The Global Reach of the Mexican Corn Revolution

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"De maíz amarillo y de maíz blanco se hizo su carne; de masa de maíz se hicieron los brazos y las piernas del hombre. Únicamente masa de maíz entró en la carne de nuestros padres, los cuatro hombres que fueron creados."[1]

Despite Mexicans being a "people of the corn," the twentieth century seemed to be the beginning of the end for maize. Throughout the last two decades, an unlikely group of allies initiated a grassroots revolution to defend maize, biodiversity, and Mexican food sovereignty. This paper presents the Mexican Corn Revolution as a cross-class and transnational movement, part of the global fight against transgenic corn and corporate power. The research for this work relies heavily on the websites and publications of organizations in the movement, Mexican news coverage and official governmental data. The corn revolution demonstrates the agency of the native grassroots movements that connected Mexican civil society and international ecological activists. Despite limited resources and lack of government support, the coalition to defend maize achieved moderate success which provided hope for the future of corn and the worldwide fight against transgenic crops.

Since precolonial times, corn has been essential to the Mexican diet. *Teosinte*, the ancestor of corn, was first domesticated 9,000 years ago in south-central Mexico. Indigenous civilizations deified maize and developed tools and processing methods still used today. Nixtamalization, soaking corn in an alkali solution, boosts the essential amino acids in corn by up to

[1] "Their flesh was made of yellow and white corn; the arms and legs of men were made of corn dough. Only corn dough entered the flesh of our forefathers, the four men that were created." *Popul Vuh. Las antiguas historias del Quiché*, trans. Adrián Recinos (Mexico City: FCE, 2005).

2.8 times.[2] The *mano* and *metate*, used to grind corn, and the *comal,* a ceramic disk for cooking tortillas over fire, are still common in rural Mexico.[3] *Chicha* (corn beer), corn husk tamales, and *huitlacoche* (corn fungus) all remain to this day. Conquest and colonization brought the fusion of ingredients from the Old and the New World, but corn remained central to Mexican culture and cuisine.

In the twentieth century, the Mexican post-revolutionary government employed nationalist rhetoric and authoritarian policies to unite a divided and war-torn nation.[4] National cuisine featured corn, integrated disconnected *patrias chicas* and regional foods thanks to improvements in transportation, agricultural modernization, commodification of food, and the concurrent rise of *indigenismo,* a political ideology emphasizing the relationship between the nation state and its indigenous origins.[5] Pride in the precolonial past and the mestizo present, along with eating corn as tortillas, tamales, and *pozole*, became badges of patriotism. The state also used food to maintain support for the authoritarian regime of the *Partido Revolucionario Institucional* (PRI, Institutional Revolutionary Party). In times of political and economic crisis, the PRI used the State Food Agency to appease the urban poor and rural consumers.[6] Corn and the tortilla subsidy were central to this tacit agreement between the government and the people.[7] The state's policies convinced citizens Mexico was improving and promoted the myth of the Mexican Revolution.

The Green Revolution bolstered the illusion of abundance. American scientists began working with the Mexican government

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[2] Michael Blake, *Maize for the Gods: Unearthing the 9,000-Year History of Corn* (Oakland: University of California Press, 2015), 182.
[3] Blake, *Maize for the Gods*, 180, 187.
[4] Jeffrey M. Pilcher, *Que Vivan los Tamales! Food and the Making of Mexican Identity* (Albuquerque: University of New Mexico Press, 1998), 124.
[5] Ibid., 131.
[6] Enrique Ochoa, *Feeding Mexico: The Political Uses of Food since 1910* (Wilmington: Scholarly Resources, 2000), 226.
[7] Ibid., 210.

to increase productivity to deal with Mexico's demographic explosion.[8] The Green Revolution introduced chemical fertilizers, pesticides, monoculture, and genetically modified corn. The state believed the Green Revolution would bring progress and miraculous productivity. Institutions like *Programa Nacional de Semillas* (PRONASE, National Seed Program) and *Industria Mexicana de Fertilizantes* (FERTIMEX, Mexican Fertilizer Industry) provided publicly funded agricultural inputs to farmers.[9] Commercial farming eclipsed traditional cultivation of corn but could still not keep up with growing urban demand. Corn was imported, and the domestic price plummeted, damaging small producers. The introduction of monoculture and GMOs damaged corn biodiversity and the environment. The state offered some support through CONASUPO (*Compañía Nacional de Subsistencias Populares*, National Company of Popular Subsistences), a state-owned company that fixed prices and served as a guaranteed point of sale and distribution, and BanRural, a bank which provided credit to small-scale farmers who could not use their *ejido* as collateral.[10] In truth, the state opted to import rather than work towards national self-sufficiency, and worked with large commercial agricultural farms, marginalizing small producers.[11] The government turned its back on the *campesinos* and *ejidatarios,* and diminished Mexican food sovereignty.[12]

1980s neoliberalism damaged Mexican corn even further. The state prioritized market liberalization, trade, agricultural efficiency, and a reduction of state services over domestic corn

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[8] The population doubled from 1940 to 1960. See "Geografía de México y del Mundo," *Instituto Latinoamericano de la Comunicación Educativa,* http://bibliotecadigital.ilce.edu.mx/sites/telesecundaria/tsa04g01v01/u04t02s04.html (accessed November 28, 2017).

[9] A. Keleman, "Institutional support and in situ conservation in Mexico: Biases Against Small-scale Maize Farmers in Post-NAFTA Agricultural Policy," *Agriculture and Human Values* 27, No. 1 (2010): 18.

[10] An *ejido* is a tract of common land in Mexican villages which was farmed either collectively or individually; Keleman, 18.

[11] Ochoa, 231.

[12] Tract of common land in Mexican villages which was farmed either collectively or individually.

production.[13] The government eliminated rural support such as CONASUPO, BanRural, PRONASE, and FERTIMEX. Between January 1994 and August 1996 domestic corn prices fell by forty-eight percent as the state removed price support mechanisms that had been in place for forty years.[14] The decline of rural agriculture drove many agriculturists to migrate to the urban centers and abroad seeking work.[15] Disappearing independent corn cultivators and the entrance of genetically modified corn endangered corn biodiversity.

These factors appeared to be a tragedy for small agricultural producers and corn in Mexico. However, it became the impetus for a passionate defense of corn from indigenous cultivators. The native grassroots movement began a corn revolution to protect biodiversity and *campesino* rights. Despite years of repudiating the indigenous as backwards in modern Mexico, multiple sectors of society began supporting and working with the cultivators of corn to protect biodiversity and food sovereignty as a larger Mexican fight for national sovereignty in the global economy. Another concurrent alliance coalesced between the Mexican cultivators of corn and international scientists and ecological activists. Together, this cross-class transnational coalition obtained a series of small yet significant wins.

Grassroots Corn Revolution

The survival of corn is inextricably linked to the political autonomy and cultural survival of the indigenous communities that cultivate corn. After decades of being ignored and considered second class citizens by the Mexican government, the indigenous people of Mexico rose up against the forces of globalization and neoliberalism. The day NAFTA went into effect, the *Ejército Zapatista de Liberación Nacional* (EZLN, Zapatista National

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[13] Elizabeth Fitting, "Importing Corn, Exporting Labor: The Neoliberal Corn Regime, GMOs, and the Erosion of Mexican Biodiversity," *Agriculture and Human Values* 23, No. 1 (2006): 24.
[14] Fitting, 26.
[15] Ibid., 20.

Liberation Army) declared war against globalization, military and corporate interference in the lives of the indigenous Maya in Chiapas, Mexico.[16] The "bottom-up" participation and the emphasis on the symbiosis between nature and humanity of the EZLN and other indigenous rights groups influenced the grassroots defense of maize.[17] The anti-GMO pro-biodiversity stance of Zapatista corn is simultaneously a stance against neoliberalism and foreign control of indigenous subsistence crops. Zapatistas promoted *milpa* agriculture, traditional indigenous permaculture centered on maize.[18] The revival of sustainable, traditional agricultural methods almost subsumed by the Green Revolution and transnational agricultural monoculture allowed small producers to maintain food sovereignty and foster biodiversity of maize. The *Movimiento Agrario Indígena Zapatista* (MAIZ, Agrarian Indigenous Zapatista Movement), founded in 1996 in Oaxaca, aimed to protect native corn, the human rights and autonomy of indigenous communities.[19] It then encompassed twelve Mexican states and unified otherwise isolated ethnicities such as Mixtecas, Mazatecas, Triquis and Nahuatl.[20]

The biotechnology which threatened the biodiversity of corn and indigenous livelihood was employed instead as "weapons of

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[16] Comandancia General del EZLN, "Primera Declaración de la Selva Lacandona," January 1, 1994, http://enlacezapatista.ezln.org.mx/1994/01/01/primera-declaracion-de-la-selva-lacandona (accessed December 17, 2017).

[17] "A 20 años del levantamiento en Chiapas," January 1, 2014, http://ezln.eluniversal.com.mx/a-20-anos-del-levantamiento-en-chiapas (accessed December 7, 2017).

[18] Brandt, 881.

[19] Movimiento Agrario Indígena Zapatista (MAIZ), "Pronunciamiento del Movimiento Agrario Indígena Zapatista por las agresiones a los pueblos Ikojts y Binni´za," February 10, 2013, http://www.nacionmulticultural.unam.mx/mezinal/docs/3232.pdf (accessed December 7, 2017).

[20] "Quiénes Somos?" *Movimiento Agrario Indígena Zapatista*, https://maizoaxaca.blogspot.com/p/quienes-somos.html (accessed November 15, 2017).

the weak" against GMOs and neoliberalism. Zapatista tactics surrounding corn changed after the discovery of transgenic corn contamination in Mexico. The Zapatistas allied themselves with scientists and Schools for Chiapas, a non-profit organization from San Diego, CA. The foreigners joined *caracoles*, strategic meeting groups run by Zapatistas, to develop a plan to combat transgenic corn. The collaboration led to education of indigenous producers about plant genetics and the negative consequences of planting GMOs. It also contributed to the creation of a seed bank and regular genetic testing of Zapatista crops.[21]

In response to reports of transgenic corn contamination, *Red en Defensa del Maiz* (Network in Defense of Maize) was founded in January 2002. The primary members of the network were indigenous organizations and *campesinos*, including the Zapatistas. Together with scientists and ecological organizations, the Defense of Maize accused transnational agribusinesses such as Monsanto, Syngenta, and Bayer of contaminating the Mexican landraces of corn with GMOs, threatening domestic production of corn, the livelihood of *campesinos*, and Mexican food sovereignty.[22] *Red en Defensa del Maiz* demanded an obligatory moratorium on the planting and import of any transgenic corn in the country to ensure food and national sovereignty. Like the Zapatistas, they demanded change from the state. However, *Defensa del Maiz* expanded beyond one specific tribe or region, and invited all indigenous and *campesino* communities to continue and begin defending maize and their own livelihoods.[23] The organization called for immediate action and galvanized

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[21] Brandt, 885.

[22] "México: una década de resistencia social contra el maíz transgénico," *Centro de Estudios para el Cambio en el Campo Mexicano*, October 17, 2011, http://ceccam.org/sites/default/files/DepercentC3percentACcada percent20resistbaja.pdf (accessed December 10, 2017).

[23] "Dictamen de la audiencia: violencia contra del maíz, la soberanía alimentaria, y la autonomía de los pueblos," *Red en Defensa del Maiz*, http://redendefensadelmaiz.net/dictamen-de-la-audiencia-violencia-contra-el-maiz-la-soberania-alimentaria-y-la-autonomia-de-los-pueblos/#&panel1-1 (accessed December 7, 2017).

indigenous and *campesino* efforts and put transgenic corn on the national agenda. *Defensa del Maiz* framed the defense of corn as a matter of national security. Food sovereignty affected all Mexicans because of the prominence of corn in their diet. Education was a key component of *Defensa del Maiz* campaigns. They promoted traditional agricultural methods by claiming it provides eighty percent of the food humans consume while using only thirty percent of the water and twenty percent of the fossils fuels designated for agriculture. The network also educated against transgenic corn which consumes precious resources, contributes to global warming, and reduces biodiversity while only producing about twenty percent of human food. [24]

Instead of waiting for the government to act, the indigenous and *campesino* communities initiated a grassroots revolution to counter the Green Revolution and neoliberal policies. The grassroots movement integrated political, agricultural, and ecological demands to defend corn, and gained power from the collaboration of indigenous communities across Mexico. The fight to defend maize and the indigenous livelihoods brought transgenic corn to the attention of the Mexican public. Mexicans at large, "the people of the corn," joined the defense of maize.

The Revolution Grows Nationwide

There was only so much the indigenous communities could achieve from their disadvantaged position in society. Nationwide changes required a nationwide response from producers along the food chain, consumers at large, and the state. Consumer activism and small-scale government assistance played a role the Mexican corn revolution of the twenty-first century. Despite initial differences over concerns, different socioeconomic groups began to form new agrifood coalitions once consumers and *campesinos* developed a new nationalist rhetoric and a common enemy: transnational corporations and neoliberal policies.

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[24] "La contaminación del maiz no fue un accidente. Su defensa tampoco!" *Red en Defensa del Maiz,* http://redendefensadelmaiz.net /campanas/#&panel1-7 (accessed December 7, 2017).

Mexico had a long-standing tortilla subsidy which was repealed in 1999. The price of one kilogram of tortillas was expected to rise from three to five pesos.[25] Tortilla consumption in the country in 2000 was an average of 98kg or 2000 tortillas a year per person.[26] Forty percent tortilla price inflation, other cost increases, and no visible increase in pay meant neoliberal policies were felt in every home across the nation. Mexican consumers were outraged. Protests and accusations were directed at neoliberalism, transnational corporations, and the government which had traded food sovereignty for a subservient role in the global economy by importing U.S. corn.

The, and no visible increase in pay made neoliberal policies fel Mexican people constructed diverse responses to the corn crisis, in support of the older indigenous and *campesino* efforts to defend maize. For example, Tortilleria Itanoni, a restaurant and store in Oaxaca City, encouraged local, ethical, and sustainable sourcing by integrating the production and consumption of maize. Itanoni's maize in tortillas, other traditional *antojitos,* and drinks came from four small farmers in diverse ethnocultural and agroecological regions of Oaxaca.[27] Itanoni connected urban consumers with the *campesinos* and used traditional methods of food preparation such as nixtamalization, the hand kneading of maize dough, or *masa*, and a traditional clay *comal* to cook the tortillas.[28] The restaurant showed that ethical and ecological production and consumption could be educational, delicious, and profitable. The international resonance of the movement is reflected in the overwhelmingly positive reviews by *The New York*

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[25] Francisco Robles, "Subirá Precio De La Tortilla: Gobierno De México Le Retira Subsidio Y Anticipan Que El Kilo Llegará a Cinco Pesos, a Pesar De Las Quejas Ciudadanas," *La Opinión* (Los Angeles), January 2, 1999.

[26] "Tortilla Consumption Continues to Decline in Mexico But Grows Steadily Overseas," *SourceMex Economic News & Analysis on Mexico*, June 23, 2004.

[27] Lauren E. Baker, *Corn Meets Maize: Food Movements and Markets in Mexico*, (London: Rowman and Littlefield Publishers, 2012), 101.

[28] Ibid., 102–103.

Times, *Travel + Leisure*, *Vice*, *TripAdvisor*, among many other food and tourism sites.[29]

Restaurants like Itanoni emerged from the movement to conserve and rescue traditional indigenous cuisine which began in 1985 with artisanal fair exhibitions in Uruapan, Michoacán.[30] The indigenous chefs represented various localities and offered ancestral foods made with traditional means such as clay pots, wood fire, and regional ingredients. These indigenous women continued showcasing their exceptional food, partnering with producers, and members of the food world at the state, then national, level. Gradually, the movement to protect indigenous cuisine garnered gastronomic acclaim and international attention. In 2009, several indigenous women went to Nairobi, Kenya to show their culinary wares to a panel from the United Nations.[31] The following year the United Nations Educational, Scientific and Cultural Organization (UNESCO) declared traditional Mexican cuisine intangible cultural heritage of the world and an example of a complete cultural model incorporating the entire traditional food chain from cultivators to cooks.[32] This honor was made

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[29] Victoria Burnett, "Oaxaca's Native Maize Embraced by Top Chefs in US and Europe," *New York Times,* February 11, 2016, https://www.nytimes.com/2016/02/12/world/americas/oaxacas-native-maize-embraced-by-top-chefs-in-us-And-europe.html (accessed December 8, 2017); Brian Yarvin, "Itanoní Antojeria y Tortilleria: Alice Waters' Favorite Restaurant in Oaxaca, Mexico," *Serious Eats,* http://www.seriouseats.com/2009/12/itanoni-antojeria-y-tortilleria-oaxaca-mexico-best-corn-tortillas-alice-waters.html (accessed December 7, 2017).

[30] Carlos Arrieta, "Cocineras, mujeres indígenas rescatan la comida tradicional mexicana," *El Universal,* January 2, 2017, http://www.eluniversal.com.mx/articulo/estados/2017/01/2/cocineras-mujeres-indigenas-rescatan-la-comida-tradicional-mexicana (accessed Dec 9, 2017).

[31] Arrieta, "Cocineras, mujeres indígenas."

[32] "La cocina, cultura comunitaria ancestral y viva, el paradigma de Michocán," *UNESCO*, https://ich.unesco.org/es/RL/la-cocina-tradicional-mexicana-cultura-comunitaria-ancestral-y-viva-el-paradigma-de-michoacan-00400 (accessed December 7, 2017).

possible by the bottom up movement created and driven by indigenous cooks.

Notable chefs like Enrique Olvera and Jorge Vallejo promoted the rescue of traditional Mexican cuisine and ingredients.[33] Olvera's restaurants Pujol in Mexico City, and Cosme in New York City are considered among the best in the world and feature indigenous ingredients and traditional Mexican food. His restaurants sourced corn from sustainable producers in Mexico and made all corn products in house.[34] Vallejo, owner of the restaurant Quintonil in Mexico City, proudly sources his produce locally from the *chinampas* of Xochimilco, man-made islands fed by lake water and fertilized by using mud from the bottom of the lake. [35] He values traditional agriculture, time-honored foods like *huitlacoche* and snapper, and enduring methods such as *nixtamalization*. Vallejo attempted to capture the "Mexican spirit" of the food and its source food.[36] Olvera, Vallejo, and other fine dining Mexican chefs, like the indigenous cooks of Michoacán, demonstrated the cultural value of Mexican food with corn at its center.

In light of popular support for native *criollo* (heirloom) corn, the government made efforts to join the defense of corn. The government supported local food and ingredients for the sake of tourism, but also stepped up to aid small producers across Mexico. The increase in assistance was insufficient. However, it demonstrates that the state has been hearing the protests of the

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[33] Tania Molina Tecuatl, Alejandro Montesinos Rubén, Omar Rodríguez Hernández and Jocelyn Pérez Lobo, "Ocho Chefs Que Hacen Cocina Mexicana de Vanguardia," *Claustronomia*, http://elclaustro.edu .mx/claustronomia/index.php/investigacion/156-ocho-chefs-que-hacen-cocina-mexicana-de-vanguardia (accessed December 7, 2017).

[34] Scarlet Lindeman, "Chef Enrique Olvera Redefines Mexican Food," *CNN*, http://www.cnn.com/travel/article/enrique-olvera-mexico-city /index.html (accessed December 7, 2017).

[35] Ryan King, "Plant to Plate with Jorge Vallejo," *Fine Dining Lovers,* August 25, 2014, https://www.finedininglovers.com/stories/quintonil -mexico-city-jorge-vallejo/ (accessed December 7, 2017).

[36] Micah Fredman, "The Core of the Corn," https://www.starchefs.com /cook/savory/the-core-of-the-corn (accessed December 7, 2017).

people, indigenous, *campesino*, and consumer. For example, in 2004 the Michoacán Center for Agribusiness (MCA) was created. Although it only employs five percent of the state's agricultural budget, its goals are in line with the indigenous and *campesino* demands.[37] MCA supports organic and agroecological cultivation of crops for the local and regional market. As part of the field to table movement, MCA works to preserve and promote *criollo* maize, and encourages crossing maize landraces with *teosinte*, looking "to maize's past to prepare for the future."[38] The work of MCA builds on efforts by the indigenous and *campesinos* of Michoacán since the signing of NAFTA. In 2011, the state of Michoacán passed the Law for the Development and Protection of Criollo Maize as Alimentary Patrimony of Michoacán, which commits to sustainable development, bans transgenic corn and protects eighteen of the fifty-nine maize landraces indigenous to Mexico.[39] Although there is no federal equivalent, the law and the MCA demonstrate the influence of the bottom up corn revolution. Michoacán is the nation's fourth largest maize producer and grows thirty percent of Mexico's maize.[40] Changes in Michoacán impacted the national outcome for the defense of maize.

Another official development to defend corn was the creation of the Native Maize Project, Several groups, spearheaded by the *Comision Nacional para el Conocimiento y el Uso de la Biodiversidad* (CONABIO, National Commission for the

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[37] Baker, *Corn Meets Maize: Food Movements and Markets in Mexico,* 131.

[38] Baker, 138.

[39] State Government of Michoacan, Mexico, "Ley de Fomento y Proteccion del Maiz Criollo Como Patrimonio Alimentario del Estado de Michoacán de Ocampo," March 1, 2011, http://transparencia .congresomich.gob.mx/media/documentos/trabajo_legislativo/ley_de _fomento_y_protecci%C3%B3n_del_ma%C3%ADz_criollo_como _patrimonio_alimentario_del_estado_de_michoac%C3%A1n_de _ocampo.pdf (accessed November 15, 2017).

[40] "Michoacán, por ley protegerá su maíz," *Greenpeace México.* Published February 3, 2011, http://www.greenpeace.org/mexico/es /Noticias/2011/Febrero/Michoacan-por-ley-protegera-su-maiz (accessed November 15, 2017).

Knowledge and Use of Biodiversity), along with the *Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias* (INIFAP, National Institute of Investigations on Forestry, Agriculture, and Fishing) and the *Instituto Nacional de Ecología* (INE, National Ecology Institute) created the Native Maize Project.[41] The project's goal was to investigate the origin places of corn and record the fifty-nine different varieties of *criollo* corn in Mexico and *teocintle.* The recently digitized maps show the change in distribution and production of diverse corn varieties around the country.[42] They prove diversity and productivity have increased since 1990, evidence of the symbiotic relationship between rights of indigenous *campesinos* and corn. This project has contributed to the awareness of corn diversity and promises to be an ally for the ongoing defense of corn.[43]

The *Campaña Nacional en Defensa de la Soberanía Alimentaria y la Reactivación del Campo Mexicano Sin Maíz no hay país y sin Frijol tampoco ¡Pon a México en tu boca!* became the national face of the defense of maize.[44] The movement's goals included protecting domestic corn and beans by bringing agricultural issues into national public discourse and uniting the field and city together to combat GMOs and transnational commercial control.[45] The campaign launched at the Museum of

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[41] "Proyecto global de maices nativos," *Comisión Nacional para el Conocimiento y el Uso de la Biodiversidad*, http://www.biodiversidad.gob.mx/genes/proyectoMaices.html (accessed November 15, 2017).

[42] "Mapa Interactivo," *CONABIO*, http://www.biodiversidad.gob.mx/genes/mapaAgricultura.html (accessed December 7, 2017).

[43] José de Jesús Sánchez González, "Diversidad del Maiz y Teocinte," *CONABIO*, Published 2011, http://www.biodiversidad.gob.mx/genes/pdf/proyecto/Anexo9_Analisis_Especialistas/Jesus_Sanchez_2011.pdf (accessed December 7, 2017).

[44] National Campaign in Defense of Food Sovereignty and the Reactivation of Rural Mexico: Without corn there is no country, without beans either. Put Mexico in your mouth!

[45] "Campaña Nacional en Defensa de la Soberanía Alimentaria y la Reactivación del Campo Mexicano Sin Maíz no hay país y sin Frijol tampoco ¡Pon a México en tu boca!" *Campaña Nacional Sin Maíz No Hay País*, http://www.sinmaiznohaypais.org/Documentos/Presentacion

Mexico City June 25, 2007 and mobilized over three hundred agricultural, ecological, civil, unions and human rights organizations from across Mexican society. The campaign even gained support from Mexican artistic and literary celebrities such as Gael García Bernal, Diego Luna, Alfonso Cuarón, and Laura Esquivel.[46] Over the next year, the campaign led public protests and symbolic plantings of corn in locations of patriotic symbolism such as the Zocalo and Angel de la Independencia.[47] Thanks to widespread societal support for the campaign, the demands went all the way to the Senate. The movement's central demands were as follows:

> The renegotiation of NAFTA, taking domestic corn and beans out of the new deal to protect our grains before indiscriminate commercial opening. The prohibition of transgenic grains in the country, and the protection of native seeds. The creation of news public policies to defend rural Mexico, *campesinos* and food security and sovereignty.

Although none of these have officially been met, the campaign fomented multi-sectorial involvement in garnering public opinion in defense of maize. September 29 was declared National Day of Maize.[48] The campaign connected the aforementioned indigenous cooks to UNESCO. Increased Mexican news coverage of transgenics, corn, and traditional crops and food demonstrate the effect of the defense of maize over the last two decades.

A new kind of consumer nationalism has been at the heart of the success of the Mexican defense of corn. Consumer activism

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%20%20de%20la%20Campana.pdf (accessed November 15, 2017).

[46] Ibid., 3.

[47] "Sin Maíz No Hay País," 5.

[48] "El Hambre No Espera!" *Campaña Nacional Sin Maíz No Hay País,* 3, http://sinmaiznohaypais.org/Documentos/Carpeta%20Sin%20maiz%20no%20hay%20%percent20Esp%202.pdf (accessed November 15, 2017).

together with the grassroots movement vilified neoliberalism as an effort by developed nations to undermine biodiversity, the livelihood of small producers, national economic autonomy, and food sovereignty. Therefore, consuming Mexican made goods, Mexican food—especially Mexican corn—became a mark of economic patriotism and buying transgenic or imported goods became a betrayal. Consumer activism became powerful enough to provoke some government response. Although the state did not vilify neoliberalism or the transnational corporations, it did acknowledge the importance of biodiversity and support for indigenous agriculture.

Allies Abroad

Throughout the late twentieth century, the international scientific community had a contradictory relationship with Mexican corn. Some, like Nikolai Vavilov, sought to protect the unique varieties of corn and the producers who fostered the development of maize.[49] However, other scientists, especially the foreigners brought in during the Green Revolution, contributed to the demise of small producers and maize biodiversity. The discoveries of the twenty first century changed the relationship between Mexican corn and the scientific community. International scientists along with ecological activists allied themselves with indigenous producers and Mexican consumers to protect the production and biodiversity of Mexican corn.

The 2001 discovery of genetically modified corn in the traditional corn fields of Oaxaca was a lynchpin in the defense of Mexican corn. Davis Quist and Ignacio Chapela, two U.C. Berkeley scientists, found a high level of gene flow from industrially produced genetically modified corn into the landrace or *criollo* crops of small producers in the Sierra Norte of Oaxaca. The environmental scientists declared the contamination threatened native biodiversity in the origin place of domesticated maize which was of special concern since there was a moratorium

[49] Gary Paul Nabhan, *Where Our Food Comes from: Retracing Nikolay Vavilov's Quest to End Famine* (Washington: Island Press, 2011).

on transgenic corn in Mexico since 1998.[50] Quist and Chapela's revelation in the journal *Nature* in November 2001 immediately attracted controversy. Many scientists came to the defense of transgenic seeds and claimed their research methods were not scientifically sound.[51] This prompted *Nature* to retract their support for the research. However, the results of Quist and Chapela a separate investigation by the Mexican government confirmed that two out of every three landrace cultivating communities investigated in Oaxaca were contaminated with genetically modified corn. Other research discovered similar contamination in Puebla and Guanajuato.[52] The high rate of contamination coupled with the lack of action by the Mexican government alarmed the international and domestic community. The UNAM and Mexican media decried the liaisons between scientists, government, and GMO companies such as Monsanto.[53] Thirty Mexican non-governmental organizations signed a statement of demands with a plan assessing the magnitude of the contamination, determining its sources, informing farmers, establishing mechanisms of oversight and detection for imports, disposing of the corn that has already been contaminated and undertaking legal actions against the corporations responsible for the transgenic corn.[54] This coalition included both indigenous groups and scientific organizations such as *Comité de Recursos Naturales de la Sierra Norte de Oaxaca* (Northern Oaxaca Sierra

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[50] David Quist and Ignacio H. Chapela, "Transgenic DNA Introgressed into Traditional Maize Landraces in Oaxaca, Mexico," *Nature* 414, no. 6863 (2001): 543.

[51] Silvia Ribeiro, "Maíz transgénico: cómo infectar al mundo," *La Jornada*, May 25, 2002, http://www.jornada.unam.mx/2002/05/25 /017a1eco.php?printver=0 (accessed November 17, 2017).

[52] Paul Cryan, "GE Pollution in Mexico: Native Corn Contaminated," *Global Pesticide Campaigner* 11, no. 2 (2001):8.

[53] Silvia Ribeiro, "Maíz transgénico: cómo infectar al mundo," *La Jornada*, May 25, 2002, http://www.jornada.unam.mx/2002/05/25 /017a1eco.php?printver=0.; "Exigen eradicar maíz transgénico," *El Universal*, December 1, 2001, http://archivo.eluniversal.com.mx/nacion /72756.html (accessed December 7, 2017).

[54] Cryan, "GE Pollution in Mexico," 8.

Committee for Natural Resources), *Unión de Comunidades Zapotecas y Chinantecas de Oaxaca* (UZACHI, Union of Oaxacan Zapotec and Chinantec Communities), *Grupo de Estudios Rurales y Asesoría* (ERA, Rural Studies and Assessment Group), *Centro Mexicano de Derecho Ambiental* (CEMDA, Mexican Center for Environmental Law), and *Unión de Grupos Ambientalistas* (UGAM, Union of Environmentalist Groups).[55] Faced with inaction from the Mexican government, who claimed it would be too costly, the coalition of Mexican organizations collaborated with international ecological activist groups such as Greenpeace and The ETC group (formerly RAFI) to demand that the Commission on Environmental Cooperation (CEC) intervene. The NAFTA commission could not force government action, but it could influence public opinion and garner international support for Mexican corn.

The CEC report affirmed the findings of Quist and Chapela. Mexican landraces were contaminated with genetically modified corn. The study went further to speculate that the biggest threat to the gene flow was corn imported from the United States. It estimated that twenty-five to thirty percent of U.S. imported corn contained genetically modified corn. In addition, the CEC report emphasized the lack of GMO labels on U.S. corn and determined that many *campesinos* obtained their contaminated seed from government dispensaries such as DICONSA (*Distribuidora de la Compañía Nacional de Subsistencias*).[56] It became clear that the moratorium on transgenic corn in Mexico was insufficient to protect the biodiversity of corn in its birthplace or protect the cultivators of corn. The incriminating report gave even more impetus to the Mexican defense of maize.

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[55] "Indigenous Groups, Environmental Organizations Ask NAFTA Commission to Investigate Imports of Genetically Modified Corn," *SourceMex Economic News & Analysis on Mexico*, May 8, 2002.

[56] "Maíz y Biodiversidad: Efectos del maíz transgénico en México," *Informe del Secretariado de la Comisión para la Cooperación Ambiental*, 2004, http://www3.cec.org/islandora/en/item/2152-maize-and-biodiversity-effects-transgenic-maize-in-mexico-key-findings-and-es.pdf (accessed December 4, 2017).

International scientists and ecological activist groups began to collaborate with the Mexican indigenous defense of corn. On April 5th of 2002, Global Exchange, an international human rights organization, launched the Continental Campaign Against Genetically Engineered Corn from April 10 to 17. This response to the discovery of transgenic corn in Mexico included organizations across North and South America, and the Caribbean. They demanded a continental prohibition of genetically engineered corn, that the state cease dumping genetically engineered corn on Mexico and other centers of diversity, and guarantee fair prices to all corn producers.[57] Protests targeted embassies, transnational GMO companies, and grain distributors. Although the protests did not receive much media attention, it marked the powerful marriage of the growing defense of corn in Mexico and other grassroots movements against transgenic crops across the Americas.

In May 2002, twenty Huichol indigenous organizations united in defense of maize. The Huichol people declared the historical pattern of natives allowing conquest ended with them.[58] They asserted that by defending native corn, they were defending their livelihoods, and their culture. A reunion of scientists "In Defense of Corn" occurred simultaneously on the campus of the Autonomous University of Mexico (UNAM). There, a panel of experts discussed the risks of GMOs. The experts encompassed Mexican authorities, like the Center for Studies for Change in Rural Mexico (CECCAM), international scientists such as Dr. Terje Traavik, Director of the Center of Genetic Ecology in Norway, and activist groups such as Action Group on Erosion, Technology and Concentration (ETC Group, formally RAFI).[59]

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[57] Global Exchange, "Continental Protest Against Genetically Engineered Corn," *CorpWatch*, April 5, 2002, http://www.corpwatch .org/article.php?id=2193 (accessed November 10, 2017).

[58] "En defensa del maíz - Pueblos indios y científicos en México," *Grain,* July 19, 2002, https://www.grain.org/es/article/entries/935-en-defensa-del-maiz-pueblos-indios-y-cientificos-en-mexico (accessed November 15, 2017).

[59] Ibid.

Thus, international support once again came to the aid of the indigenous fight against transgenic support.

International organizations, thanks to their reach and recognition, managed to obtain media attention for overlooked local movements. Likewise, they connected isolated national grassroots movements which learned from each other's failures and successes and gained inspiration from the global fight against transgenics. Greenpeace was a major critic of transgenic corn cultivation in Mexico. Although Greenpeace's campaign against transgenics dates back to 1999 and the United Nations biosafety protocol negotiations,[60] its efforts in Mexico accelerated in 2001 after the discovery of genetically modified corn. The organization was one of the original petitioners to the CEC in behalf of native corn. In 2002, Greenpeace swimmers blocked the entrance of a forty-thousand-ton shipment of U.S. maize into the port of Veracruz, Mexico.[61] Later, Greenpeace objected to the Mexican government's ploy to allow planting of genetically modified corn in field trials for experimentation.[62] Greenpeace also supported the Mexican "*Sin Maíz no Hay País*" campaign and other grassroots projects across Mexico.[63] Greenpeace's goal was to protect the biodiversity of corn in its birthplace. Although Greenpeace engaged in activism to protect the biodiversity of corn, it has largely ignored the social and cultural implications of the demise of native corn.

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[60] Elaine Hill, "Greenpeace Activists," *Greenpeace*, http://www.greenpeace.org/international/en/multimedia/photos/greenpeace-activists-dressed-3 (accessed November 10, 2017).

[61] "Greenpeace stops US shipment of maize to Mexico to eliminate source of genetic contamination," *Greenpeace,* April 6, 2002, http://www.greenpeace.org/international/en/press/releases/2002/greenpeace-stops-us-shipment-o (accessed November 10, 2017).

[62] "Maize Under Threat Briefing Paper," *Greenpeace*, October 6, 2002, http://www.greenpeace.org/international/en/publications/reports/ge-maize-briefing/ (accessed November 10, 2017).

[63] "Arman ciudadanos un México de maíz," *Greenpeace*, February 26, 2009, http://www.greenpeace.org/mexico/es/Noticias/2009/febrero-/velada_maiz/.

Other international organizations have also contributed to research and support of the small producers who cherish and cultivate the biodiversity of Mexican corn in their daily lives. The aforementioned ETC group has been providing assistance for the native defense of corn since the early 2000s. It deals with not only the protection of biodiversity, but also global politics, farmer's rights, food sovereignty, and cultural diversity.[64] This all-inclusive approach is a departure from historical precedent. The Green Revolution focused on science, and disregarded the social, cultural, political, and ecological impacts of the monoculture neoliberal regime. The holistic approach of national and international activism in the twenty first century turns this pattern on its head. Organizations such as GRAIN and *Via Campesina* joined this comprehensive approach towards the defense of maize. GRAIN is an international organization which supports *campesinos* and social movements fighting to achieve food systems based in biodiversity and community control. Its mission supports the indigenous uprising in Mexico seeking self-determination and autonomous inclusion in the market. Its publication, *Biodiversity,* has reported on the progress of the fight against transgenic corn since 1999.[65] GRAIN publications have evolved along with the Mexican fight against genetically modified corn; first showing alarm for transgenic contamination, then encouraging the indigenous fight for autonomy, and finally informing consumers of the dangers of GMOs. V*ia Campesina* advocated for the peasants' struggle against transnational corporations and capitalism and fought for international solidarity. This emphasis on international cooperation fostered by *Via Campesina* and organizations like it changed the nature of globalization. Globalization, initially a force of destruction for biodiversity and indigenous rural communities, has become a force for positive change bringing both ideological and monetary

[64] "Mission and Current Focus," *ETC Group*, http://www.etcgroup.org/mission (accessed November 10, 2017).

[65] "Maíz Mexicano," *Grain*, https://www.grain.org/es/entries?order=date&page=2&q=mexico+maiz&utf8=%E2%9C%93 (accessed November 10, 2017).

support for *campesinos* and the native varieties of corn they keep alive.

Despite the involvement of international organizations, native Mexican protesters and activists have dominated the movement in "*Defensa del Maiz*," demonstrating further change in the historical pattern in the nation. Since the neoliberal reforms of the late twentieth century, transnational corporations invaded the markets of Mexico, dominated the economy, and appropriated corn. Confronting this, the twenty-first century international activism in defense of corn seeks to put corn back in the hands of Mexican. These transnational organizations have put the Mexican people in charge of their own food sovereignty, liberating them from imperialistic greed of international business and political leaders.

They succeeded in educating the public on the negative cultural and unknown health and environmental impacts of genetically modified foods.[66] Portrayals of transgenic foods evolved from miracles that could feed the masses into the enemy of producers and consumers. The discrediting of genetically modified crops in the U.S., Canada, Europe, and Mexico changed the market demands placed on the small producers of native Mexican corn, giving more incentive to continue cultivating landraces using traditional methods to maintain maize biodiversity and cultural integrity of rural Mexico.

Conclusion

Despite the victories of the defense of corn, GMOs remain unlabeled and experimental planting contaminates native landraces. The government toes the line between the demands of its citizens and those of powerful transnational corporations and global trade. The difficulties do not negate the accomplishments of the Mexican defense of maize such as the UNESCO declaration of Mexican cuisine as an intangible world heritage, the establishment of a day to celebrate corn, widespread public awareness and discourse of transgenic corn in Mexico, national

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[66] Jim Kent, "Grassroots Group Protests Technological 'manipulation' of Corn in the U.S., Mexico and Canada," *The Native Voice* (Rapid City, SD), May 9, 2002.

food sovereignty and the mobilization of internal campaigns to protect corn among indigenous and *campesino* communities across the country. These achievements are the consequences of the unlikely alliance between indigenous and *campesino* grassroots movements, Mexican civil society, and international scientists and ecological activists. A key ingredient for success has been the alliance of indigenous and *campesino* groups with Mexicans of greater visibility which made the campaign more relatable to the non-producer urban citizen. By tapping into the national symbolism of corn, the defense of maize was able to connect the travails of rural corn producers with urban consumer concerns in a deteriorating economy now open to the potential threats of world trade and competition. The Mexican movement to protect corn, biodiversity, corn cultivators, and national food sovereignty offers lessons to be learned for other nations fighting the same fight such as Peru, Venezuela, and the U.S. grassroots movements alone can only produce so much change. Since rural producers come from a marginalized and disadvantaged position in Mexico and the world, alliances with civil society, international activists, and eventually hopefully government agencies are essential to truly be victorious in the fight to protect biodiversity, indigenous self-determination, and national food sovereignty.