

Fitting

Food and Place

A Critical Exploration

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CHAPTER 4

Genetically Modified Crops and the Remaking of Latin America's Food Landscape

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Textbox 4.1. Learning Objectives

- Learn about the role of GM crops in the global “food regime.”
- Critically evaluate the use of GM crops in Latin America.
- Understand the concept of food regime and food sovereignty.
- Articulate a few of the ways that context and place shape the adoption of, and resistance to, GM crops.

GMOs are a central part of the new global food system. As a concept concerned with scale and political economy, the **food regime** provides a window onto **capitalism** and helps us understand both how biotech crops contribute to the uneven remaking of place, and how place also shapes the adoption and understanding of agricultural biotechnology. Genetically engineered or biotech crops were first commercialized in 1996 and grown on 1.7 million hectares.

By 2016, cultivation had reached 185.1 million hectares (James 2016). The United States remains the country that grows the most biotech crops today, followed by Brazil, Argentina, Canada, and India. In the Global South, Latin America is the region with the largest area devoted to biotech crops (James 2016). The cultivation of biotech crops has transformed agricultural practices and agrarian relations in those countries where it has been widely adopted. However, associated regulations and trade of GMOs have also influenced regions where they are not commercially grown on a large scale.

As is the case with all technology, in order to understand its impact, we need to understand context—the cultural, political, and economic contexts—in which GM crops are introduced, accommodated, adopted, or rejected. This chapter briefly discusses three cases from Latin America—Argentina, Mexico, and Colombia—in order to illustrate a few of the ways such crops have transformed these regions and to show how **place** influences if, and how, GM crops are adopted.

international levels, which accommodate this technology (Pechlaner and Otero 2008). Neoliberal agricultural and trade policies have facilitated the rise of GM agriculture, and this has involved market concentration in the food system, notably among seed corporations. Three corporations, Monsanto, DuPont Pioneer, and Syngenta, control more than half of the world's commercial seed market, and the top ten corporations control over three-quarters (ETC Group 2013, 4). Yet despite this market concentration, many of the world's small-scale farmers do not rely on the corporate seed industry but rather save, use, and improve local or "traditional" varieties of seed (ETC Group 2013).

Agricultural biotechnology has the potential to aid small-scale, subsistence agriculture in diverse environments, and numerous plant breeders and institutions work on projects targeting smallholder farmers in the Global South. However, critics worry that corporate interests have too much influence over the research agenda of crop science. While scientific plant breeding in North America and Europe was first developed in public institutions, agricultural biotechnology has been led by industry from its early development (Kenney 1986).

Debates over GMOs are often presented in the media as starkly polarized, but it is important to remember that supporters and critics may have more complicated and nuanced positions on the topic—for instance, in opposition to (or support of) a *particular* type of GM crop, like transgenic corn or herbicide-resistant soy. Similarly, the benefits and problems of GMOs are unevenly experienced and distributed. Finally, it is worth remembering that the category of GMO captures different types of varieties from herbicide-tolerant (Ht) varieties, pest-resistant (Bt) varieties, stacked varieties (which are both herbicide-tolerant and pest-resistant), or those with other characteristics such as added nutritional content (e.g., "golden rice" with vitamin A).

Supporters and advocates of biotechnology argue that GMOs provide an important tool for increasing food production and the nutritional content of crops, particularly as our climate changes and the world population increases. Bt seed varieties were developed in the 1990s and seen to increase crop yields; however, there is debate about whether yield increases in Bt corn and soy are the result of GM technology or conventional plant breeding (Gurian-Sherman 2009). Herbicide-resistant crops are promoted as environmentally friendly because they require, at least initially, less agrochemicals than conventional crops. They are also promoted as a more-efficient use of labor and inputs, because they can lower the labor required, as in the case of soy, discussed below.

Resistance to GMOs: Places and Networks

The neoliberal food regime has not only involved the growth of transnational agribusiness and food conglomerates, but also transnational **networks of resistance** and social movements as well (see also chapter 3 for examples related to global meat networks). In Western Europe, early campaigns against GMOs were quite effective in mobilizing consumers around issues of food safety, ideas about preserving rural society, and ethical concerns about genetic engineering as "playing God" or defiling the natural boundaries between species (Schurman 2003, 9–10).

In the Global South, **resistance** to this technology focuses on the effects of GMOs on the environment and small-scale farmers' livelihoods, as well as the interconnected issues of property rights and biopiracy—or the appropriation of traditional knowledge and biological resources (Schurman 2003, 10–11). These issues have increasingly been adopted among activist networks spanning the Global South and North. An important actor in this movement is the peasant rights group La Via Campesina, which was founded in 1993 and works to promote **food sovereignty**, or “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems” (2007).

Textbox 4.3. Food Sovereignty

Since its founding in 1993, Via Campesina has grown to 164 member organizations in 73 countries in the Global North and South. In its 2007 Declaration of Nyéléni, the organization defined food sovereignty as:

the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. [...] It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal-fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations.

The idea of food sovereignty and the global networks of resistance in which it is embedded have been influential in Latin America, where anti-GM activists express concerns heard in other parts of the world, yet also highlight ones specific to their region. Activists portray GMOs—or particular GM crops, such as transgenic corn or soy—as a symbol of contemporary imperialism or neoliberal capitalism. In contrast, “traditional” and creolized varieties (which together are often referred to as *criollos* in Spanish) represent the food sovereignty of the community, country, and region. In Mesoamerican countries—the center of biodiversity, and where maize originated—biotech corn has been the focus of anti-GM activism. The notable case is Mexico, where an anti-GM network and movement formed around the controversial finding of GM corn growing in traditional cornfields, despite the fact that the testing and commercial cultivation of GM corn was prohibited at the time. The commercial cultivation of GM corn in Mexico remains prohibited today except in authorized test plots. Maize is also the focus of anti-GM campaigns in Colombia, where indigenous groups are resisting GMOs by establishing “territories free of transgenics.”

In the next sections, we turn to three Latin American case studies to illustrate why the history of place and the symbolic meaning of traditional varieties and particular food crops connected to place are central to understanding the acceptance or rejection of GMOs.

Case 1: The Soy Boom in Argentina

Why and how did GM soy take off in Argentina? The cultivation of (non-GM) soybeans was introduced in the agricultural Pampa region of Argentina in the 1970s. The area devoted to monocrop soy fields grew steadily in the following two decades, supplanting the production of corn, sorghum, and livestock (Teubal 2008, 192–94). Soy is often used as animal feed, and the expansion of soy in the Americas is a consequence of the increased global consumption of meat (see chapter 3) for which Argentina, Brazil, and Paraguay have become important suppliers. In the 1990s, government policies supported agribusiness and encouraged the expansion of export-oriented soy production and the use of GM crops, both as export cash crops and as feed for the growing Argentinean meat industry (Newell 2009).

In 1996, Monsanto's herbicide-resistant Roundup Ready (RR) soybean was introduced. RR is resistant to the company's brand of the herbicide glyphosate. By 2012, GM soy was grown on 18.9 million hectares, and annual use of glyphosate reached 200 million liters (Leguizamón 2014, 152; Lapegna 2016, 518). This boom transformed the agricultural landscape in Argentina, and has had an impact across the border: GM seed was smuggled into neighboring countries, including Paraguay and Brazil, where it was illegal to grow until 2004 and 2005, respectively. A decade later, Brazil and Paraguay had become the second- and sixth-largest producers of soy in the world (Ezquerro-Cañete 2016; Motta 2016).

In the 1990s, President Carlos Menem implemented economic liberalization policies which affected the agricultural sector, and pegged the Argentine peso to the US dollar. The cheap US dollar, weak regulations on GM seed, and no import taxes on agricultural products acted as incentives for growing GM soybeans (Leguizamón 2014, 150). The seed sector was also reorganized in a way that favored private-sector seed research and facilitated the concentration of the seed market (Newell 2009).

Farmers took up GM soy because it was the least expensive and most profitable crop to plant; the price of glyphosate was lower than other herbicides, RR seed was inexpensive, and the no-tillage method reduced labor and fuel costs. The main benefit of RR soy is that it simplifies agricultural production, as it can be sown without plowing the land. The glyphosate eliminates the weeds but not the RR plants (Lapegna 2016, 518).

The social and economic benefits of the soy boom have been unequally distributed and experienced. While large farmers and agribusiness saw their profit margins expand, along with their political and economic influence, other Argentines benefited from the boom both directly and indirectly, such as medium-size farmers who rented out their land, or the recipients of social programs paid for with the tax revenue on exports. Indeed, the economic growth and profit generated by soy exports is heralded

as a successful development model for the Global South. Researchers have rightly asked, however, at what cost is this economic success to the environment, smaller-scale farmers, and public health? (Leguizamón 2014; also Lapegna 2016 and Teubal 2008). Those sectors of society that did not benefit from the boom yet bore the brunt of social, economic, and environmental problems include small-scale farmers and peasants, rural workers, and indigenous communities.

The shift to agriculture for export rather than the production of basic foodstuffs for domestic consumption undermined Argentina's position as one of the twentieth century's "breadbaskets"—that is, a country that was self-sufficient in food, and a supplier of food to the world economy (Teubal 2008, 191). Specifically, the soy boom helped to consolidate agribusiness and contributed to the disappearance of small- and medium-size farms. Soy farming is largely undertaken by agribusiness via "sowing pools," which involve capital from investors and a team of managers who are in charge of renting land, labor, and machinery (Leguizamón 2014, 153). As the scale of farms expands and the number of farms declines, there are fewer agricultural employment and livelihood opportunities available—what some have referred to as "farming without farmers" (see Teubal 2008, 207).

The shift to soy also generated interest in land and rising land values, exacerbating social tensions and violence against indigenous farmers and *campesinos* (peasants). For a decade, violent confrontations over natural resources have erupted as transnational and national corporations (interested in agribusiness, and mining and drilling for oil) clash with the local residents, *campesinos*, and indigenous peoples (Lapegna 2013, 2016).

The boom has also had environmental repercussions. The clearing of rain forests in several northern provinces, which had begun prior to the soy boom, accelerated with the cultivation of large-scale monocrop GM soy. In the Chaco region, deforestation also entailed a loss of access to the forest as a means of subsistence for residents. Another deleterious effect of the soy boom has been the rise in agrochemical use and public health concerns about herbicides drifting onto people's farms, residences, and water supplies. Although initially adopted by farmers in part because of the reduction in agrochemicals required for planting, over time the growing tolerance of weeds to the herbicide and the continuous cultivation of soybeans (without crop rotation) necessitated an increase in the amount and type of chemicals applied. One of the successes of anti-GM activism in the country is the attention now given to the issue of agrochemicals and their impact on human health and the environment (Leguizamón 2016).

Environmental, *campesino*, and women's groups, as well as concerned citizens, have organized around the expansion of GM soy agriculture as part of a critique of neoliberalism and the health effects of agrochemical drifts (Ibid.). However, despite gaining momentum in recent years, anti-GM activism in Argentina has not had the same widespread support or resonance it has had in places like Mexico—at least, not yet. Why would this be the case? Some have suggested that the funding of much-needed social programs through taxation of soy production has contributed to the acceptance of the negative impacts of the boom (Lapegna 2016). Following an economic crisis, the government redirected policies toward "export-oriented populism" in the 2000s (Richardson 2009, in Lapegna 2016). Taxes were established on agricultural exports, and the government used the revenue on GM soy exports to garner

support for their social programs in urban areas. Such taxes were met with protests by the medium to large landowners and agribusinesses that grow soy. These growers, along with the media, promoted the idea that "what is good for agribusiness is good for the country." Medium and large growers portrayed themselves as representative of the countryside, minimizing the role of *campesinos* and indigenous smallholders in national agriculture, along with their concerns about GM soy's environmental and social impact (Lapegna 2016, 522). In other words, the concerns of small indigenous and *campesino* groups, and anti-GM activists, did not make it into the public debates about the soy boom at that time.

In contrast to Argentina, Mexico has been the site of sustained anti-GM activism which has resonated beyond indigenous, *campesino*, and environmental groups. This is so for many reasons, including the cultural significance of maize, and the fact that GMOs do not undergird export-oriented populism, as is the case in Argentina.

Case 2: Anti-GM Activism in Mexico: In Defense of Maize

Without corn there is no country (Sin maíz, no hay país).

—Slogan from Mexican anti-GM network, In Defense of Maize

When evidence of GM corn growing among traditional cornfields was found in the highlands of Oaxaca in 2001, a controversy erupted about the import of GM corn and its environmental, and then later, its social and economic, consequences. Although there was a de facto moratorium on the scientific field-testing of GM corn at the time, and growing it was prohibited, the country imported GM corn from the United States for use as animal feed, grain for tortillas, and in industrial processing. Small-scale Mexican cultivators likely encountered these imports in regional markets. Under NAFTA, Mexican imports of US corn dramatically increased, and imports now surpass ten million metric tons per year. It is a bitter irony of the neoliberal food regime that countries of the Global South, like Mexico, import basic foods that they themselves have historically produced, and in this case, such a culturally significant one.

In response to the controversy, an anti-GM campaign and network, In Defense of Maize, emerged and expanded, drawing together over three hundred environmental, food activist, independent peasant, and indigenous rights organizations, most of which are Mexican. Numerous academics, researchers, and scientists are also involved in the network. Two transnational organizations with offices in Mexico City—Greenpeace Mexico, and the Action Group on the Environment, Technology, and Concentration (ETC Group), important participants and founding members of the network—had been voicing concerns about GM corn imports in the years just prior to the controversy.

In 2002, in response to the controversy, some government officials and advocates of GM corn suggested that the flow between GM corn and *criollos* would help im-

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prove the performance of the latter. Yet, as one maize scientist explained: "Promoters of biotech say how wonderful it is that Bt corn was found in Oaxaca because it's going to help peasants. But this is incorrect because in Mexico we don't have the pests that Bt was designed to attack" (Interview, Dr. José Antonio Serratos, January 28, 2002). Interviews conducted with scientists involved in the In Defense of Maize network indicate that they were not against agricultural biotechnology per se, but rather against the testing and cultivation of transgenic corn in Mexico. According to these scientists, GM corn, including the Bt variety, is not suited to this particular place.

Activists emphasize the cultural importance of traditional maize, and in doing so, highlight the specificity of place. Biotech crops like cotton have been grown in Mexico without the same degree of public attention or concern that has been given to maize. Since 2012, however, GM soy has generated concern for Mayan honey producers in the Yucatán because GM pollen was found in honey samples destined for export. A district judge overturned Monsanto's permit to grow GM soy in 2014.

Maize is the main crop grown throughout the country, the cornerstone of rural livelihoods, a key ingredient of culinary traditions and the national diet, and a pow-

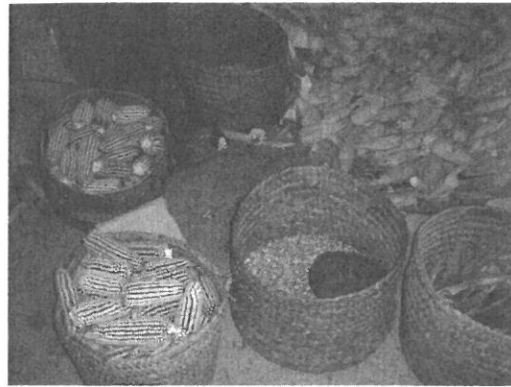


Figure 4.1. Corn is life

Corn is a powerful symbol of rural livelihoods and indigenous culture. Although many varieties have historically been grown, they are now being threatened by commercial agriculture. Source: Author.

in various places in Latin America, such as Mexico, Guatemala, and Colombia, this is not the case with soy in Argentina.

Although yellow corn, which tends to be imported or grown in the north, is used as animal feed or to make industrial tortillas in Mexico, traditional varieties of white, blue, and red maize are preferred for taste and texture in rural communities, smaller towns, and among urban foodies; these varieties are grown by *campesinos* and indigenous producers for food. Cultivated on some eight million hectares, most maize agriculture is rain-fed and involves nonindustrial farming (Turrent Fernández, Wise, and Garvey 2012, 7). Maize is considered hardier than other cash crops in the valley, no doubt because *criollos* tend to be well adapted to local conditions and environments. In some regions, it is less expensive for farmers to buy imported corn than it is

erful and longtime symbol of the Mexican nation (see figure 4.1). At times, maize invokes elements of shared culture across different scales of place, ranging from the small rural community or region to the nation-state, but also beyond the borders of Mexico to indigenous and rural Latin America. For example, while indigenous *campesinos* of the Tehuacán Valley in Mexico may refer to themselves as the "people of maize," so too might urban-based maize consumers, and some farmers, seed activists, and indigenous groups elsewhere, such as the Zenú, in Colombia. While there is place-based cultural attachment to maize

to grow *criollos*. With multiple, flexible uses, maize provides a social safety net because it can be eaten by the farmer's family in the form of tortillas or other foods, or sold, albeit possibly at a loss.

An elderly *campesino* who had traveled quite a distance to attend the first In Defense of Maize forum in 2002, organized in the aftermath of the GM corn scandal, explained the importance of maize for him and his community: "I am too old to do any other work [other than maize farming] and what will I leave my children and their children? Maize is life for us" (Campesino interview, January 24, 2002). Similarly, when I asked residents of Tehuacán Valley why they grew corn even when it is not profitable, they explained that "There is no work here [for us older folk] except in the fields." Younger residents in their teens and twenties migrate to the north or across the border to the United States for work (Fitting 2011). Additionally, residents noted their preference for the taste of *criollo* white maize for tortillas.

At that first 2002 forum, an activist from the National Support Center for Indigenous Missions (CENAMI)¹ also spoke, explaining how the government views small-scale corn producers: "[T]he government perspective is: We don't need peasants, nor do we need indigenous communities. We need people that can work in the *maquiladoras* [factories]."

Maize represents numerous struggles that Mexico—particularly rural Mexico—faces under a neoliberal food regime. By linking GM corn imports, regulation, and cultivation to neoliberal policies that undermine the livelihood of small-scale farmers, such as trade liberalization, cuts to rural subsidies, the commercialization of the seed, and a lack of political transparency, In Defense of Maize creates and extends connections between environmentalists, anti-neoliberal activists, peasant and indigenous groups, and concerned scientists and academics both within and across national borders (Fitting 2014). These connections are centered around place and the symbolic role of maize in rural livelihoods and indigenous cultures.

Starting in 2009, the government has permitted experimental plots of GM corn to be planted. Since then, Monsanto, Dow Chemical, and DuPont's Pioneer have applied to enlarge their small experimental plots of transgenic corn with the goal of planting the first commercial plots in northern Mexico (Reuters, September 19, 2011). Following these applications to plant 1.4 million hectares in Sinaloa and over 1 million hectares in Tamaulipas, Mexican activists and their international supporters intensified their efforts to garner support for a government rejection of these corporate applications to grow transgenic corn (GRAIN 2012, 3). The National Union of Autonomous Peasant Organizations (UNORCA) held a sit-in and hunger strike at Mexico City's Angel of Independence monument in January 2013, and thousands joined the anti-GM protests in January and May. Farmers' organizations from Oaxaca named 2013 "the year of resistance to transgenic maize." That same year in Colombia, transgenic crops and the protection of traditional seed varieties began to receive considerable media and public attention.

1. CENAMI is a nonprofit based in Mexico City that works to support indigenous pastors and churches in various regions of the country. Beyond this, their mission includes supporting indigenous projects to defend and promote indigenous culture, territory, and rights (see www.cenami.org).

Case 3: Seed Regulations and Activism in Colombia

Colombia, especially in the Caribbean, is an important center of biological diversity for maize and other plants, where an enormous diversity of maize races and *criollos* exist, the fruit of the collective labour of thousands of generations of agriculturalists, who have developed these varieties adapted to different regions and cultural, socio-economic and agricultural conditions. [...] For the indigenous communities of the Zenú, maize is a fundamental element, a support of our culture, our productive systems and the food sovereignty of our people.

—Excerpt from the *Zenú Declaration of their Territory as Transgenic Free*, Resguardo indígena Zenú Córdoba y Sucre, Colombia (October 7, 2005; my translation)

Colombia is one of eighteen countries in the world growing more than 50,000 hectares of transgenic crops, primarily maize and cotton (James 2016, 4). Beyond activist circles and some indigenous communities, there was little public debate weighing the benefits and risks of genetically engineered crops up until 2013, when a national agrarian strike and a documentary about a recent law regulating seeds used in Colombian agriculture brought the issue to the fore.

In 2005, San Andrés de Sotavento, in the northern departments of Córdoba and Sucre in Colombia, was the first indigenous community, or *resguardo*, to declare itself a transgenic-free territory (TFT). This Zenú territory is also home to the Caribbean Agroecology Network (Red Agroecológica del Caribe, or RECAR), which has been the driving force behind the national “Seeds of Identity” campaign to promote the conservation and exchange of *criollo* seed in Colombia. Initiated in 2002, the campaign is the work of RECAR, the Bogotá office of SwissAid, and the Colombian NGO Grupo Semillas (the Seed Group). These nonprofits are part of the Red de Semillas Libres (RSL), a network of grassroots and activist organizations in Colombia that promote the use of *criollos* and “seed sovereignty,” or farmers’ ability to share, save, breed, replant, and make autonomous decisions about seed. The network challenges the cultivation of GMOs, including the privatization and commercialization of seed, and promotes saving and exchanging *criollos*.

In their 2005 declaration, Zenú leaders point to Colombia as a center of biological diversity of maize, and emphasize the cultural, alimentary, and socioeconomic importance of the crop for the Zenú. They refer to themselves as “the children of maize,” and contend that the import of transgenic maize and other products generates “negative impacts on our seeds, our agriculture and our food sovereignty.”

Key participants in the Colombian anti-GM campaign looked to Mexico’s anti-GM organizing in 2002 for information and strategy (Fitting 2014). In both Mexico and Colombia, where maize is representative of the “nation”—be it the nation-state or an indigenous people and territory—the import and cultivation of transgenic corn is seen to undermine political, economic, cultural, and food sovereignty. Indeed,

Colombia's imports of corn, largely from the United States, and up to 90 percent of which is used for animal feed, increased in the 1990s, and reached 4.5 million metric tons in 2016 (USDA 2016).

Since the Zenú Declaration, five other indigenous *resguardos* have established their communities as transgenic-free territories. However, the real turning point for media and public attention to questions related to seed in Colombia was in 2013, when Resolution 970 gained notoriety through a documentary that went viral online, and then was taken up as an issue during the national agrarian strike. The Colombian Agricultural Institute (ICA), a branch of the Ministry of Agriculture and Rural Development responsible for the regulation of seed and genetically modified organisms, implemented Resolution 970 in 2010. It required that all seeds in the country used by small-scale farmers and in indigenous territories be registered and certified for reasons of quality, productivity, and plant disease management and prevention.

Across Latin America and elsewhere, new seed laws and regulations help the expansion of the corporate seed industry, and create seed registration and certification requirements which may prohibit the traditional practice of local farmer seed exchange and sale (Santilli 2012, 49). Such laws and regulations challenge what is referred to as "farmers' rights" or "farmers' privilege"—the common practice of farmers to save and replant their seeds.

Colombia made legal and regulatory changes on intellectual property and phytosanitary controls in part to meet the requirements of the free trade agreement with the United States, which took effect in 2012. Resolution 970 prohibited the production, saving, selling, sharing free of charge, and using of seeds not registered or certified by ICA, and without breeder's authorization. Registration and certification represent a costly and time-consuming process that many small-scale farmers cannot afford. Yet, if the seed is not registered and certified, the resolution prohibited farmers from saving and replanting their seed.

The Red de Semillas Libres submitted a challenge to Resolution 970 to the Constitutional Court, arguing that it had not previously consulted indigenous and Afro-Colombian communities. The RSL's position was supported in late 2013 by agrarian strike leaders, who included the repeal of the resolution in their own list of demands forwarded during negotiations with the government. During the agrarian strike, which involved marches and roadblocks, *campesino* leaders, truckers, miners, and coffee growers called for a reduction in fuel and fertilizer prices and the cancellation of free trade agreements, among other issues. In response to the negative publicity and the agrarian strike, the government suspended the Resolution in order to rewrite it.

In September 2015, ICA released Resolution 3168 as a replacement to 970. It contains small changes that address some of the concerns articulated by activists and farmers. ICA eliminated the requirement to register seed in its information system, and it states that it does not apply to creole or native seed; however, it does not define these kinds of seeds, leaving the door open for ambiguity. The RSL argues that Resolution 3168 is similar to its predecessor in that it mandates that all seed used in the country must be certified seed, indirectly prohibiting *criollos*, and that it maintains the restrictions on saving and commercializing certified seed, which helps to ensure market control for seed companies (Gutiérrez and Fitting 2016).

Similar to seed activists elsewhere, the RSL sees the struggle to maintain farmers' rights to replant and exchange seed as part of a longer and larger struggle against imperialism, neocolonialism, and an agrarian structure in which the big capitalist landowners continue to thrive at the expense of small-scale farmers. Thus, the RSL pursues seed sovereignty because it sees defending *criollo* seeds as resistance to corporate agriculture and the commodification of seeds, but also as political autonomy, cultural survival, and food sovereignty.

Conclusion

GMOs provide a lens through which to see changes taking place in agriculture and food at various scales of analysis; the role of international trade agreements comes into focus, along with regulatory frameworks (on seed and intellectual property rights), the expansion of transnational agribusiness, and the creation and expansion of activist networks. At regional (and local) levels of analysis, we see how particular crops and foods represent a sense of place and way of life. While activists argue that GMOs undermine that sense of place and its culture, and erode the livelihood of small-scale farmers—or public health, as with the use of glyphosate—others argue that such technology provides important benefits, like economic opportunity. Clearly, in order to understand why GMOs engender support, acquiescence, or resistance, we need to understand something about the context and history of place.

This chapter suggests a few possible reasons why GM soy does not (yet) resonate more broadly in Argentina when compared to Mexico and Colombia: because soy does not carry the same cultural significance that maize does in Mexico or Colombia; because regulatory changes on seed have not yet captured mainstream media attention in the same way they did in Colombia, with Resolution 970; and because medium- and large-scale growers and agribusiness not only have political influence on government—as arguably they have in Mexico and Colombia, albeit perhaps not to the same extent—but they also successfully mobilize narratives about representing the countryside.

The anti-GM activist groups and networks discussed here share several characteristics with other contemporary social movements in Latin America: First, these anti-GM networks involve people who are often excluded from the formal institutions of their societies, particularly peasants, indigenous peoples, and women's groups (Bosco 2016), in addition to the participation of NGOs and professional activists and environmentalists.

Second, like other movements, GM activists strategically use place and a sense of place to mobilize beyond their immediate group (Ibid.). Not only do activists use physical places like a city plaza or highway to make their demonstrations and marches visible to the public, but they also focus on foods, seeds, and crops as symbols of a culture or way of life associated with place—including both those with clearly demarcated territories, such as a *resguardo* or country, and those without, such as the "countryside," or Mesoamerica.

A third similarity with other social movements in the region is that these anti-GM groups involve networks *across* scales, from the local community level, to national, and

transnational networks. The Internet is a key technology employed by these networks to communicate and get their message out, and the success of these anti-GM campaigns depends on whether their concerns resonate beyond the particular and the local with non-activists at home and abroad.

Finally, and connected to this, anti-GM groups and networks, similar to—and even as a part of—other social movements in Latin America, engage alternative or conflicting definitions and approaches to nature, justice, and other concepts (Bosco 2016). Although some campaigns are more successful in mobilizing support beyond activist circles, and in influencing government regulations and policy, in general, anti-GM networks in Latin America engage and contribute to ideas about food and seed sovereignty as a counternarrative and critique of neoliberalism.

Key Terms

capitalism
food regime
food sovereignty
GMO
neoliberalism

networks of resistance
place
resguardo
resistance

Summary

- The cultivation of GMOs has increased dramatically over the past decade, leading to profound changes in agricultural practices.
- The rise in GMOs can be linked to the contemporary global food regime and its associated neoliberal food policies.
- Resistance to GMOs takes on different forms in different contexts, as illustrated by the examples of Argentina, Colombia, and Mexico. Deep connections between a particular crop and a sense of place help activists to mobilize support from the ground up, creating transformative networks of resistance across places where food sovereignty is similarly threatened.

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