liability issue should be solved in a market economy oriented manner. Options for solutions are contract production of biotech crops, arranged purchase commitments biotech crops and crops with limited biotech content by agricultural merchants and processors, a liability exemption statement by the seeds industry for the farmer and other like arrangements. BMELV no will longer demand the forming of a liability fund. The seeds industry and the biotech industry strongly opposed the idea of a liability fund.

Coexistence rules and good management practices for biotech farmers have not yet been finalized. The most controversial portion of the proposed rules is the required minimum distance between biotech fields and fields planted to conventional or organic varieties. In a first step BMELV intends to establish such a minimum distance only for biotech corn varieties because domestic research data are not available for other crops. The intended protection distance is proposed at 150 meters. Actually, current production advices of the biotech industry for growing Bt corn ask the farmers to keep minimum distances and 300 meters to organic fields.

The current public biotech field register is viewed with concern by the biotech industry, which fears this information may be used by biotech critics in order to destroy these crops. They are also concerned that farmers on the biotech field register may be intimidated into not planting biotech varieties. The current rules require the farmer to register his field any time from nine months to a minimum of three months before actual planting. The farmer has to report the exact location of the biotech fields, field size, and the biotech trait to the national public register. The register is accessible to everyone through the internet.

For the planting season in 2006, farmers had originally registered about 1,890 hectares to plant to biotech corn. In the end about 979 hectares have actually been planted to biotech corn.

Antibiotic Resistance Marker Genes

The biotech trait Bt176, a construct of the Syngenta company, has been banned for use as a seed in Germany. The German government argues that the presence of an antibiotic resistance marker gene in Bt176 has the potential to pose a threat to public health and to the environment. Although the German research community disagrees with this negative evaluation, Germany voted in Brussels against lifting the ban for Bt176.

Biotech Threshold levels

The EU labeling directive sets a labeling threshold for unavoidable adventitious presence of biotechs in food and feed at 0.9 percent. However, a threshold level for adventitious biotech content in seeds has not yet been set, which actually translates into a zero tolerance for biotech content in conventional or organic seeds. The previous German government had proposed setting it at detection level or 0.1 percent. The new government has not developed a new position but is expected to support a level as low as possible. The mood within a growing number of EU member states seems to show that pressure is developing that a seed threshold needs to be set soon.

Due to the missing threshold level, biotechs are not allowed in conventional or organic seeds. If traces of EU approved biotech traits are found in seeds, these seeds need to be labeled as containing biotech or these seeds cannot be marketed. Additionally, fields planted with these seeds need to be recorded in the biotech field register. If seeds with adventitious presence of biotechs are seeded, the regional supervising authorities usually require that these crops be destroyed. Not yet EU approved biotechs are totally prohibited in seeds.

'without biotech' Labeled Products

Prior to the EU labeling regulations, effective in 2004, Germany crafted a national law in 1998, which allows the labeling of a product not to contain biotechs. The term to be used is 'without genetech'. This label may be used for products derived from conventional seed varieties and from animals, which were not fed with biotech containing feedstuffs. A specific threshold level for adventitious and unavoidable presence of biotechs is not established in the regulation.

The 'without genetech' label has been used very rarely during the past eight years. Currently, one dairy company advertises that it produces milk without gene technology. Another product recently found on retail shelves is kidney beans, where the canner, a French company, claims that the product does not contain biotechs. However, the 'without genetech' label may not be used for products, for which no varieties have yet been genetically modified worldwide, such as oranges or basmati rice among others.

Section IV: Marketing Issues

Biotechnology in crop production is a highly contentious issue in Germany as in most other EU countries. Opinion polls provide widely varying results. 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 about 83 percent of the people interviewed did not see any problem in finding biotech-labeled products on food retail shelves.

Since the implementation of EU labeling regulations for biotech foods in April 2004, Greenpeace has reportedly found a number of food items on the German retail shelves containing biotechs or biotech-derived products, which in most cases were correctly labeled. Greenpeace activists have also visited restaurants and take-away food places where they

found biotech soyoil, which was not labeled on the menu. Greenpeace 'convinced' the restaurant owners and the retailers to switch to other non-biotech products or take the products off the shelf. The products found were imported candy bars containing biotech cornstarch and soybean products, such as soyoil, tofu, and bean sprouts.

To avoid biotech labeling of processed food items, the German food industry as well as most other European food processors switched from biotech-origin ingredients to non-biotech alternatives. This substitution was most prevalent for biotech soybean oil, which was replaced with European rapeseed oil. Because of rising demand for rapeseed oil in biodiesel production rapeseed oil has become the most expensive vegetable oil out of the group of standard vegetable oils. Even sunflower oil is lower priced than rapeseed oil.

One of the main reasons why the industry refrains from using biotech products in the production of foodstuffs is the very intensive competitive situation of the German retail market. Low price discount stores are displacing traditional food markets. At the same time the growth rate of the sales area is higher than the growth of gross sales. Competition in the German food retail sector is significantly more intense than in other EU countries since the retail food floor space per 1,000 inhabitants is highest in Germany, 1,400 sqm in Germany versus 850 in France and 700 in the United Kingdom.

Food sales in Germany are predominantly driven by price. As a result, generic products, which are generally more affordable, are increasingly replacing branded products. In view of this intense competition, retail companies wish to avoid placing biotech labeled products on their shelves.

Biotech Papaya

On several occasions in 2004 and 2005 , unauthorized biotech papayas were detected on the German retail market. Competent authorities forced the importer to destroy these products which came from genetically modified plants that were bred to be disease resistant. Since this biotech trait is not yet approved in the EU, these biotech papayas were not allowed to be marketed or sold in Germany. Since January 2005, the importer has had to have all incoming papaya shipments from Hawaii tested for biotech presence before they can be marketed.

Testing for Biotechs

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

NGO Activities

The German green-based NGOs, such as Greenpeace, have undertaken intensive efforts to keep biotech crops off the fields and biotech food products off the shelves. Greenpeace met with German food processors and retailers to request commitments from these companies to keep their retail shelves and production plants biotech-free. We understand that the majority of food processors did not sign such commitments. Companies committing themselves to avoid biotechs are predominantly those dealing with organic products. As a result of circular mailings, Greenpeace developed a purchasing guide for consumers in order to announce where to buy non-biotech foods. Since the German food processing industry has replaced biotech ingredients with other non-biotech products, such as canola oil, Greenpeace is now focusing on the dairy industry. Greenpeace would like to obtain

commitments from the dairy companies that they will require their supplying farmers not to use biotech containing feeds. A prominent target for Greenpeace are dairy companies, in particular the Mueller Milch company. Greenpeace used to stigmatize milk products of Mueller Milch as 'gene milk'. A recent court ruling stopped this denigrating campaign by Greenpeace.

Due to the long list of field destructions the seeds and biotech industry as well as research institutes lost their patience with the 'activists' and now takes them to court with the intent to claim financial compensation for the complete damage, not only the value of the lost crop. Damages can easily add up to several million dollars.

Section V: Capacity Building and Outreach

Informational Visits to the U.S. and Speaker Programs

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

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

Most helpful for the success of biotech crops in Germany appears to be farmer to farmer contacts on national and international levels. On June 16, 2006, 23 farmers from Northern Germany formed a Working Group of Innovative Farmers (InnoPlanta AGIL) – www.innoplanta.de. These farmers are convinced that this technology will be a key technology of the 21st century and play a growing role in world food production, renewables development, energy, health, and environment. Most welcome for German farmers is also the exchange of experience with experienced North American farmers because this tells them that there are not only the promises of the offering seed companies but also the positive results for the farmers and the environment.

Changes in the German Political Arena

Germany held federal elections in September 2005 with the result of a new more conservative government formed by the Christian Democrats party and the Social Democrats Party. For almost two years, leading politicians of the conservative parties have expressed support for green biotechnology. They are also very critical of the Green Party for crafting a genetech law, which is seen as a hindrance to the agricultural biotech industry. The persistent political support for green biotech by the conservative parties has the potential to gradually alter the underlying general skepticism of the general public with respect to green biotech.

Even with the change in government, conservative politicians clearly support the European approach of process labeling for agricultural products. Consequently, labeling and traceability requirements remain in place. What has changed is the general negative attitude towards green biotech. The idea that biotech crops per se form a risk to health and environment is possibly diminishing.

The change in government also provides the opportunity to alter the overly strict regulations of the German genetech law. In particular, liability and coexistence rules should be re-crafted to make them more practical. It is the expressed goal of the conservative government to make Germany a more hospitable environment for biotech research in order stop biotech researchers and companies from leaving Germany. Conservative politicians see biotech crops as an opportunity for the production of crops for industrial use, mainly fuel crops. This would avoid placing the biotech crop on the food shelf. Actually, conservative politicians are exploring the option to demand a change of the biotech labeling rules. They request that all products, which got in touch with biotechnology in one way or another should be labeled as such. This would include livestock products, enzymes, yeasts, and others.

With the change of the German government in November 2005, an increasing number of German farmers are expressing their interest in the planting of Bt corn varieties. They are aware that the corn borer poses a real threat to their crops and Bt varieties are offering a promising solution. For that reason environmental and product health advantages experienced by producing farmers should be intensively communicated to German and other European farmers. It could be most beneficial if more European farmers are meeting with U.S. farmers to exchange their experiences.

White biotechnology

During the past year, politicians of almost all leading German political parties expressed their support for white biotechnology. Even the Green Party claims that this is a field of research and development, which provides great opportunities to the German economy without expressing noticeable risk to the environment and to health. As a result, this branch of the German biotech industry seems to be faring better than green biotechnology.

Section VI: Reference Material

Report No.	Date	Title
GM5041	12/19/2005	Bt Corn Varieties 2005
GM5027	07/15/2005	biotech Annual
GM5013	03/18/2005	Marginal Improvement of biotech Regulations in Germany
GM4051	12/03/2004	German Genetech Law and biotech Test Plantings in 2004
GM4042	10/18/2004	German Genetech Law Expected to be Passed
GM4029	08/10/2004	European Commission not Happy with German Genetech Law
GM4023	06/25/2004	German Court Ruling against Greenpeace
GM4019	05/11/2004	Agricultural biotechnology – Recent Developments
GM4016	05//03/2004	biotech Wheat Test Plantings
GM4015	05/03/2004	Aggressive Greenpeace Campaign against biotech Labeled Food Products
GM4014	05/03/2004	German Farmers' Interest in Planting Bt-corn