

# THE GMO CONTROVERSY AND ITS EFFECTS ON BRAZIL'S AGRICULTURAL SECTOR: FOCUSING ON SOYBEAN TRADE WITH THE EUROPEAN UNION



DENISE BRINGSLID  
School of History, Technology, & Society  
Georgia Institute of Technology



BILL WINDERS  
School of History, Technology, & Society  
Georgia Institute of Technology



RON BAYOR  
School of History, Technology, & Society  
Georgia Institute of Technology

“The investigation of genetically modified organisms (GMOs) is a recently popularized issue within the realm of international science and technology research. It has been a mere 18 years since the United States’ FDA declared that genetically engineered foods are not inherently dangerous and do not require special regulation. In the midst of the publicized controversy surrounding the idea of genetically engineered food items, Brazil has been caught between two differing forces in the agricultural realm: commercial farmers, researchers, and agribusiness vs. environmentalists and consumer advocates. The history of GMO production in Brazil encompasses heated battles due to both internal and external disagreements. In addition to a general concern about the risks of growing and consuming bioengineered agriculture, the Brazilian government has struggled to integrate GMOs into the farming sector because Brazil’s largest agricultural importer, the European Union, has remained hostile to GMOs, placing strict rules on the importation, labeling, and distribution of these foods within their markets.”

## I. INTRODUCTION

Because of this controversy, I have chosen to examine the implications of Brazil's decisions regarding GMO production and trade within the past twelve years, focusing on the Brazil-EU trade partnership and the effects of GMO suppression on the Brazilian agricultural community. In order to closely look at the changes that have occurred, I will focus on the soybean sector for two reasons: Brazil is the second largest producer of soybeans in the world and their first controversial GM legislation, proposed in 1998, concerns the use of Monsanto's Roundup Ready (RR®) Soybeans. Upon the introduction of this first piece of legislation, Brazil was hesitant to integrate biotechnology into its commercial farms, pressed by the European Union to remain GM-free because a large majority of European consumers were anti-GM, fearful of the unknown effects of bioengineering. But, as the GM conflict has persisted in Brazil, their federal government has repeatedly supported the dissemination of biotech crops and subsequent research and development in the field, while the EU continues to resist GM foods. So, why did Brazil make the change?

I will discuss the interactions between Brazil and the EU during Brazil's tense period of GM controversy, noting the nature of their relationship as trading partners and how trade patterns have changed since Brazil has stepped into the international GMO market between the years of 1998-2008. I suggest that Brazil's executive body and agricultural sector has been unable to resist the influence of large corporations, such as Monsanto, therefore they have seen an enormous increase in the percentage of GM soy crops produced and exported. But, rather than harming Brazil's economy, this has increased the EU's participation in trade with Brazilian soy growers. Since Brazilian regulations on GM crops are still in the process of being solidified, Brazil has the largest percentage of non-GMO soybean acreage in the world, with almost 30% of their soybean production classified as conventional. The EU has not shifted its trading focus away from Brazil, instead it has become even more interested in utilizing both the GM (on a limited scale) and the non-GM soy crops available, further distancing its market from the world's other important soy producers, including the United States and Argentina, who both have over 90% of their soy crop as GM.

## II. THE DEVELOPMENT OF THE GMO CONTROVERSY IN BRAZIL

In September 1998, Brazil's National Biosafety Technical Commission (CTNBio) announced the Commercial Release of the Genetically Modified Soybean (Roundup Ready® Soybean), concluding that "there is no evidence of environmental risk or to the human or animal health from the use of the genetically modified soybean in question." This was the first attempt at GMO acceptance in Brazil, coming only two years after the manufacturer, Monsanto, introduced this herbicide tolerant bean on the international market. The resolution would allow Brazilian soybean farmers to purchase transgenic seeds from Monsanto as a five-year study was conducted to validate the new crops as harmless. Just weeks after this approval, backlash arose in the form a class-action lawsuit filed by environmentalists and consumer nongovernmental organizations (NGOs) within the 6th Civil Law Circuit of Brasilia. They claimed that CTNBio "didn't know enough about the safety of genetically modified crops when it cleared Monsanto." As a result, the lower court granted a preliminary order rescinding Monsanto's permission to distribute the RR® seeds. After this decision, Monsanto and the federal government appealed to the regional federal court.

The judges of this higher court denied the appeal in 2000, overruling CTNBio's decree, immediately placing an outright ban on GMOs in the region indefinitely, requiring that an environmental impact study (EIS) be conducted and labeling requirements be established before any other GMOs were taken into consideration. Quoted in the Wall Street Journal, Marilena Lazzarini, the executive coordinator of the Brazilian Institute for Consumer Defense (IDEC), one of the organizations that filed the suit against Monsanto, praised the court's decision: "We hope that now they [Monsanto] will stop their irresponsible goal of liberating bioengineered seeds in the country without the necessary evaluation of risks to the environment and human beings." In addition to IDEC's opposition to GMOs, the international conservationist organization Greenpeace vehemently opposed Brazil's new decree on soy planting. Mariana Paoli, the Campaign Coordinator of Greenpeace's Genetic Engineering Brazil depart-

ment stated: “We do not yet know the consequences of genetically modified organisms into the environment and public health. Therefore, we consider the application of the precautionary principle and the implementation of an EIS.” Under the precautionary principle, the burden of proof that GMOs are NOT harmful falls on those who are supporting their use. So, therefore, in order for the genetically-modified foods to be considered acceptable, it would be the responsibility of an informed, ruling body to determine any risks and make that information available to the public.

After the GMO ban in 2000, some planters were stuck with Roundup Ready® seeds that they had already acquired from Monsanto, and some were anxious to use the product, so they began to smuggle the seeds from Argentina, who at the time was the world’s second largest GMO producer. Argentina began using RR® seeds in 1996, and by 2003 almost 100% of their soy farms produced GM crops. The majority of these illegal crops were brought from Argentina into Brazil’s state of Rio Grande do Sul, located right across the border in the southernmost part of the country. The federal government under President Fernando Henrique Cardoso did not support the court’s ban on GM crops and, therefore, has been accused of “indirectly encouraging the growing of GM soya, [because] it lacked a clear policy on GM crops and failed to adequately monitor crops.” Although Cardoso did not take a strong stance against Monsanto’s seed, the state government took preventative measures, passing laws explicitly banning the cultivation of GMOs. They also tried to take advantage of the European Union’s concern about GM foods, urging farmers to stick with the non-GM crops and protest the relentless push toward GMOs from companies like Monsanto. One pamphlet they published even said that science should be “under public control to benefit life, not under private control to [benefit] profit.”

In the end, the state government was unable to implement these preventative measures, and it is estimated that around six million tons of transgenic soybeans (80% of the region total) were ready to be harvested after the 2003 season. This vast act of piracy had not gone unnoticed on the international soybean market;

corporations and farmers across the globe who were legally growing the RR® soybeans spoke out against the ineffectiveness of Brazil’s government to curb the theft of Monsanto’s intellectual property. So, in March 2003, the federal government under newly elected President Luiz Inácio Lula da Silva, issued Provisional Measure (PM) 113, allowing the commercial use of the illegal crops that had already been grown using pirated seed. Following the publication of this measure in the United States, producers’ concerns continued to escalate: Brazil’s illegal exportation of GM soybeans gave them a distinct competitive advantage over the U.S., who had to pay both high taxes on their goods and royalties to the corporation. This emergency measure did not permit Monsanto to bring more RR® seeds in, but in an effort to save the Rio Grande do Sul farmers from losing millions of dollars of crop that would otherwise be destroyed, the Brazilian government deemed this a “conduct adjustment,” only if the farmers would agree to not plant GMOs again. Monsanto tried to fight back against the Intellectual Property Rights violation by “requiring exporters in Brazil to sign license agreements” in order to export the RR® Soy that had been temporarily allowed in 2003 by issue of Presidential Decree, but since the crops were allegedly being placed back on the “ban list” the following year, such agreements were ignored and the illegal crops were distributed at the government’s command.

At this point, PM 113 had set place very few, weak requirements such as the labeling of products in which GMOs consisted of 1% or more of the total volume. The labeling constraints were never adopted, and the Ministry of Agriculture even admitted that there “were not enough accredited laboratories available to certify GM and non-GM soybeans. President Lula, who passed this measure in 2003, was eager to make some changes regarding biotechnology, feeling pressure from GM corporations such as Monsanto, who were ready to see compensation for the harvesting of their RR® product. In an attempt to make sure the federal courts could not issue another moratorium on GMOs by disregarding all other entities who should be consulted on such an assessment, a new Brazilian Biosafety Law (No 11,105) was passed in March 2005. This law created the National Biosafety Council (CNBS), and re-established CTNBio as a group of 27 members from all facets of



agriculture, from a consumer rights specialist to a representative from the Ministry of Defense. Also, it provided safety norms and inspection mechanisms that all sectors of GM production and trade would be required to follow, including parameters within the construction, storage, research, and marketing sectors.

The most stirring portion of this law is that the responsibility of determining the safety GM products was completely handed to the newly formed CNBS. With this law in place, CTNBio was now allowed to provide the final word regarding the accepted technical opinion of GMOs. They were now in the position to implement much needed policies: monitoring research, authorizing new species of GM plants, and regulating the registration and farming of accepted crops. In Brazil, in order for a law to enter into effect, a regulatory decree must also be signed by the President, much like an Executive Order in the U.S. This decree cannot change the verbiage or provisions of the law, but it can create bureaucratic obstacles that could change the overall effectiveness of the law. Knowing that the Decree was needed, IDEC struck again, and the Federal Public Prosecutor filed a lawsuit in Brazil's Supreme Court called a Direct Action of Unconstitutionality (AIDN), claiming that the law was unconstitutional and, therefore, could be challenged in the highest court of law.

After eight months of rigorous debate among governmental officials, President Lula signed Decree No 5,591, implementing the provisions of Law No 11,105 and allowing CTNBio to finally get on track, regulating the GM trade in Brazil and expanding the use of GM crops throughout the nation. The law required that two-thirds vote was necessary within the CNBS to approve a new biotech agricultural product. Since the anti-GMO presence in Brazil was so fanatical and (even) militant, they were able to gain membership within CTNBio and block the passage of new GM regulations, inciting many scientists to ultimately leave the commission as no progress had been made and there were 500 pending new product requests. So, in 2007, President Lula signed Law No 11,460, changing the previous law, calling for a majority vote within the CNBS, rather than a two-thirds vote.

### III. HOW HAS THE EUROPEAN UNION AGRICULTURAL SECTOR DEVELOPED WITHIN THE CONTEXT OF THIS GMO MOVEMENT?

In 1999, multiple countries in the EU started urging the European Commission (EC) to place a de facto moratorium on any new GMO approvals and in July 2000, EU ministers accepted the proposal, agreeing that no new GMOs would be accepted into the European market until further labeling and tracing methods were researched, tested, and implemented. Europeans have exhibited a growing concern about food health and safety since the late 1990s, prompted by the disturbing emergence of mad cow disease and instances of AIDS-contaminated HIV blood. Today, the EU still has very hard guidelines for GM crops, allowing very few GM foods into the country and almost no cultivation within the borders. The EU's opposition to the GM revolution has been intensified in recent years due to the steady growth of the anti-GMO movement across the continent, supported by the EC's regulatory approach and embedded in a general sense of apprehension. Europeans were susceptible to far-fetched information about GM effects, hearing stories about dangerous additives, unhealthy processing methods, and the risk of cross-contamination between GM crops and GM-free crops, because it was very difficult to contain the two varieties in their designated areas once seeds were cross-pollinated and multiple harvests had been conducted. In order to gain access to the EU soybean market, Monsanto was granted a reportedly vague patent two years before the GM controversy began in Brazil: 1996. This patent encompasses genetically modified plants that have been made resistant to glyphosate, Monsanto's own herbicide, also known as Roundup®. In agreement with the patent, the EC allowed Monsanto to introduce RR® soy into the EU market, but it was not (and to this day, is not) allowed to be cultivated on EU land.

The EC stresses the need to prevent "contamination" within the natural crop harvest, issuing a Commission Recommendation in July 2003 that outlines specific procedures to "ensure the co-existence of genetically modified crops with conventional and organic farming." Although the first point of this document states that no form of agriculture will be excluded from the EU, the reality

is that the guidelines that have been put in place in order for GM growers to gain access into the European market are so stringent that even the most experienced and preeminent corporations cannot break-through in a reasonable amount of time. As Brazil's government grapples with the idea of GMOs, some farmers have expressed their interest in remaining GM-free, seeing this as a way to remain competitive in the EU market is to produce the soybeans that they want to buy. Farmers believe that the price for natural soy will increase as the availability on the international market is contained primarily in Brazil, since it is the last major non-GE soy exporter in the world. As of 2006, the Federation of Rural Workers and Family Farmers in South Brazil (FETRAF-Sul/CUT) committed to selling more than 50,000 metric tons of GM-free soybeans to the European market with the help of the Dutch Soy Coalition. A report published by the EC's Directorate General for Agriculture and Rural Development published a study in 2007 urging the world's major soybean producers to consider the EU's harsh regulations and realize that even if the European Food and Safety Agency (the EU-wide regulatory agency for GM-related issues) gives clearance to a certain food or feed, that does not mean that all Member States have accepted the GMO, as well. In fact, there has never been a majority agreement among Member Nations concerning any GM product.

There have been many studies conducted investigating the EU's weariness of biotech foods, and many scholars have suggested that negative consumer perception lies in a widespread lack of knowledge about the effects of GM crops, causing fear and rejection that will continue to grow as long as the anti-GM movement advertises exaggerated defects in GM cultures and the EC implements different submission hurdles and labeling policies to which biotech companies must conform. In her paper, "Governing GMOs in the EU: A Deviant Case of Environmental Policy-Making?," G. Kristin Rosendal suggests the apparent lack of support is due to the ineffectiveness of "environmental policy in the face of influential corporate interests." She presents four theses to explain the EU's resistance to the biotech industry: a lack of internal unity, limited access to decision making, the strength of counterbalancing forces, and industry interests for protectionist reasons. The GM backlash, she says, has been fueled

by counterbalancing forces within the internal sector, including the work of Environmental NGOs (ENGOS) such as Greenpeace/Friends of the Earth. An interesting element of the public opinion, she claims, is that "people [put] more trust in information from ENGOS compared to industry as well as regulatory authorities." Her conclusion looks to the future of GM policy in the EU, deeming the effect of external activities (such as WTO disputes) as a "dark horse" that will increase opposition to GM foods in the beginning, but in the long run these events will help strengthen the GM movement in countries surrounding and interacting with the EU, hopefully obstructing their harsh policies and facilitating a change in the EC's standards.

Another scholar, Sylvie Bonny, also discusses the influence of NGOs on the anti-GM movement, but rather than focusing on their work within the policy sector, she focuses on their ability to exploit the fear that many Europeans already possess concerning biotech foods by creating media hype and promoting non-GM products in all sectors. In her paper, "Why are most Europeans opposed to GMOs?," Bonny conducts a case study, comparing the anti-GM movement in France to that in the EU as a whole. She focuses on the development of this overwhelmingly negative response, linking the GM conflict to a strong distrust of firms and public authorities as food safety issues were widely publicized and the problems of industrial pollution came to the forefront around the same time that GM products were gaining ground in the international market. She also attributes the negativity to the strong influence of NGOs and other associations that focus only on the risks, representing a segment of the population that began as a small circle of environmentalists, but has evolved into an enormous movement including economic interest groups, human rights activists, and agribusiness firms. By incorporating many different media outlets into their publicity schemes, Bonny claims that this dynamic sector of the public has been able to provide inescapable sources of suspicious information to the public, criticizing the GM movement on all levels and encouraging public support.

In contrast to focusing on the transformation of public opinion with regards to policy support or media exploitation, Joyce Tait "analyzes



the risk-related problems that have arisen over the introduction of GM crops and food products in the context of the adoption of the Precautionary Principle (PP)” in her paper titled “More Faust than Frankenstein.” This standard, established as a guideline at the 1992 United Nations Conference on Environment and Development (UNCED) through the Rio Declaration on Environment and Development, states that in order to protect the environment, each nation needs to interpret the safety of new technologies according to their ability, without disregarding potential damages due to a lack of certainty or scientific evidence. Ironically, in the EU’s circumstance, a precautionary stance was originally taken as an attempt to draw support from the public, avoiding the problems that arose while under a preventive regulatory system. Tait proposes the idea that the PP should have helped to “smooth the path” for new products, acting as a mechanism for confidence as the community could rest assured that through this method, GM foods would go through a stringent admissions process with “effective oversight of the industry’s activities.” She describes the “overall trait trajectory,” attributing the seamless rise of the anti-GM movement to a “perfect timing” sort of event, involving three important actors in the GM market; just as agri-business began arguing against regulation of the industry (in an attempt to gain further access into the market), GM promotional advertisements were attracting public attention and environmental NGOs (and others) were realizing the influence they had on public opinion due to the recent effects of the BSE Crisis (Mad Cow Disease). As Tait suggests, the Precautionary Principle was an important measure effecting the public impression of GM foods in the EU and the grade of confidence consumers had concerning the safety/reliability of testing procedures. In addition to the effect that the PP had on the EU’s public view of GMOs, this strategy of acceptance played a large role in the creation of biosafety policy by the Brazilian government in the late 1990s, which will be illustrated in the following analysis of the EU-Brazil relationship during the GM controversy.

#### IV. WHAT ARE THE OUTCOMES OF BRAZIL-EU INTERACTIONS DURING THIS PERIOD?

After reviewing the evolution of GM agriculture and its social, economic, and political implications within both the EU and Brazil, the soybean-trade relationship between these two countries and how it has transformed since the introduction Monsanto’s RR® Soybean in Brazil will now be considered. Due to a widespread feeling of dissent in the EU concerning the introduction of GM products into their economy, it seems natural for their trade relations with Brazil to go sour after their GM policy is broadened, allowing multiple new products by using their own process of admission and regulation. The EU is Brazil’s largest agricultural export market, but even though it is assumed that Brazil is losing out because it has become a GM-soya producer and the EU is primarily interested in non-GM crops for human consumption, I suggest that Brazil has actually benefitted as an actor on the international market from the change. Since the other major soy producing countries (mainly Argentina and the US) have shifted towards primarily growing and exporting GM soy rather than non-GM soy, Brazil has taken a hold of the non-GM soy market as the only remaining producer. In the EU, therefore, they have a monopoly on the non-GM soy product market, which greatly improves the economic outlook of non-GM soy farmers in Brazil and fortifies their position in the international soy market.

Because of Brazil’s historical background concerning the implementation of GM policy, including a distinctive transitional period, internal controversy, moratoriums, set-backs, and sometimes militant opposition, they saw stunted GM growth from the outset. Unlike the other two largest soybean producers in the world, Brazil’s GM soya acreage as a percentage of their total soya acreage is hovering around 70% and conventional soy crops hold the other 30%. Neither Argentina (99% GM) nor the United States (90% GM) produce a significant non-GM soya crop that could be exported to the EU. Even though the United States is the world’s largest international soybean exporter, when solely looking at the EU’s soybean imports, we can see that they receive a much bigger portion of their soybean products from Brazil, and the difference between the quantity of crops imported has grown

every year since 2002, when United States' participation began to decline (see Figure 1). Another interesting indicator is the fact that even though the quantity of Brazil's exports have not experienced constant, progressive growth, the value of all soy brought into the EU has increased by 50% since 2006. Promoting this positive trade growth, the EU now allows the importation of hybrid-GM soybeans that contain a small percentage of Monsanto's RR<sup>®</sup> product.

This concession increases the amount of soybean product that Brazil exports across the Atlantic and strengthens the EU-Brazil trade partnership, which has become especially important in the face of recent events that have heightened skepticism over importing from countries that mostly produce GM crops. For example, in 2009, EC scientists discovered traces of RR maize<sup>®</sup> residue in several bulk shipments of soy being imported into the EU from the U.S, causing the EC to reject over 180,000 tons of GM soy. This incident could be duplicated in the near future; Argentina currently harvests multiple GM varieties that are not allowed in the EU and are not even in the assessment process. According to the EU's Zero-Tolerance Policy, "any shipment of food or feed must be completely free from even trace amounts of GM crops that have not been approved." Fortunately, Brazil does not currently allow any GM varieties that are not also allowed in the EU (at least in some portion). Because of this connection, the EU will focus their attention on Brazil's agricultural sector since a GM/non-GM mix-up is much less likely to occur. In that regard, Brazil will be poised to take over the EU's import market, boosting Brazil's soybean price and giving them a monopoly on the entire soy sector, both GM and non-GM.

In addition to the possibility of taking over the U.S's importation of soy to the EU because of legal restrictions and bans, Farm Chemicals International published an article in 2006 describing the changes in the EU soybean import market, claiming that U.S. imports had declined (previously confirmed in Figure 1) and the EU was shifting its focus to Brazil. This adjustment, they say, can be attributed to the fact that "Brazilian soybeans generally have a higher protein and oil content, and because European crushers prefer non-GM soybeans." Also, the article indicates that the

Brazilian soybean shipping season lasts longer than in the United States, which they claim is generally competitive only between October-December.

Generally, the relationship between the EU and Brazil as trading partners has been very strong, faltering slightly during the GM controversy. After Brazil's decision to integrate GM soybeans, there was an uproar from the EU community as they struggled to convince Brazil's government to retain a precautionary stance on biotech foods. The EU sought to continue the importation of non-GM soybeans (and other vegetable products) as the European anti-GM faction grew to an overwhelming majority, including both retailers and consumers. In 2005, for example, the British Retail Consortium (BRC) called on Brazilian farmers to "resist further growth of GM planting because it will be enormously difficult to maintain trust in the food chain should Brazil's supply of non-GM soybeans dry up." The BRC implored UK food companies to "place firm orders for non-GM soya for animal feed because they 'feared the availability of non-GM soya products would continue to decrease if they did not express their need for them. In addition to this fear of losing non-GM products in the EU, Brazilian food manufacturers feared that they would lose their partnerships with the European consumer market.

In 2006, the Brazilian Institute for Consumer Protection (IDEC, the same organization that filed a lawsuit against the 1998 Commercial Release of the GM Soybean) published an article titled, "Food Companies Have Adopted Policies Against GMOs." IDEC points out ten different food manufacturers in Brazil who have adopted policies against GM food products "as a way to meet the European consumer market." The article cites a 2005 Greenpeace study on consumer acceptance in the EU, claiming that 90% of all large retailers and 73% of all food and drink manufacturers have a GM-free policy. An important aspect of the publication is a focus on environmental preservation, stating that with conventional soybean planting, a farmer can easily respect the environment around his crops. In the end, César Borges de Souza, the Vice President of Caramuru Alimentos (a grain processor and exporter in Brazil), said that the decision to adopt a non-transgenic policy was a "consequence of European



politics to trace the origin and processing of the product they consume.” These two perspectives on the status of the non-GM soybean market between Brazil-EU are the two central positions of the non-transgenic movement, providing insight and analysis of each side’s reactions.

After discussing the implications of the non-GM movement among separate economic entities in the market, the value of GM soybeans shall be shown in comparison to the average value of GM-free soybeans that are exported to Europe (see Figure 2). It is clear that the EU values non-GM crops much more than GM crops: in 2008, the value of 1,000 KG of non-GM soya was almost € 800; for GM soya it was barely € 400. This data provides a compelling argument for the proliferation of non-GM crops in Brazil. But, I am not suggesting that GM crops should be replaced – they should be supplemented with additional non-GM cropland.

Brazil has an enormous amount of arable land that has not been cultivated yet, and if non-GM producers utilize these resources to expand the non-GM market, the potential economic gains are astonishing. It is estimated that there are between 124-247 million acres of unused land that could be transformed into non-GM soy farms. By looking at Table 1 and Figure 3, we can see that between 1998 and 2009, the area of soybean crop harvested in Brazil climbed from about 30 million acres to almost 55 million acres, as production increased by 2/3. At 55 million acres, Brazil was producing almost 57 million metric tons of soy as a whole (GM and non-GM). Non-GM soy production is estimated to have equaled 14.34% of the total soybean production at that time, so about 8.17 million metric tons of non-GM soy were harvested in 2009. If the Brazilian agricultural sector develops unused arable land and the area of soybean cropland is increased to the conservative value of 100 million acres, then there is the potential for a harvest of 104 million metric tons of soybeans. If non-GM soy rises to just 30% of production, there could be 31+ million metric tons of non-GM soy harvested in Brazil. In this event, EU retailers and soy-processors would be able to provide many more non-GM food items to European consumers, who are still desperately seeking non-GM alternatives. The economic benefits of this non-GM market expansion would have an extensive impact on Brazil’s lucrative soy sector: the country could potentially

become the world-leader in exporting both GM-soy and non-GM soy products.

Through this analysis, I have concluded that non-GM production is still an essential part of the Brazilian economy. Brazil would face harmful economic repercussions if they, as the world’s last large-scale provider of non-GM crops, stopped harvesting conventional (non-GM) soybeans. Brazil’s current success as an international soybean exporter can be attributed to the influence of widespread GM-discontent in the EU on the expansion of the Brazilian agricultural sector. Brazil was in a unique position at the emergence of the GM movement in the late 1990s because they, unlike Argentina and the United States, did not latch on to the GM “bandwagon.” Their current GM production level is nowhere near the levels of other world leaders in the international agricultural market. As Brazilian consumer defense organizations and environmentalists rallied against the harvesting of transgenic soybeans, the European Union urged Brazil’s anti-GM movement to push harder, knowing that if Brazil’s soy crops became 90%+ genetically modified, they would have no market for importing the non-GM soy products that their consumers were demanding. So, with the EU’s support, Brazil has slowly transitioned to an international GM-soy producer while maintaining a large sector of conventional soy crop. Therefore, Brazil is able to trade soy products in two distinct markets, reaping the benefits of both GM and non-GM consumer bases, rather than solely profiting from GM-soy materials.

As a result of my analysis of the trading relationship between the EU and Brazil, I conclude that without the EU’s support of their non-GM soy sector, Brazil would not have been able to reach its current level of soy production. Since GM-soy production in Brazil was stunted early-on, the soy-export market would have been quickly surpassed by other GM-soy providers; the proliferation of non-GM soy farming has secured Brazil’s place in the international market and brought far-reaching economic prosperity.



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