

Monsanto Company: Planting Corn, but Growing Troubles  
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*Introduction*

For the past three decades, native Mexican maize farmers have experienced uncertainty in regards to the future of their agriculture, social interactions, and cultural practices. Mexico imports genetically modified (GM) corn, which depresses native corn prices and sends rural farmers into a state of economic distress. As a result, many farmers are forced to search for migrant work, which greatly alters family dynamics. The other main controversy stems from the recent introduction of GM corn seeds into Mexico's agricultural system. There is substantial evidence demonstrating that the biodiversity of native landraces is at risk when GM seeds are present. In essence, rural Mexican farmers perceive future uncertainties on a very deeply personal and individual level, making this a pertinent topic within the broader discussion of the growing complexities and implications of globalization.

Corn is central to the traditional Mexican diet, and since its earliest times of cultivation, native Mexican agriculture has encountered little disturbance to its routine and methods, albeit some progress in irrigation systems. Nonetheless, recent changes to federal agricultural regulations and crop production methods within Mexico threaten various aspects of the lives of rural farmers and their families. More strikingly, these manifest in ways that have not yet been problems for preceding generations. Smallholders have already experienced adversity due to sizeable importations of GM corn from the United States, but researchers are only beginning to explore and understand how continued GM corn production within Mexico through seed providers like Monsanto Company affects people on an individual level. This paper first unfolds by situating the discussion within existing literature and follows through with supporting evidence and case study analysis.

The complex and interconnected nature of social issues in Mexico cannot be explained independent of each other, nor aggregated into a single problem with a clear solution. Academics and researchers who have studied the effects of transgenic corn both as an import and introduced crop within Mexico have observed cultural, socioeconomic, and environmental implications (Avalos & Graillet, 2013; Fitting, 2006; Lazos Chavero, 2014; Mercer et. al, 2012; Mullaney, 2014; Robin, 2010). There is a general agreement that the root of these intense issues can be traced to the onset of trade liberalization in Mexico (Avalos & Graillet, 2013; Fitting, 2006; Robin, 2010). Processes of globalization, such as decreased international trade barriers, favor transnational seed provider companies like Monsanto, who take advantage of economic opportunities and further diminish those of rural Mexican farmers (Avalos & Graillet, 2013; Carro-Ripalda & Astier, 2014; Fitting, 2006; Robin, 2010). The overarching vision of neoliberalism and transnational connection upholds that “human well-being can be best advanced...through free markets and free trade” (Harvey, 2005, p. 2). Fitting (2006) denounces the benefits of neoliberalism within Mexican corn culture.

Moreover, lack of political representation within Mexico has prevented rural farmers from contributing to the decisions regarding introduction and regulation of genetically modified corn (Carro-Ripalda & Astier, 2014; Fitting, 2006). Debate over reconstruction of the Mexican agricultural system has been a point of controversy for several decades now (Avalos & Graillet, 2013; Carro-Ripalda & Astier, 2014; Mullaney, 2014). Various sources strongly assert that traditional farmers are excluded from the very decisions that affect comprehensive aspects of their lives (Carro-Ripalda & Astier, 2014; Lazos Chavero, 2014). Other researchers acknowledge this phenomenon, but do not attribute the future of GM corn solely to the weak democracy within the Mexican political system (Avalos & Graillet, 2013).

Academics utilize the terms *criollo*, maize, and corn interchangeably in the literature to refer to traditional Mexican corn varieties, while authors designate genetically modified corn as either transgenic, genetically modified (GM), or genetically engineered (GE) (Avalos & Graillet, 2013; Carro-Ripalda & Astier, 2014; Fitting, 2006; Lazos Chavero, 2014; Mercer et. al, 2012; Mullaney, 2014; Robin, 2010). *Milpa* agriculture refers to traditional cornfield work usually with intercropped squash and beans, and *campesinos* or *campesinas* are traditional, rural, peasant, or smallholder Mexican farmers (Carro-Ripalda & Astier, 2014; Fitting, 2006, 2011; Lazos Chavero, 2014; Mullaney, 2014). According to multiple sources, traditional corn, or *criollo*, is an integral part of Mexican diet, culture, and social relations (Carro-Ripalda & Astier, 2014; Lazos Chavero, 2014; Robin, 2010). Any discussions within the literature regarding cultural impacts of trade liberalization first consider economic implications as the central source of the issue, from which all other social impacts radiate (Avalos & Graillet, 2013; Carro-Ripalda & Astier, 2014; Fitting, 2006; Lazos Chavero, 2014; Mercer et. al, 2012; Mullaney, 2014; Robin, 2010).

In order to frame the social issues in question, it is important to understand the role of Monsanto Company, a transnational corporation (TNC) whose influence in Mexico has only worsened the conditions for rural corn farmers. In 1998, Mexico enacted a de facto moratorium on all genetically modified products within its borders, affecting the trajectories of many large TNC's that produce transgenic agricultural products like Monsanto. The government removed this ban in 2009, and soon thereafter, Monsanto initiated experimental GM agriculture in several regions of Mexico.

Given the course of this company's impact on Mexican corn culture, this paper tackles the idea of Monsanto as an international empire that seeks to expand its influence in the global economy. More specifically, this paper contends that this TNC does not take responsibility for

the growing cultural, socioeconomic, and environmental disruptions within Mexico. In order to develop this argument, this paper first examines a brief history of Monsanto Company to establish a background of the TNC in question. Next, this paper provides context for the broader multinational processes that provide the means for these social issues to exist. Further, this paper defends the severity of these disruptions among native farmers through discussion of case study analyses and political misrepresentation within the Mexican government. Lastly, this paper stresses the lack of response from Monsanto Company in regard to these critical and growing problems within Mexico.

### *Overview of Monsanto Company*

According to Monsanto's mission statements and list of commitments, the company is focused on "empowering farmers" and "deliver[ing] sustainable agricultural products" (Monsanto, 2015). However heroic these claims might sound, they only conceal reality. Since its foundation in 1901, the company has been notorious for its corrupt practices and inadequate responses to the problems it creates. As the largest global agricultural provider, Monsanto contracts farmers worldwide to purchase genetically engineered seeds, but in the process, farmers become reliant on the company's herbicide and pesticide products. Recent protestors in Europe, Asia, Australia, and North America have rallied for more transparency in GMO product labeling, only to be met with fierce opposition from both Monsanto and government opposition. These various aspects of control generate intertwined social, political, economic, and environmental effects, yet despite rising disagreement with Monsanto's operations, the company thrives due to the innate irreversibility of and dependence on its products.

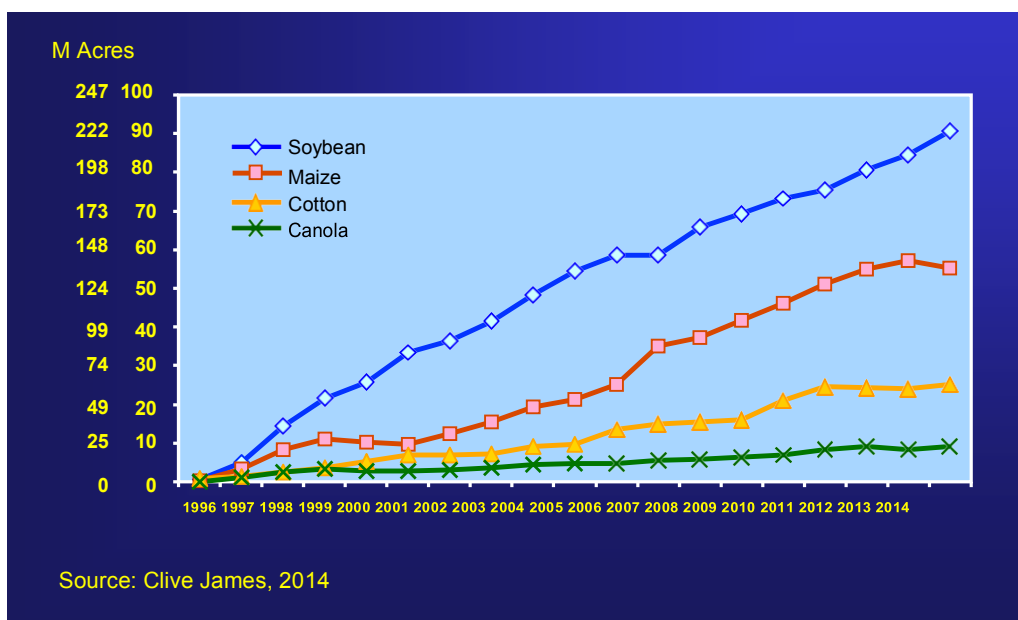
John Francis Queeny originally founded the company as an industrial chemical and drug manufacturer. Monsanto has wreaked havoc on people and landscapes for the duration of its history with products including toxic saccharin for Coca Cola soft drink products, polychlorinated biphenyls later found to be animal carcinogens, and chemical herbicide Agent Orange in the Vietnam War. Experts later found that Monsanto continued providing the carcinogenic defoliate, Agent Orange, to the U.S. government with knowledge of its harmful effects (Hanzai, 2014).

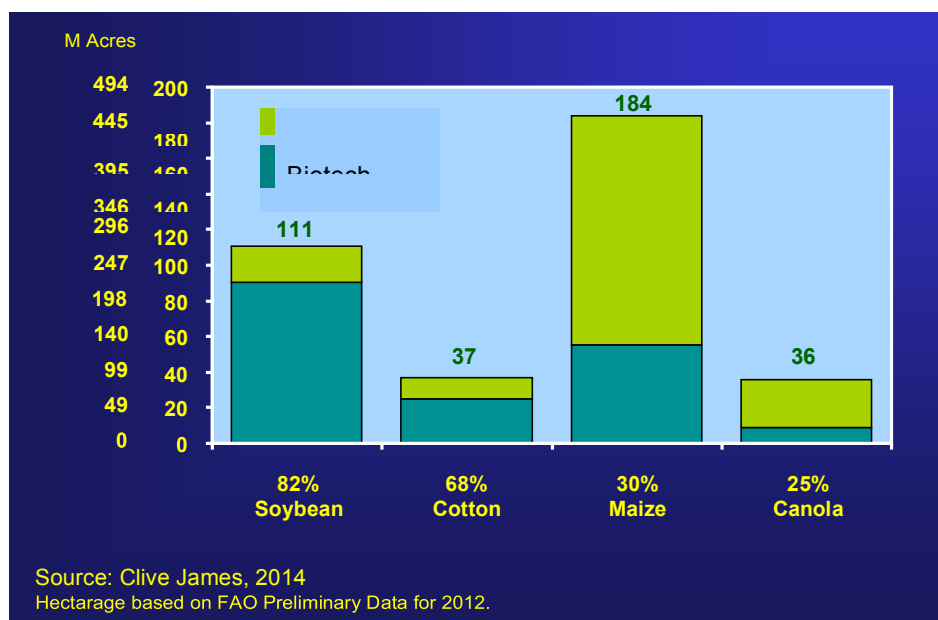
At the individual level, executives within Monsanto Company are guilty of many other unethical practices. According to Greenpeace (2014), ex-corporate workers for Monsanto are currently employed by the Food and Drug Administration, the U.S. government department that determines food safety and health standards. Although not easily proven, the large number of executives coming from within the genetically modified food industry results in a highly self-regulated and biased system in the U.S. (Sharp, 2013). If the company has a history of introducing products that are later found to be harmful to living species and environments, it is a wonder why entire societies and governments welcome the company's latest products into their farm soil and digestive systems.

To provide a sense of Monsanto's widespread agricultural scope, there are 282 million acres worldwide planted with the TNC's patented seeds, amounting to control over 80% of the international genetically modified corn market and 93% of the GM soybean market (Wilson, 2014). This near-monopoly over agricultural production has fueled Monsanto's influence over patent laws and lawsuit outcomes, which usually result in favor of the affluent company (Sharp, 2013). More importantly, though, Monsanto benefits heavily from and relies on economic activity through the North American Free Trade Agreement (NAFTA) between the United

States, Canada, and Mexico. Through NAFTA, subsidized U.S. corn producers using Monsanto’s seeds and crop protection solutions export their products to Mexico, depressing native corn prices and displacing farmers (Avalos & Graillet, 2013; Fitting, 2006; Robin, 2010).

Within Mexico, Monsanto Comercial, Semillas y Agroproductos de C.V. acts as a branch under Monsanto’s U.S. headquarters, and under this company, GM cotton and soybean are grown extensively throughout Mexico (James, 2014). The information in the graph below and on the following page was synthesized by the International Service for the Acquisition of Agri-Biotech Applications (ISAAA) in 2014, with data reported annually. The first graph represents the total global acreage of biotech crops from 1996 to 2014, with maize expanse shown in red. The second graph represents the global adoption rates for the four main biotech crops: soybean, cotton, maize, and canola. According to these statistics, 30% of all global corn production is biotech and the remaining 70% of production is by conventional methods (James, 2014).





### *Issues with Free Trade*

In effect, free trade between the United States, Canada, and Mexico under the North American Free Trade Agreement (NAFTA) constitutes a transnational process deeply affecting farmers at an intensely intimate cultural, social, and even psychological level. Under this agreement, a nation may not restrict any imports to or exports from the other two nations. In addition, a nation cannot impose tariffs, or taxes on imported or exported products. Despite demand for native white corn in Mexico, mass amounts of yellow corn importation from the U.S. amount to a value of \$5,994,000 in 2014 in the form of corn oil, yellow corn seeds, fresh yellow corn, processed yellow corn, snack foods, and breakfast cereals (USDA FAS, 2014). This U.S. dollar value of corn exports to Mexico has been steadily increasing every year since the onset of NAFTA, with no predictions that exports will decline (USDA FAS, 2014).

This globalization of food production and increased transnational food trade affect the broader economies of nations involved, but also closely affect producers, consumers, and those whose business is competed away by foreign imports. Corn producers in the U.S. depend heavily



on free trade as a means of selling their agricultural products to earn profit and survive. In turn, consumers in Mexico are able to purchase GM yellow corn from the U.S. at much cheaper prices than traditional varieties of domestically grown corn. Paradoxically, these reduced prices do not mitigate food insecurity among the native Mexican farmers, as they become unable to sell their maize at prices necessary to feed and support families. After NAFTA was signed in 1994, the price of *criollo* corn fell by 48% (Fitting, 2006). The decreased success of Mexican farmers is directly related to the growing magnitude of transgenic corn importation to Mexico from the U.S.

In 2010 alone, the U.S. exported 7,892,000 metric tons of GM corn to Mexico (U.S. Census Bureau, 2012). There is widespread agreement within the literature that these large imports hinder the socioeconomic opportunities for rural farmers in Mexico (Avalos & Graillet, 2013; Carro- Ripalda & Astier, 2014; Fitting, 2006; Robin, 2010). When the Mexican government allowed for GM corn trial production in areas of northern Mexico, they were enacting policies to increase the quantity of food produced. However, these policies ultimately failed to address food insecurity among rural farmers, who could no longer generate sufficient income in the face of competition from imported U.S. corn (Avalos & Graillet, 2013).

### *Socioeconomic and Cultural Implications*

When farming households are unable to produce enough corn, *campesinos* often migrate to the U.S. in search of work. Growing numbers of migrant workers lead to increasing displacement of Mexican families. Fitting (2011) reports that the town of San José in the central region, Puebla, was previously not a “migrant-sending area;” however, in recent years this area has seen a majority of its workingmen from adolescence to late thirties leave the country in search of work. Farmers in San José cultivate both irrigated and rain-fed corn, but the practices

are dying. Children grow up without fathers at home to teach them the ways of *criollo* production, and wives spend their married life without husbands (Fitting, 2011). The disruption of family life in San José is common throughout Mexico and exemplifies one of the many social consequences of globalization. These processes interrupt normalcy at a very personal and intimate level.

Moreover, researchers recognize that *criollo* seeds serve an even more powerful role in the dynamics of Mexican communities, as farmers tend to exchange seeds annually with their neighbors (Carro-Ripalda & Astier, 2014; Mullaney, 2014). Each harvest, *criollo* farmers select the best of the seeds for planting the following season. In a much different manner, transgenic corn seeds must be purchased seasonally, as their stalks do not yield viable seeds for the next planting season. Mullaney (2014) argues that the replacement of *criollo* seeds with hybrid seeds would “effectively dispossess farmers of sovereignty...” Control over maize production is central to the independence of rural farmers in the work they do. Carro-Ripalda and Astier (2014) report that native farmers fear losing autonomy in an agricultural system that would make them forever dependent on seed suppliers like Monsanto.

### *Case Study Analyses*

Not only is the sovereignty of the *criollo* farmer at stake, but these changes also deeply threaten the individual identities of these people. In a case study in the Pátzcuaro Lake Area of Central Mexico, researchers Carro-Ripalda and Astier (2014) analyzed rural farmer perspectives on GM corn and inquired about their visions for the future of Mexico’s rural areas. In the map on the following page from the One World-Nations Online database (2014), the town of Pátzcuaro is located about 60 km to the southwest of the city of Morelia in central Mexico.

Conversations from the case study encompass various factors affected by the introduction of GM corn production in Mexico, including political misrepresentation. One *campesina* interviewed expressed the lack of democracy within the Mexican policy-making system, leading farmers to be treated as “objects, not subjects” (Carro-Ripalda & Astier, 2014, p. 659). Farmers are not considered legitimate sources of information to make valid economic or agricultural decisions, severely impacting the extent to which Mexico functions as a so-called ‘democracy.’

One *campesino* in Pátzcuaro raised a very simple, yet meaningful argument: “Why should we want GM maize seeds, if we know how to select and grow our own seeds?” Selecting and trading *criollo* seeds amongst farmers is both a craft and experimental practice that is developed over a farmer’s lifetime. *Campesinos* demand a “meaningful and rightful space,” but they fear this will not be possible when large seed companies overtake their rural agriculture (Carro-Ripalda & Astier, 2014). The introduction of GM seeds into the Mexican maize production system would not only homogenize the crops, but also the future of their skill and practice.



In a cultural case study in the Amecameca Valley of Mexico’s Central Highland Region, researcher Mullaney (2014) frequented municipal street markets, *tianguis* twice per week. In the map to the left (One World- Nations Online, 2014), the town of Amecameca is

located about 60 km to the southeast of the nation’s capital, Mexico City. Mullaney had several interactions with the local men and women who sold their goods and made purchases at the

*tianguis*. One *campesina* specifically listed her perceived advantages of growing criollo over GM corn: *criollo* grows better in the high-altitude valley often prone to frost; *criollo* maintains a better resistance over long periods of time to local pests; transgenic maize is unsuitable for native culinary dishes; *criollo* stalks are more tender and farmers can feed them to livestock such as cows, horses, and mules; transgenic corn is tough and requires machinery to de-husk and de-grain. Evidently, *criollo* remains an important crop in the lives of farmers because of the methods by which they are able to harvest. Farmers can work with *criollo* by hand the same way that it has been cultivated for centuries. This timeless practice has always been a source of consistency in rural lives, but current threats cause farmers to fear the extent to which their descendants can continue this livelihood.

#### *Political Misrepresentation*

For the past three decades, the introduction of genetically modified corn seeds for production within Mexico has been a point of contention among Mexico's federal agencies and members of the scientific community. Quite ironically, this renovation of Mexico's agricultural system has failed to include smaller-scale corn producers in the decision-making process (Avalos & Graillet, 2013; Carro-Ripalda & Astier, 2014; Lazos Chavero, 2014). Mullaney (2014) contends that the Mexican government is unable to truly understand the methods and personal livelihoods of the people of Mexico. Carro-Ripalda and Astier (2014, p. 657) argue that farmers are not directly represented because their opinions are "presupposed." Mexican lawmakers simply assume that farmers do not have adequate scientific expertise and that farmers will comply with the main two plans for the agricultural sector. The first component reduces the land area used for corn production by implementing GM seeds to grow larger ears of yellow corn.

The second component involves farmers producing more goods for which Mexico has the competitive advantage (Avalos & Graillet, 2013). However economically ideal these long-term plans may be, lawmakers misunderstand the fundamental purpose of rural farming in native identity and culture.

Other non-farmers within Mexico view smallholders' traditions and lifestyles as hindrances to the modernization and progression of the country as a whole (Carro-Ripalda & Astier, 2014). These perspectives are toxic to the preservation of culture and social well-being of native farmers. As a 'developing nation,' it seems the country associates tradition with economic immobility. Narrow views of how development must proceed only fuel the neoliberal vision of Mexico's agricultural future as one characterized by large, industrialized GM corn production, similar to that of the U.S. (Avalos & Graillet, 2013). Carro-Ripalda & Astier (2014, p. 658) report that typecasts within the country portray smallholders as "passive, timeless, and voiceless," but it is truly the timelessness of their work with which they identify and continue to embrace.

Within urban areas, it can be easy to view rural communities as distant and unrelated to the economic progression of the nation. This ignorance affects the extent to which lawmakers include the well-being of *campesinos* in their decisions. The volatility of farmers is widely ignored, and there is a very apparent gap between urban and rural people, resulting in a clear 'us' and 'them' delineation. The Mexican government falsely believes the benefits of globalization will simply trickle down to the rural farmers, but this has not proven to be an effective strategy since introduction to the trade with Canada and the U.S. in the mid-1990s. Agricultural supply companies like Monsanto are far removed from the effects of these globalization processes, but are those who benefit most from widespread GM corn production in Mexico.

*Monsanto as an Empire*

Although Monsanto's influence in Mexico has effortlessly been enabled by free trade under NAFTA, the company had to assert much more dominance in order to maintain its position as a GM corn producer within Mexico. Essentially, Monsanto has achieved such influence by exhibiting qualities and using tactics similar to those of an empire. In accordance with the ideas presented by Domosh (2004, p. 455), Monsanto enacts a form of modern imperialism through "commercial expansion." The imperialism in this case is in the form of dissolving global boundaries, while GM corn production in Mexico perfectly fits with the definition of commercial expansion. The similarity of Monsanto's methods and those of an empire cannot be technically quantified, but their actions appear to have parallel goals. Monsanto spreads their sites of production and seemingly believes they can 'civilize' people in developing countries and provide modern agricultural methods to people who previously did not have adequate means by the TNCs standards (Domosh, 2004, p. 457-458).

In Monsanto's 2012 Sustainability Report, the company claimed to "preserve and protect diversity in the face of demand" and "put a stronger emphasis on helping people prosper" (Monsanto Company, 2013). These compassionate goals carry benevolent connotations, but the reality of Monsanto's forceful actions in Mexico reveal quite the polar opposite. According to Robin (2010) and Brandt (2014), researchers from the University of California at Berkeley published an article in *Nature* journal in 2001 to report findings of Monsanto's transgenic corn DNA in native *criollo* in Oaxaca, Mexico. A 2002 study in *Science* journal expanded upon these reports and found that cross-pollination of GM corn with local varieties results in unpredictable, negative effects on maize biodiversity. In response to these studies, self-proclaimed 'scientists' on an online forum, AgBio, contributed caustic blog posts claiming the *Science* and *Nature*

researchers were biased “eco-radicals” who failed to contribute reliable data to the scientific community. After further investigation of the names and email accounts of the attackers, bloggers were eventually traced back to U.S. Monsanto Co. headquarters in St. Louis, MO (Robin, 2010). The same company that pledges “integrity,” “transparency,” and “respect” (Monsanto Company, 2013) attempted to anonymously berate scientific findings that the company feared would harm its reputation. These sneaky and unprofessional tactics further contributed to the sheer dishonesty of the company. Instead of admitting to the fault in their methods, Monsanto denied all responsibility for the initial contamination in Oaxaca, as well as all subsequent genetic pollution in other regions of Mexico (Robin, 2010).

In similar character, Monsanto fiercely opposed the 2014 court ruling against GM corn production within Mexico (Mullaney, 2014; Rowlands, 2014). Through collective civil action, a group of fifty-three scientists and twenty-two community organizations joined together under the name *Acción Colectiva*, or Collective Action. Several other groups of farmers and environmentalists spread awareness and really began to mobilize the movement against GM crops in late 2012 (Mullaney, 2014). In 2013, *Acción Colectiva* brought a case against GM corn producers in order to “protect the historical and ecologically important native maize varieties” (Rowlands, 2014). Judge Verdugo J. ruled in favor of the group for a temporary suspension of GM corn permits to several TNCs, including Monsanto, who later requested that the next consideration for renewal of GM corn permits proceed under a different federal judge (Rowlands, 2014). Monsanto clearly still intends to operate in Mexico in the future, and demonstrated discontent with the halt of its “neoliberal corn regime” (Fitting, 2006, p. 23). This economic philosophy involves less government regulation and more involvement in market decisions by private entities like Monsanto.

Even in the face of a threatened culture, Monsanto has not shown any sign of weakening its influence in the Mexican agriculture system. Since the original findings of genetic contamination of native *criollo* in 2000, Monsanto has done nothing to mitigate the effects of contamination (Robin, 2010). The company is aware that contamination benefits their operations in the long run, as farmers are left with no choice but to purchase transgenic corn seeds when their fields yield corn appearing “sick and deformed” (Robin, 2010, p. 254). Farmers who plant Monsanto’s GM seeds must use the company’s crop protection chemical solutions as well, and this cycle is much too lucrative for Monsanto to forfeit.

### *Moving Forward*

In order to completely eliminate all risk of genetic contamination of native *criollo* varieties, Monsanto would have to halt sales of GM corn seeds to Mexico. Thus far, the empire has either failed to comprehend the harmful impacts on individuals, or its executives are desensitized to the severity of their lethal practices. Since a large number of the interconnected social issues within Mexico developed after trade liberalization under NAFTA, it would be plausible to propose some limitations on this agreement. If U.S. farmers using Monsanto’s GM corn seeds could only export a certain quota each year, Mexico could effectively limit the TNCs control over the nation’s food supply. Ideally this would improve the economic outlook for native farmers and help to raise *criollo* prices to profitable levels.

These interrelated agricultural, socioeconomic, and cultural problems are not severe simply because they are widespread, but rather because they affect individuals deeply in many facets of their lives. Researchers Carro-Ripalda and Astier acknowledge “we cannot even begin to convey the complexity of experiences, relations, and reasons that bind people to maize...” (2014, p. 660). Despite the breadth of research involved among academics and various



disciplines to which this paper refers, it is impossible wholly empathize with the personal troubles of native farmers. The nature of these struggles is both experiential and long-term, spanning into both the past and future. In reality, these are aspects on which academic research can only shed light, not reveal entirely.

### *Concluding Thoughts*

As for the oscillating and very pressing issue of GM corn production within Mexico, this paper details the lack of inclusive democracy within Mexico, disrupted community relationships, and ultimately uncertainty for the future moral and cultural identity for people strongly bound to maize in all aspects of life. It is first crucial to understand the basic economic disability that arises for rural Mexican farmers as a result of trade liberalization. This issue frames the subsequent changes in family dynamics, food security, and overall socioeconomic well-being. Synthesis of ethnographic fieldwork in rural communities helps to provide a deeper significance of maize seeds, plants, *milpas*, and agricultural practices. An overview of Monsanto's history within Mexico and role in free trade allows for a conclusion of this TNCs negative impact on a delicate and unique group of people. This TNC contributes neither to maintenance of the cultural and socioeconomic well-being of Mexican *criollo* farmers nor to protection of native landrace biodiversity. Executive decision makers within Monsanto have overlooked the importance of individual lives affected by the expanse of their economic activities.

There is little hope for the disposition of this group of threatened farmers unless large GM seed providers like Monsanto surrender endeavors in Mexico and leave these individuals to recover their traditional practices, markets, and socioeconomic security. Yet, this unrepresented group recently mobilized their fear and frustration to fight against the very policies that suppress their lifestyles as farmers. With uncertainty of how to continue native farming practices

alongside Monsanto's expansion, *campesinos* united and protested the TNC and the government. Because this movement resulted in a temporary removal of all GM corn permits in early 2014, it created tangible hope. Although Monsanto's expense of corn seeds is great, the power and resistance of native farmers is far superior.

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