Strawberry Global Supply Chains in Mexico

March 2021

Report Prepared for
the Solidarity Center
by the
Center for Global
Workers' Rights
(CGWR),
Matthew Fischer-Daly

Strawberry Global Supply Chains in Mexico

The Center for Global Workers' Rights (CGWR)

March 2021

The Center for Global Workers' Rights (CGWR) was established in 2012 as a research center within the School of Labor and Employment Relations at the Pennsylvania State University. It has a particular focus on structurally and legally vulnerable workers in precarious sectors of the global economy. This includes garment workers in global supply chains, agricultural workers, domestic workers, and informal economy workers. It publishes research reports, funds student projects on workers' rights, organizes scholar-practitioner exchanges, and co-hosts the *Global Labour Journal*. It is home to the Labour Rights Indicators, a comprehensive global database on workers' rights that established the foundation for the U.N. Sustainable Development indicator for Goal 8.8.2 on workers' rights. The Center works in close association with the School's Masters in Professional Studies (MPS) program in Labor and Global Workers' Rights as part of the Global Labour University.

Report Team

Matthew Fischer-Daly, primary author. Matt Fischer-Daly is a PhD candidate at the School of Industrial and Labor Relations at Cornell University. He holds a Master's Degree in International Economic Relations from American University. His international and comparative research currently focuses on the worker and employer sources of power in food chains.

Mark Anner, project coordinator. Mark Anner is the Director of the Center and an associate professor in the School of Labor and Employment Relations. He also directs the School's Master's Program in Labor and Global Workers' Rights, which is a part of the Global Labour University network. He holds a Ph.D. in Government from Cornell University and a Master's Degree in Latin American Studies from Stanford University. He is the author of *Solidarity Transformed: Labor Responses to Globalization and Crisis in Latin America*. His current research examines how pricing and other sourcing dynamics in global supply chains affect working conditions and workers' rights.

Table of Contents

Acknowledgements

This report was made possible with the considerable support and insights shared by multiple organizations and individuals. The CGWR is profoundly grateful for the generous support of the Solidarity Center and for its insightful input in the project design. The lead author, Matthew Fischer-Daly, is especially grateful to the Sindicato Independiente Nacional Democrático de Jornaleros Agrícolas (SINDJA) and Mujeres Unidos en la Defensa de Jornaleras Indígenas (MUDJI). The leaders of these organizations and several of their fellow workers provided detailed localized data and insightful analysis (their names are not included to avoid possible retaliation). Additionally, the Instituto Mexicano de Seguridad Social (IMSS) and managers at the agricultural companies San Vicente Camalú, Rancho Nuevo, and Molinos Produce were all generous with their time and offered information and analysis. Lance Compa provided important feedback.

This publication was made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) under Cooperative Agreement No. AID-OAA-L-16-00001 and the opinions expressed herein are those of the author(s) and do not necessarily reflect the views of USAID/USG.

Executive Summary

1. Strawberry production and sales have accelerated worldwide since the 1990s. Climatic conditions for cultivation limit production locations to coastal areas, and crop perishability requires it to be transported to market within days of being harvested.

2. The largest multinational corporation in the berry sector, Driscoll's, models the sector strategy of private investment in plant patents, branding, and logistics while outsourcing production. Driscoll's sources berries from 400 companies in 21 countries and sells berries in 48 countries.

3. Mexico's strawberry sector is part of North American agribusiness supply chains. Production is concentrated in Michoacán and Baja California, and export sales are concentrated in the United States.

4. The governments of Mexico and the United States have supported the growth of the Mexican berry sector by creating conditions for a cheap supply of labor and profit growth. The Mexican government provided infrastructure (e.g., the trans-peninsular highway), shifted state subsidies from smallholders to agribusiness exporters, and privatized land and water. The North American governments reduced trade barriers and strengthened intellectual property rights protections in NAFTA, now the USMCA. US immigration policy supports reproduction of the wage differential by limiting rights of immigrants working in the USA.

5. Hundreds of berry production companies in Mexico supply the primary brands, Driscoll's, California Giant Berry Farms, and Andrew & Williamson. Brands primarily supply US food retail, in which Walmart, Kroger, Ahold Delhaize, and Publix control 40% of sales.

6. Employers have avoided collective bargaining in Mexico's berry sector by establishing protectionist contracts with union federations CTM, CROM, and CROC. Employers avoid full payment of legal wages and benefits with the support of the government's under-enforcement of laws.

7. Legal reforms by the Mexican government since 2017 increase protections of freedom of association. Combined with USMCA mechanisms for holding national governments and corporations accountable for labor standards, the reforms provide a foothold for Mexican workers to unionize and improve employment terms and conditions. However, industry interests in low labor costs and violence against workers remain obstacles.

8. While there is no collective bargaining in Mexico's berry sector, the recently formed Independent National Democratic Union of Agricultural Day Laborers (SINDJA) is organizing workers with leadership by women, including members of Women United in Defense of Indigenous Female Agricultural Day Laborers (MUDJI). Across the North American berry supply chain, retail is the only stage with union presence. Approximately 14% of US grocery store workers represented by unions, primarily the Teamsters and UFCW.

9. Mexican field workers receive an estimated 12 cents per pound of strawberries sold in US retail, which amounts to 4% of the retail price. The remainder is divided between the production company (46-56%), a brand such as Driscoll's for most producers that do not sell directly (11%), and a retailer such as Walmart (40%).

10. Following the 2015 strike by workers in the San Quintín Valley, the Mexican berry industry increasingly adopted private certifications, particularly Fair Trade USA, Equitable Food Initiative, and Rainforest Alliance. The certification programs have not provided workers democratic voice at work.

11. Organized berry workers in Mexico can pressure the industry for dignified employment by leveraging their ability to disrupt production and transport of the seasonal and perishable product.

Introduction and Report Overview

Global berry production and distribution, led by strawberries, accelerated in the last forty years, transforming into an international commodity sold year-round. In strawberry production, seasonal labor demand and limitations on increasing work time due to reliance on plant growth cycles heighten management interests and use of flexible employment, work intensification, and wage suppression. Mexico became the third largest producer and second largest exporter of strawberries through a combination of natural conditions, state support for cheap labor and capital investment, and integrating into North American food supply chains. Workers in Mexico face years of corporate and state collusion against unionism, yet demonstrated their leverage with the strike in 2015 that halted production and exports from its state of Baja California. Recent labor law reforms provide potential opportunities to translate disruptive capacity into bargaining power.

Strawberry supply chains are regional. Production depends on temperate climate, sandy soil, and the modulating effect of the sea. Sales depend on refrigerated delivery and fresh sales within days or discounted sales as frozen product or for processing. Thus, berry supply chains are regional: for example, Mexico and the USA for North American sales, Spain and Morocco for Europe, China domestically. While Mexico is among the top five countries for strawberry consumption, it consumes four times less than the USA. Close to all Mexican strawberry exports are sold to US corporations. The state of Michoacán leads Mexico's production, followed by Baja California, where production is concentrated in the San Quintín Valley, 186 miles (a four-hour drive) from the US border.

Cheap and flexible labor is the engine driving strawberry industry growth. Harvesting is entirely manual and requires crouching, stooping to pick, and racing to deliver as many eight-pound boxes as the plants and workers' body permit, each day for two-to-three months. In the piece-rate harvest work, workers endure this physical toll on their bodies for \$18-\$28 per day, stretched for much of the year when other agricultural employment pays substantially less. By comparison, the workers earn \$14-\$18 per hour harvesting strawberries at US production companies.[i] The Mexican state created the cheap labor market for national strawberry production by compelling millions of indigenous peasants off communal lands and into wage labor through economic policy, providing employers discretion through underenforcement of labor and social security laws, and protecting employers from labor's leverage by supporting union federations that block workers from unionizing.

Workers risk their health from exposure to chemicals in the strawberry industry, despite attempts to increase organic production. The non-organic strawberry sector relies on intensive chemical application, reportedly using more chemicals than any other fruit and vegetable crop.[1] Prior to planting, agribusinesses fumigate the soil by covering the beds with plastic and injecting Telone® or similar commercial products whose main ingredient is chloropicrin, also used as an active ingredient in tear gas.[2] The companies commonly apply the pesticide Bifenthrin, a possible carcinogen, and the fungicide Carbendazim, an endocrine and reproductive system disruptor.[3] Some producers in Mexico are certified for organic production, and some use biological controls. Hospitals in the San Quintín Valley have refused to document incidences of chemical intoxication, according to local activists.

The North American berry sector is typical of contemporary supply chains. Labor-intensive production is dispersed across hundreds of small, medium, and large companies. They purchase inputs from and sell berries to oligopolistic markets. Ten organizations own 70% of strawberry plant patents granted by the US gov-

[i] The 2020 Adverse Effect Wage Rate for employment of workers through the H-2A program in California was \$14.77 per hour; strawberry pickers represented by Familias Unidas por la Justicia earned \$16-\$18 per hour in Washington State.

ernment; among them, Driscoll's alone owns 28%.[4] One manufacturer dominates irrigation systems, and the largest chemical companies worldwide market the primary chemicals used.[5] The four largest US grocery corporations account for more than 40% of grocery sales.[6] Driscoll's, the dominant brand, owns no production facilities or sales outlets. Rather, its revenues depend on patents, contracted production, and marketing.[7] The marketing and retail companies source berries from locations with overlapping berry harvests in order to sell year-round.

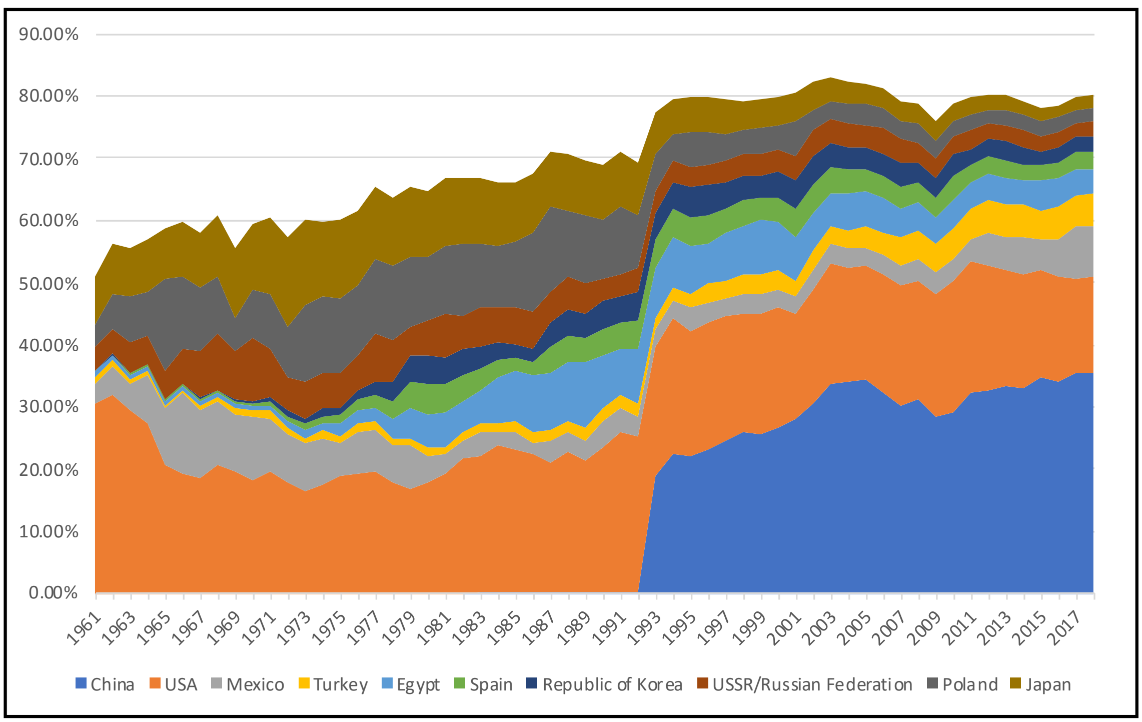
This report maps the strawberry sector from the position of field workers in Mexico's berry sector. Their labor generates profit for their employers and, along with labor throughout the chain, the companies at other stages of the strawberry commodity chain. The report begins with mapping the global strawberry sector, then focuses analysis at the national and local levels. The employment relations section highlights labor laws governing the sector, with a focus on recent domestic and regional legal reforms. The next section maps out unionization in the sector. The two subsequent sections detail distribution of value across the sector and private certifications used in it. A concluding section summarizes implications and outlines recommendations. The appendix provides additional data presentations, and the annex details main companies in the sector.

Global Supply Chain Mapping of the Strawberry Sector

Internationally, the commercial berry sector, led by strawberries, is relatively new. It is regionally concentrated. At input, marketing, and sales stages, market shares are concentrated. One company, Driscoll's, is the dominant international brand.

World strawberry production increased from under one million to 8.3 million metric tons per year between 1961 and 2018, with notable acceleration after 1990 (Appendix Chart A). Since then, top producer China increased production, and the United States, the second-largest producer, increased production acreage approximately 17%, concentrated primarily in California and Florida.[8] Chart 1 depicts changes over time in country shares of global strawberry production.

Chart 1: Country Shares of Global Strawberry Production, 1961-2018



Source: Author's calculations with FAO data.[9]

[See Chart 1.] It shows the dominant share of production in China and the US. Mexico is the third largest producer. Fourteen countries account for approximately 88% of strawberry production (Appendix Chart B).

The common production process begins with land preparation, creating wide beds raised 12-18 inches to avoid excessive moisture and increase plant density, root space, and harvesting speed.[10] Growing in elevated beds that do not requiring bending is possible, but most production requires workers to crouch continuously, causing musculoskeletal pain that endures all day.[11]

After creating beds with tractors, workers fumigate the soil by covering the beds with plastic and injecting Telone® or a similar chemical through a drip irrigation system to prevent diseases.[ii, 12] Telone® is the trade name of chemical compounds of chloropicrin and 1,3-dichloropropene, trademarked by Corteva (previously the agricultural unit of DuPont, which sold Corteva to complete its merger with Dow in 2019).[13]

Patenting plant varietals is strategic business in the strawberry sector. Since 1975, the United States Patent and Trademark Office has approved 561 patents of strawberry plants.[14] Driscoll's owns 27.6% of them, and the Regents of the University of California (through its breeding program at UC Davis) owns 14.4%.[15] The top ten patent owners account for 69.9%.[16] Planting is annual and time-sensitive – early or late planting risks lower yields. Managers select plant varietals according to their market strategy.

Table 1: Top ten countries of origin and destination for international strawberry trade

Top Export Countries	EX Value (millions)	Share Global Exports	Top Import Countries	IM Value (millions)	Share Global Exports
1. Spain	$711	26.2%	1. USA	$489	18%
2. Mexico	$503	18.5%	2. Canada	$344	12.6%
3. USA	$468	17.2%	3. Germany	$322	11.8%
4. Netherlands	$283	10.4%	4. United Kingdom	$224	8.23%
5. Belgium-Luxembourg	$169	6.21%	5. France	$176	6.48%
6. Egypt	$93.4	3.43%	6. Belgium-Luxembourg	$123	4.53%
7. Morocco	$53.8	1.98%	7. Netherlands	$90.5	3.33%
8. South Korea	$45.3	1.67%	8. Italy	$85.5	3.15%
9. Germany	$45.3	1.67%	9. Russia	$60.5	2.22%
10. Greece	$40.7	1.5%	10. Austria	$56	2.06%

Source: Observatory of Economic Complexity 2020

[ii] Strawberry production companies used methyl bromide to fumigate beds until the chemical was phased out in 2016 in the United States, subsequently in Mexico. The 1987 Montreal Protocol on Substances that Deplete the Ozone Layer scheduled phase out by 2005, and industries secured an extension and exemption – methyl bromide use is permitted in nurseries for plant production. Guthman, Julie. 23 January 2018. Healthy to eat, unhealthy to grow: Strawberries embody the contradictions of California agriculture. *The Conversation*. https://theconversation.com/healthy-to-eat-unhealthy-to-grow-strawberries-embody-the-contradictions-of-california-agriculture-86907?xid=PS_smithsonian

Maintenance involves irrigation, fertilization, fungicide (commonly, Carbendazim) and pesticide (commonly Bifenthrin) application through drip irrigation systems and/or tractor-propelled sprayers and weeding and pruning by manual labor. Notably, the strawberry sector reportedly uses more chemicals than any other fruit and vegetable crop.[17] Commonly used pesticide Bifenthrin is a suspected carcinogen; commonly used fungicide Carbendazim disrupts the endocrine and reproductive systems; and they are manufactured by the largest companies in the chemicals industry.[iii] Nearly all conventional strawberries sold contain agrochemical residues.[18]

Harvesting strawberries is manual and time sensitive. In North America, harvesters are paid piece-rate.[iv] Mechanical strawberry harvesters precise enough to pick quality fruit remain slower and more expensive than hired labor.[19]

Logistics are paramount in the berry sector. Strawberries tend to perish after a couple days unrefrigerated, after a week refrigerated.[20] Thus, harvesters pack consumer-ready containers, placed in refrigerated trucks that depart daily from farms. Driscoll's, the largest brand in the sector, manages transportation with real-time tracking of truck locations and cargo temperatures to transport 75-80% of berries the day they are picked.[21] International exports of strawberries are led by Spain, Mexico, and the USA, which together account for 62% of all exports.[v]

Retail, wholesale, and processing are options for strawberry sales. Sellers prioritize fresh sales, which fetch approximately double the price of sales for frozen or processing markets, and buyers reject entire shipments for not meeting quality requirements.[22] Retailers and wholesalers thus purchase from multiple suppliers and place orders on a nearly daily basis. Terminal markets, which primarily supply restaurants in large cities, and institutional buyers (e.g., schools) are additional berry buyers.

Driscoll's is by far the largest multi-national corporation exclusively in the berry sector. The company is valued at $3 billion; sources strawberries, raspberries, blueberries, and blackberries from 400 production companies in 21 countries; and sells berries in 48 countries.[23] It is privately owned, with 70% ownership shares held by brothers Miles Reiter and Garland Reiter. Mario Steta is Vice President and General Director for Latin America. Driscoll's revenue was $473 million in 2018. The company accounts for an estimated one-third of the US berry market.[24] Of the US organic market, it accounts for nearly all sales of raspberries, 60% of strawberries, 46% of blackberries, and 14% of blueberries.[25]

Driscoll's strategy involves outsourcing production, plant development and patenting, branding, and logistics. The company began sharecropping in the 1940s and was compelled to end by a sharecroppers' lawsuit in 1975.[26] Today, suppliers to Driscoll's plant its patented varietals, manage production according to its specifications, and pay 18-25% commission for marketing services.[27] Driscoll's manages plant breeding, patenting, and propagation and logistics – quality control, refrigerated transportation, marketing, and sales.[28] Its general council explained, "Growers are sort of like our manufacturing plants. We make the inventions, they assemble it, and then we market it, so it's not that dissimilar from Apple using someone else to do the manufacturing but they've made the invention and marketed the end product."[29] In this sense, Driscoll's might be considered an indirect employer of the fieldworkers.

[iii] BASF, DuPont, Bayer CropScience, Jiangsu Lanfeng Bio-Chem, Lianyungang Jindun Agrochemical, NingXia Sanxi Chemical, Anhui Guangxin Agrochemical Group, AnHui JinTai Pesticides Chemical, Bailing Agrochemical, Trustchem, Jiangsu Sinamyang Crop Science, Yangzhou Pioneer Chemical, Hunan Haili Chemical Industry. See Absolute Reports. Global Carbendazim Market Research Report 2020. https://www.absolutereports.com/global-carbendazim-market-15430802

[iv] In Spain, legislation and a sectoral agreement requires payment of day rates, although compliance is unenforced.

[v] While China emerged to become the largest strawberry producer (Chart 2), China reports no international trade, exports, or imports of strawberries.

Driscoll's largest supplier for US sales is Reiter Affiliated Companies (RAC), also owned by the Reiter family. Driscoll's patented plant varietals are central to profitability,[30] and it patented the 'clamshell' clear plastic container that snaps close and allows airflow to sustain berries.[31] Its transportation management involves real-time tracking of approximately 250 refrigerated trucks, which transport four million pounds of berries daily during peak seasons, more than 75% of which is moved from suppliers to buyers the day the berries are picked.[32] For year-round US sales, Driscoll's relies on suppliers in Mexico, especially for certified organic strawberries, from October through April, the offseason for most of its US suppliers.[33] Florida shares the strawberry production season with Mexico but supplies almost no organic strawberries and is disadvantaged by much higher labor costs.

Nearly three quarters of global strawberry consumption is concentrated in China (41%), the United States (16%), Egypt (5%), Turkey (4%), Mexico (4%), and Germany (3%).[34] The largest four retailers by revenue are general retailers that sell food – Walmart, Costco, Amazon, and Schwarz group. Three of the largest ten retailers are primarily food grocers – The Kroger Group, Aldi Einkauf GmbH & Co oHG, and Tesco PLC.[35] Seven of the largest ten retailers worldwide are US-based corporations.[36] Four food retailers control more than 40% of US grocery sales - Walmart, Kroger, Ahold Delhaize, and Publix (Appendix Chart C).[37]

The structure of the international strawberry sector insulates capital from labor. Market concentration on the input side means that production companies are price takers and expend more for plants, chemicals, irrigation equipment, and technical consulting than they would if they could negotiate prices with competing input suppliers.[38] Concentration in marketing and retail reduces opportunities for production companies to pass on cost increases to consumers.[39] Retailers' oligopolistic power has reduced small businesses – it has compelled more people into wage labor, enabled their 'loss-leader' strategies of selling products below cost to gain customers, and increased their political power to ignore workers' rights and establish 'on-demand' employment.[40] Production management is already constrained by nature in its ability to increase labor time, which cannot exceed plant development. Squeezed by input suppliers and buyers, their competitiveness depends significantly on work intensification and super-exploitation of field workers.

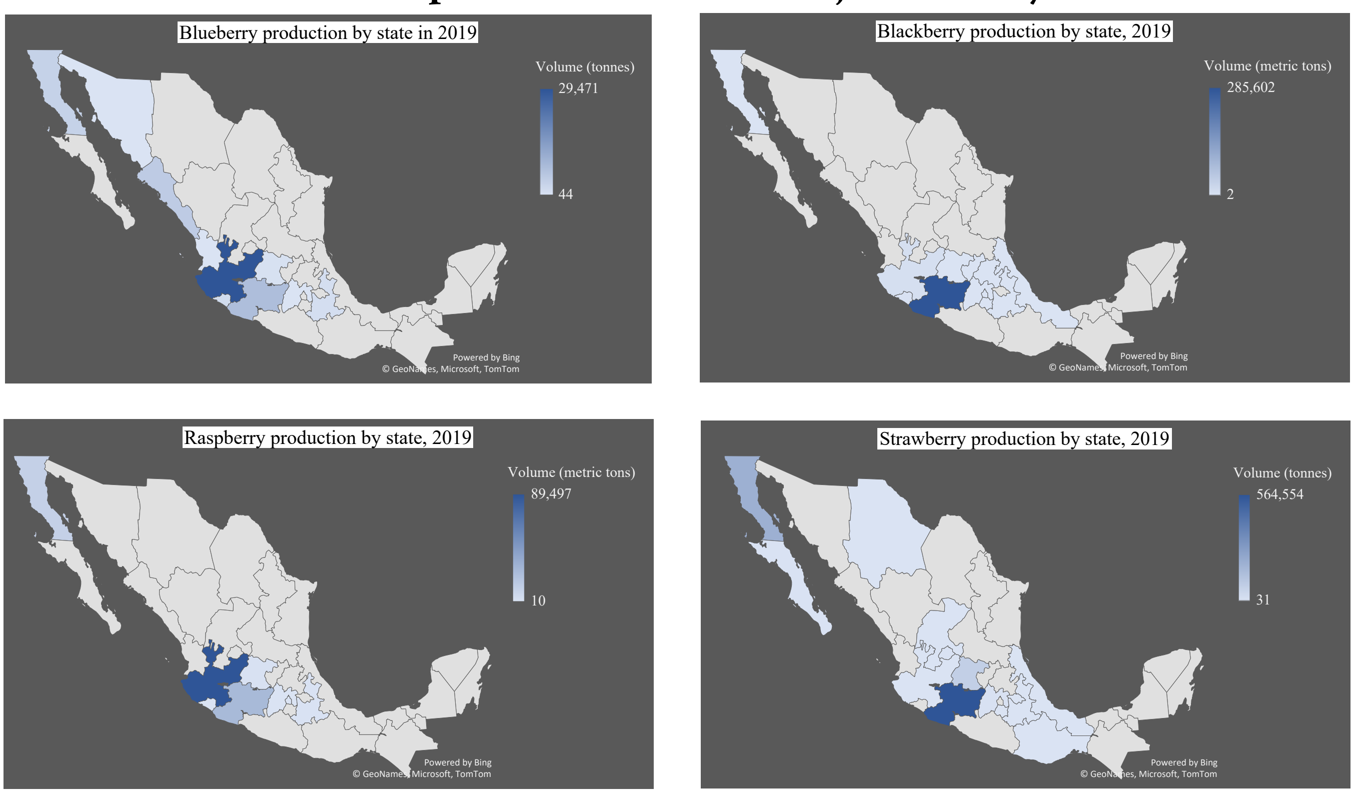
National and Local Supply Chain Mapping of the Strawberry Sector

The emergence of the berry and strawberry sectors in Mexico is best understood as part of the national government's export-led development strategy. The government of Mexico supported agricultural exports with key infrastructure and policies. It built the trans-peninsular highway connecting Baja California to California in 1973. It granted land usufruct rights to non-citizens in 1986, privatized land and water rights in 1992, devalued its currency repeatedly, shifted subsidies from small-holder farmers to agricultural exporters, and negotiated and implemented the North American Free Trade Agreement.[41] All Mexican berry exports enter the USA by land, nearly all from Baja California along the trans-peninsular highway. The policies pushed millions from peasant livelihoods to wage labor, particularly those from indigenous communities of the southern states of Oaxaca and Guerrero. Investors in the country's agricultural-export industry recruited from the surplus labor market, taking economic advantage of the new workers' marginalization as indigenous peoples and their need for income.[42] In Baja California's San Quintín Valley, approximately 80% of residents are members of indigenous communities and are first-, second-, or third-generation immigrants from southern Mexico.[43] The Reiter family, owners of Driscoll's and RAC, incorporated Berrymex in 1991, noting "We have developed and patented our own plant varieties, and would not have risked bringing them to Mexico unless NAFTA protected the patents."[44]

Based on all the policies and practices outlined above, Mexico has developed its export-berry sector for twenty years. The value of Mexican berry exports increased 125 times between 2002 and 2017 (Appendix Chart E).[45] Berry production in Mexico combined with that in California to extend berry sales year-round. In terms of US imports, Mexico accounts for most blackberry imports.[46] One-third of strawberries produced in Mexico are exported, almost all to the United States, and some berries are exported to Europe, where Mexico competes with Peru as the largest supplier of fruit during winter.[47] The value of blackberry, blueberry, and raspberry exports from Mexico increased from $7 million in 2002 to $1 billion in 2017, and strawberry exports increased from $6 million in 2002 to $555 million in 2017.[48]

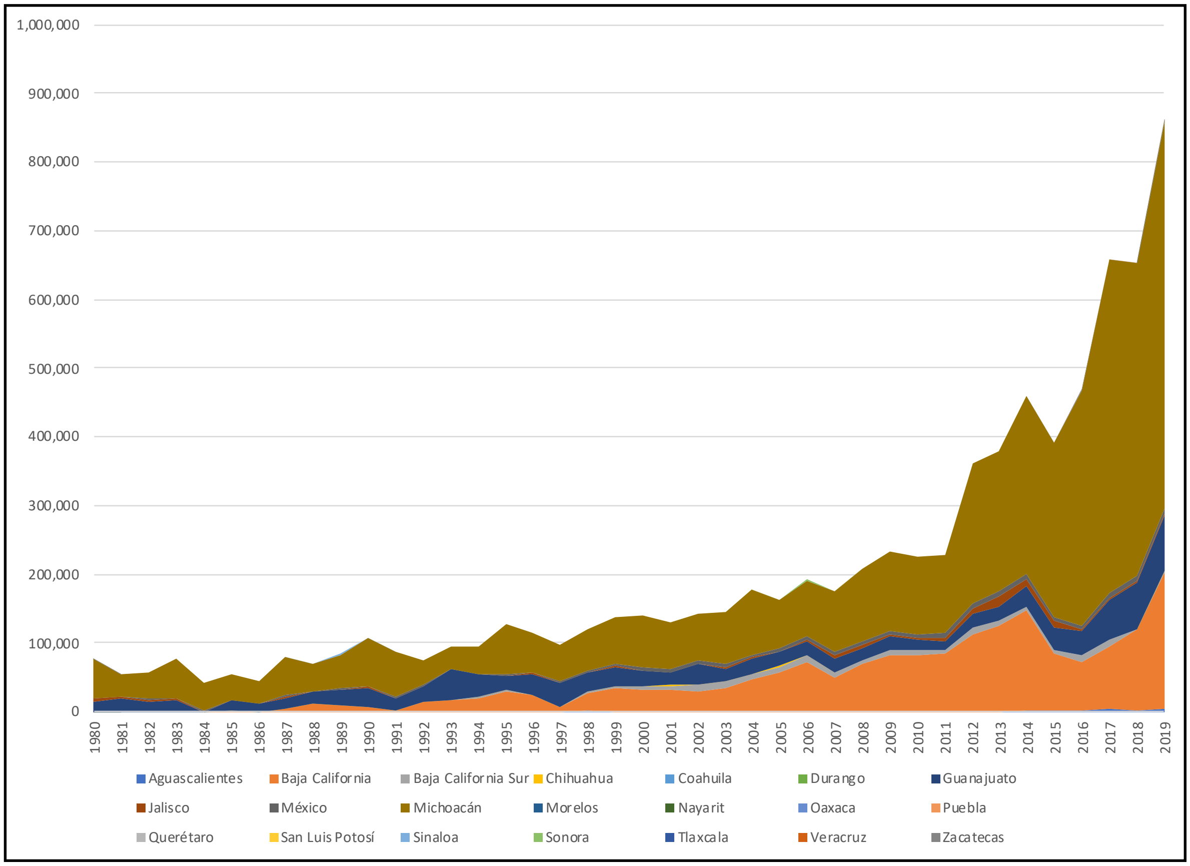
Within Mexico, the state of Michoacán accounted for nearly all blackberry production (95.8%) and two-thirds of strawberry production in 2019. The state of Baja California accounted for another 23.3% of national strawberry production, almost all for export to US markets. The two states have dominated berry production throughout the sector's growth (Chart 6 and Appendix Chart D).

Charts 2-5: Mexico's production of the four major berries by state in 2019



Source: Observatory of Economic Complexity 2020

Chart 6: Strawberry Production (metric tons), Mexico, by State: 1980-2019



Source: Author's calculations with SIAP data.[49]

In Baja California, strawberry production has grown absolutely and as a percentage of all revenue from agriculture since 1980 (Charts 7 and 8). Around the year 2000, agribusinesses turned sharply towards strawberries, partly due to drought, aquifer and soil exhaustion – agriculturally productive land in this state fell from 28,000 to 7,8999 hectares (72%) between 1985 and 2015.[50] In 2019, Baja California produced 200,570 metric tons of strawberries, generating 7.7 billion pesos ($382 million USD).[51, vi]

Mexico's strawberry sector involves hundreds of small, medium and large production companies.[vii] The Annex lists companies, their stage in the supply chain, and identified details. The industry association Aneberries reported the following breakdown of companies in Mexico's berry industry by home country: 44% Mexico, 36% USA, 8% Guatemala, 8% Spain, and 8% Austria.[53] The largest companies in the supply chain by far are the retailers, followed by marketing companies and those that sell chemical and plant inputs. The largest production companies are members of Aneberries, and most production companies in Baja California are members of the Consejo Agrícola de Baja California (CABC) business association. The previous president and current board director of CABC, Héctor Uraga Peralta, was appointed sub-director of economic development for the municipality of Ensenada in 2019.[viii]

[vi] Exchange rate used: 1 USD = 20.0928 MXN. www.xe.com

[vii] Large production companies have more than 100 hectares, medium 50-100 hectares, and small fewer than 50 hectares, according to the President of the Consejo Agrícola de Baja California.

[viii] In 2020, San Quintín became the sixth municipality in Baja California. It includes the towns Eréndira, San Quintín, San Vicente, Camalú, Colonia Vicente Guerrero, Colonia Lázaro Cárdenas, el Rosario de Arriba, Puertecitos, el Mármol, Cataviña, Punta Prieta, Bahía de los Ángeles, Punta Colonet, and Villa de Jesús María e Isla Cedros.

Chart 7: Strawberry Production Volume: Baja California (metric tons)

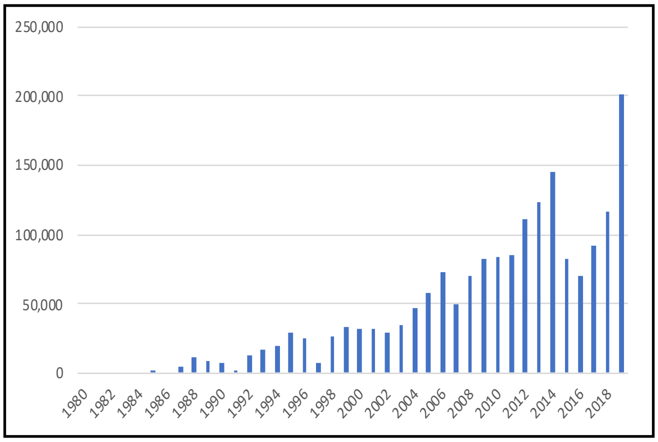
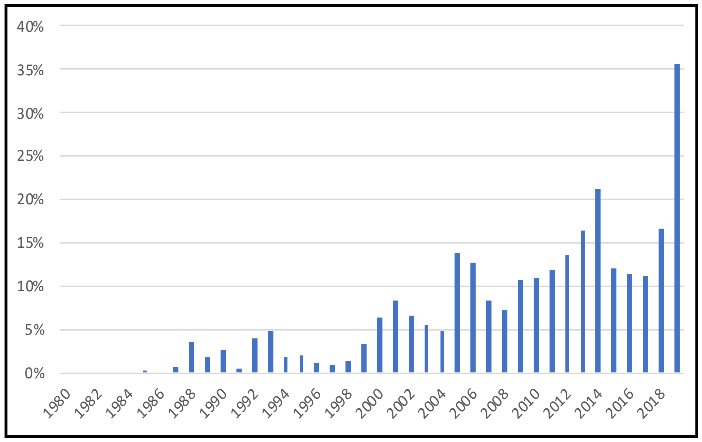


Chart 8: Strawberries as Percentage of Total Agricultural Value: Baja California



Sources: Author's calculations with SIAP data.[52]

Large and medium-size companies tend to own and manage export, import, and transportation of product, while smaller companies tend to contract with or sell ad hoc to the larger companies. The largest companies by revenue managing production in Mexico, directly or through wholly-controlled partner companies, are Driscoll's-RAC-Berrymex, California Giant Berry Farms, and Andrew & Williamson.

The largest berry production company in Mexico is Berrymex. It is owned by RAC, which is not formally a subsidiary but a partner and the largest supplier to Driscoll's; it markets all of its product through Driscoll's, 90% to the USA.[54] Berrymex's parent company, RAC, is owned by brothers Garland and Miles Reiter, primary owners of Driscoll's as well. Hector Lujan Valladolid is CEO and president of RAC andwas previously the Vice President of Berrymex.[55] In Baja California, William "Willie" Hedrick Villalobos has been VP of operations for twenty years. Berrymex produces blackberries, blueberries, raspberries and strawberries in Mexico. In Jalisco, Berrymex contracts small landowners to produce most of its berries.[56] In Michoacán and Baja California, it produces and contracts with smaller producers, and buys berries from others, such as Alejandro Munguía Rodríguez (see Annex). The CEO reported that Berrymex directly employs up to 4,000 field workers during peak harvest, 2,000 of whom are in Baja California.[57] With production overseen by RAC, Driscoll's manages marketing and sales, 75% of which are to food retailers and the rest to terminal markets. Driscoll's apparently removed a public tracing system that allowed consumers to identify the berry supplier and its location.[58] Since 2015, Berrymex has obtained Fair Trade (USA) certification for most of its owned operations, and Driscoll's claims that 90% of strawberries it sources from Baja California are organic – a claim viewed skeptically by workers.[59]

The second largest berry production company, California Giant Berry Farms, also markets the product. Owned by Patrick Riordan, the company is managed by Joe Barsi, President and Bill Moncovich, CEO. Established in Watsonville, California in 1970, California Giant established a subsidiary in Mexico in 2013. The subsidiary produces strawberries and blackberries. Giant does not profess to use any labor-related certification systems. The company claims that consumers can trace their product to the supplier and its location by entering the 16-digit code on the calgiant.com/trace webpage.

The third largest berry production and marketing company in Mexico is Andrew & Williamson. Established in California in 1985, Andrew & Williamson has operated production since at least the 1990s through its wholly-owned subsidiary by the same name with operations in Baja California, Durango, and Sinaloa, Mexico. The parent company was sued by the US government for illegally selling Mexican-grown product to a US school procurement program that required domestic production after the product was linked to a hepatitis outbreak in 1997. The company was again sued for product linked to a salmonella outbreak in 2015. Since 2017, Andrew & Williamson has participated in the Equitable Food Initiative, under which most of its owned facilities are certified. Well-known Andrew & Williamson production facilities in Baja California include Don Juanito, Olmos, Rancho Nuevo, and Rancho Agrícola Santa Mónica. Rancho Nuevo employs 300-400 workers year-round and an additional 300-400 for the harvest. Andrew & Williamson markets its produce under the brands "Good Farms: Make a Difference" and "Limited Edition" to Costco and other retailers, terminal markets, and institutional buyers.

Certain medium-size production companies are also influential in Mexico's strawberry industry in Baja California. San Vicente Camalú is exemplary. The family-owned company began in the 1960s when the grandfather of the current owner emigrated from Jalisco. It has grown strawberries around Camalú, San Quintín in Baja California since 1984, currently on 200 of its 1,000 hectares of production – on which it also produces tomatoes, asparagus, and avocado. Salvador Garcia is operations manager and co-owner with his siblings. Salvador is also the current president of the Consejo Agrícola de Baja California. In 2008, Mexican press reported bad conditions at the company's labor camps. Workers alleged that the company was complicit in police retaliation against strikers during the 2015 strike. San Vicente Camalú is certified for some products by GlobalGAP, Fair Trade (USA), and California organic (CCOF). The company owns ExpoFresh, the San Diego based company that manages export, import, and sales, primarily to the retailers Costco, Kroger and Walmart and, secondarily, to terminal markets.

Employment Relations Context: Labor laws and practices affecting employment relations

To date, protectionist contracts have denied workers' freedom of association in Mexico's berry sector. Effects include job insecurity, wage theft, sexual harassment and assault, exposure to agro-chemicals, and lack of health care and retirement savings. The Mexican government has created the conditions for such indecent work, and the berry industry has benefited by retaining its competitive advantage in the North American market. Wages for berry field workers in Mexico are four to eight times lower than in the USA.[ix] Legal reforms by the Mexican federal government since 2017 present a potential for future unionization and collective bargaining.

The labor relations system in Mexico underwent two periods of corporatism. The government prioritized industrialization and thus protected workers in select industries between 1917 and the 1970s, when it began to prioritize export-led development and to weaken worker protections.[60] Under the neoliberal period that began in the 1970s, protection contracts – agreements between unions and employers with government support that prevent independent worker collective action – proliferated.[61] When workers began organizing in the San Quintín Valley in the 1980s, often supported by the Central Independiente de Obreros Agrícolas y Campesinos (CIOAC), employers responded by signing protection contracts, primarily with the Confederación de Trabajadores Mexicanos (CTM), Confederación Regional Obrera Mexicana (CROM), and Confederación Revolucionaria de Obreros y Campesinos (CROC).[62] The protectionist unions receive direct payments from employers and often support from government officials. Workers report that they have never

[ix] In the 2020 strawberry harvest, in San Quintín employers paid $18-$28 per day, while employers in the United States paid $120-$144 per day (from the $14.77 hourly adverse effect wage rate for H-2A workers in California to up to $18 per hour paid to workers represented by Familias Unidas por la Justicia in Washington).

seen a representative of the protectionist unions.[63] During the 2015 strike in San Quintín, the organizing body, the Alianza de Organizaciones Nacional, Estatal y Municipal por la Justicia Social (Alianza), demanded nullification of the protection contracts, and the first negotiation proposal by employers was to sideline the Alianza and sign a settlement with the CTM, CROM, and CROC.[x] At this writing, the protectionist unions and their contracts with employers in agribusiness remain firmly in place.

Wages had not increased for more than a decade when workers struck in 2015. Then the Alianza demanded an increase to 300 pesos per day, which was double the prevailing rate; employers ultimately agreed to raise wages by 15%. During the 2020 strawberry harvest in San Quintín, employers paid, on average, 18-19 pesos ($0.90-$0.94) per box, which resulted in average daily rates of pay between 360-570 pesos ($18-$28) depending on the employer, fruit yield, and work speed.[xi, 64] Companies in the sector typically tout payment of harvest wages. For example, a 2019 report funded by Walmart that included the participation of lead companies stated that field workers throughout Mexico "may earn two or three times the minimum wage *during the harvest season*" (emphasis added).[65] For work in strawberry fields outside of the 2-3 month peak harvest and other crops, employers were paying by the day, on average, 235 pesos ($11.88) in Baja California in 2020.[66] Ending employers' practice of paying an "integrated salary," which combines wages and benefits, was a demand of the 2015 strike; it remains the pay modality for most agriculture workers in the state.

Non- and under-payment of legal benefits plagues field workers in Mexico. Labor and social security laws state that workers throughout Mexico are entitled to healthcare, pension, maternity leave, paid vacation, year-end bonuses, modest profit sharing, job protection and severance for no-fault dismissal.[xii] The government has shifted between exclusion and inclusion of agricultural day laborers under these laws.[67] Currently, the law stipulates that all workers become permanent, and therefore entitled to full legal rights and benefits, after working at least four days per week for 26 weeks.[68] However, the historical legal ambivalence, lack of social security and labor law enforcement, and interests of employers combine to normalize denial of full legal rights to field workers in the San Quintín Valley. Fewer than forty percent of workers in San Quintín were registered in the social security system in 2020,[xiii] and even workers hired as permanent employees are denied full compensation.[69] Berrymex claims to pay all benefits but provides employees with checks in the name of "Moramex" and uses a payment method that their HR manager described as "confusing."[70] Managers of Andrew & Williamson's Rancho Nuevo and of San Vicente Camalú also claim full compliance with legal standards, while their workers report missing benefits.[71] Additionally, workers and employers point out that the federal, state, and municipal governments under-invest in infrastructure.[72] Water distribution, sewage and waste treatment, street grating or pavement, safe and consistent electrical access, reliable public transportation, healthcare, and resourced schools are all lacking in the San Quintín Valley, forcing workers to spend more on basic needs.

---

[x] The Alianza de Organizaciones Nacional, Estatal y Municipal por la Justicia Social publicly demanded increased minimum daily wages to 300 pesos; payment of overtime wage rates; end-of-year payments; paid leave for holidays and vacation; registration in the IMSS for medical care and pensions; nullification of the protection contracts of the CTM, CROM and CROC; and dialogue with employers and the state of Baja California government.

[xi] Employers paid 18-19 pesos per box (n=19), and workers (n=50) tended to pick 20-30 boxes per day.

[xii] The Instituto Mexicano del Seguro Social (IMSS) provides healthcare, retirement, and occupational disability benefits.

[xiii] Local IMSS office data showed a total of 46,165 employees registered in the social security system, 6,000 of whom were registered as permanent workers, and, of those registered as temporary workers, 10,000 were in agriculture. Conservatively assuming 16,000 agricultural workers registered on any basis (despite the obviousness that some number of the 6,000 permanent workers are in other industries) would suggest that 40% of the 40,000 workers employed in San Quintín agriculture were registered in IMSS in 2020, most only for part of the year.

Table 2: Employer Obligations and Compliance Status
Strawberry Sector, San Quintín

	Legal Requirement	2020 Status
Freedom of association & collective bargaining rights	ILO Conventions No. 87 & 98 articulated in Federal Federal Labor Law Art. 357, 357 bis, 358.	Blocked by employers' protection contracts since 1980s. Removal of contracts requires votes of 30% of workers employed.
Wages	Constitution Art. VI stipulates minimum wage to be a living wage.	$18-$28 per day during harvest; $12 per day offseason compared to $11 per day costs for water, food, gas, & electricity.[xv]
Social security	Social Security Law Art. 15 requires employer registration of workers within 5 days & whenever working at least 4 days per week.[xiv]	Fewer than 40% registered.
Overtime wage rates	Federal Labor Law Art. 67 requires double regular payrates for more than 8 hours in a day; Art. 68 requires triple wages for more than 9 extra hours in a week.	Most field workers reported non-compliance. Some field workers, tractor drivers, security guards reported partial compliance. "Integrated salary" pay modality obscures employer compliance by failing to itemize amounts paid.
Paid breaks	Federal Labor Law Art. 64 requires a paid 30-minute break for workers who cannot leave the workplace; Art. 69 requires a paid day off for every 6 days worked.	
Holidays	Federal Labor Law Art. 74 requires leave or double regular payrates on established holidays.	
Paid vacation	Federal Labor Law Arts. 76-81 require paid vacation.	
Annual bonus	Federal Labor Law Art. 87 requires annual payment equivalent to 15 days wages or amount proportional to days worked.	
Discrimination	Federal Labor Law Art. 2 prohibits employment discrimination on the basis of ethnicity, nationality, gender, age, disability, social condition, health, religion, migration status, opinions, sexual preferences, or civil status.	Employers began hiring women for all positions at one company. Most companies effectively reserve higher-paid jobs for men.
Occupational safety & health	Federal Labor Law Art. 3 requires working conditions that assure workers' health; Art. 51 grants workers the right to refuse dangerous work; Art. 132 requires employers to prevent occupational accidents and diseases; Art. 343-C requires employers to inform workers of health risks.	Fieldworkers reported lack of information from employers on chemicals applied to fields & refusal by public hospital to report chemical-exposure cases.
Parental leave	Federal Labor Law Art. 170 grants mothers 6 weeks leave prior & 6 weeks after birth, or 6 weeks after adoption; Art. 132 grants fathers 5 days paid leave after birth or adoption.	Fieldworkers reported arbitrary employer compliance.

[xiv] The Political Constitution of the United States of Mexico (Art. VI) states the minimum salary paid to workers should be sufficient, accounting for regional conditions, to satisfy normal needs in the life of the worker, their education, and honest pleasures, considering the worker as head of a family – contemporarily the meaning of "living wage" (see Anker, R. 2011 Estimating a living wage: A methodological review. International Labour Organization Conditions of Work and Employment Series No. 29. Geneva: International Labour Office.)

[xv] Workers (n=50) reported spending 160.54 pesos on water, 1,211.54 on food, 101.38 on gas, and 85.18 on electricity per week.

The wage increases, recognition of Independent National Democratic Union of Agricultural Day Laborers (SINDJA), and increased compliance with legally required benefits following the 2015 strike by workers in San Quintín likely reflected the fact that workers disrupted production and distribution of strawberries during peak harvest. Anecdotally, managers claimed major losses in 2015 and the threat of disinvestment. Hector Luján, then director of Berrymex and now CEO of Reiter Affiliated Companies, reported that Berrymex plowed over 30% of its 2015 strawberry crop, and CABC said its members would reduce planting area by 30% the following year.[73] National records show that strawberry production in Mexico grew annually by 57% in 2012, 5% in 2013, and 21% in 2014; declined by 14% in 2015; and resumed growth of 19% in 2016 and 41% in 2017. Media reported that 2016 began with an increase in exports of 29% for strawberries and 8% for other berries.[74] It is possible that some US companies increased production in 2015 in response to the strike. US production was flat in 2013, decreased by 1% in 2014, grew 1% in 2015, then decreased by 3% in 2016, -8% in 2017. It is also possible that some Mexican companies increased production outside of Baja California in response to the strike, although the increased production observed in Guanajuato and Michoacán continued in following years when Baja California resumed growth (Chart 6). The 2019 Walmart-funded report did not attribute any improvements to the strike, instead claiming that reports by the *Los Angeles Times* of modern-day slavery in Mexican export agribusiness motivated employers to enroll 90% of workers in IMSS.[75]

The constitutional reform of 2017, attendant labor law reforms activated in 2019, and labor commitments in the United States-Mexico-Canada Agreement (USMCA) created the institutional basis for workers in Mexico to exercise freedom of association and collective bargaining rights with autonomy.[76] Concrete change to the balance of power between labor and employers depends on mobilized labor pressure and how the governments and employers respond.

Domestic legal reforms resulted from pressure built by the labor movement and eventually asserted by the US government to address the lack of protection of labor rights by the Mexican government. The pressure reflected the outcomes of neoliberalism implemented in North America since the 1980s: declining government support for unions, immiserating wages, increasing productivity, and reinforcing incentives for corporations to locate labor-intensive operations in Mexico to take advantage of falling unit labor costs relative to its northern neighbors, low trade barriers, and strong investment protections – most firmly established in NAFTA.[77] In the context of the Trans-Pacific Partnership (TPP) negotiations and the rise of the Movimiento Regeneración Nacional (MORENA) party under André Manuel López Obrador, the Mexican government reformed Article 123 of the Mexican Constitution in 2017, ratified the ILO Right to Organise and Collective Bargaining Convention (No. 98) in 2018, and reformed the Federal Labour Law in 2019. As of 2020, the Federal Labour Law prohibits employer interference in union and collective labor activities, grants workers freedom to affiliate and disaffiliate from unions and elect union executive board members for limited tenures, protects the right to union and collective labor activities by informal workers, prevents government interference with the new Federal Centre for Labour Conciliation and Registration,[xvi] requires mechanisms for worker control over union decision-making, and requires worker support through voting for union representation and collective bargaining agreements.[78] The legislation also stipulated that all unions must comply with the new laws, including through a democratic election of executive board members within 240 days (a deadline that has passed) and by amending procedures for workers to vote on collective agreements by May 2, 2021.[79]

[xvi] The The Federal Centre for Labour Conciliation and Registration has a mandate that combines those of the United States National Labor Relations Board, Federal Mediation and Conciliation Services, and Office of Labor Management Standards (17 September 2020. The USMCA (the New NAFTA): Moving to Effective Enforcement of Labor Rights. U.S. branch of the International Society of Labor and Social Security Law (ISLSSL) in conjunction with the LERA International Interest Section.)

The USMCA provides mechanisms for pressuring the Mexican government and employers to comply with the new labor laws. The three governments committed to uphold ILO core labor standards, including explicitly the right to strike, in Chapter 23 of the USMCA, meaning violations of these standards are subject to the same dispute settlement system as other provisions of the agreement and can lead to arbitration and sanctions on a government as the last steps of the complaint process.[80] For disputes alleging violations, the USMCA requires its dispute settlement panel to assume that the violation affects trade unless the government alleged to have failed in its duty proves otherwise, and does not require proof that the violation gave an employer a competitive advantage.[xvii] Furthermore, the USMCA establishes the Facility-Specific Rapid Response Labor Mechanism, which permits complaints by the US or Canadian government against an employer in Mexico for violations of freedom of association and collective bargaining rights to be brought before a panel, with the mandate to impose remedial measures, including sanctions such as suspension of trade preferences.[xviii] However, this rapid-response mechanism applies only to "priority sectors," currently including manufacturing, services, and mining; while the government signatories can add sectors, it would require strong pressure to convince the US government to propose the extension and to convince the Mexican and Canadian governments to agree.

These reforms of the domestic and regional legal institutions create a foothold for labor. Workers may now vote out protection contracts and unions and elect representative unions with oversight by the Federal Centre for Labour Conciliation and Registration and the leverage of the USMCA complaint mechanisms that cover the government and employers. Whether workers can use the foothold provided by the new domestic and regional laws to establish collective bargaining with employers likely depends on worker organizing and responses by employers and government authorities. In response to the 2015 strike in the San Quintín Valley, the government, at the employers' request, deployed federal police, which engaged strikers and their communities violently.[81] In 2019, an employer fired twelve security guards, and SINDJA assisted the workers to file a complaint with the Labour Secretariat. The employer responded by inviting the workers to return to work, where thugs beat them. SINDJA then assisted the workers to file a criminal complaint; days later, a SINDJA leader's home was burned down. Government authorities conducted no investigations.[82] With regard to labor organizing, participants and observers of the 2015 strike acknowledge the assertion of worker control over businesses demonstrated by the strike and closure of the highway, while also identifying inadequate worker organizing as one reason that employers and government are able to deny workers' demands.[83] In particular, workers interviewed in 2020 highlighted the distance between the leaders of the 2015 strike and field workers, particularly women workers, disillusionment due to the perception that a few of leaders apparently sought personal gain from the action, and the challenge of organizing workers whose precarious employment limits their time and resources. Furthermore, the North American agribusiness industry's interest in cheap labor for production remains, and the USMCA maintains the regime of rights for corporations across borders while denying full rights to immigrant workers. The attendant disparities in unit labor costs not only at-

[xvii] In the Dominican Republic - Central America - United States Free Trade Agreement, a complainant had to prove that the labor standards violation was in a manner affecting trade and conferred a competitive advantage to an employer, positions of the US-Guatemala panel that prevented findings and remedial action (Santos, A. 2019. Reimagining Trade Agreements for Workers: Lessons from the USMCA. https://ssrn.com/abstract=3502815)

[xviii] The USCMA permits complaints by the Mexican government against a US or Canadian employer "only with respect to an alleged Denial of Rights owed to workers at a covered facility under an enforced order of the" National Labor Relations Board or Canada Industrial Relations Board, respectively. Claims can be brought against Mexican employers only with respect to an alleged Denial of Rights under legislation that complies with Annex 23-A (Worker Representation in Collective Bargaining in Mexico)" (USCMA Art. 31-A.2 Footnote 2, Art. 31-B.2 footnote 5).

tract capital to Mexico; they also mean many workers leave Mexico to work in the USA under the H-2A visa program for a number of months, increasing variability in workers' communities and subjecting workers to the risk of losing an H-2A contract in retaliation for union participation, given the extensive discretion provided to employers by the H-2A program.[84]

Mapping of Trade Unions in Strawberry Supply Chains

Unionization in the strawberry supply chain from Mexican production to US sales (specifically unionization by unions that are independent of management) is limited. In Mexico, most production companies maintain a protection contract with CTM, CROM, or CROC. To date, there is no independent collective bargaining at any berry production company in Mexico.

The establishment of the Independent National Democratic Union of Agricultural Day Laborers (Sindicato Independiente Nacional Democrático de Jornaleros Agrícolas – SINDJA), as a result of the 2015 strike settlement, represents potential for unionism and collective bargaining in Mexico's berry sector. After initial struggles among leaders of the Alianza, SINDJA's strategic planning and organizing activities in 2020 indicate progress.[85] SINDJA leaders regularly support workers in filing legal complaints, educate workers on their rights through mass flyer distribution and small-group meetings, and support workers engaged in acute disputes with employers. For example, in 2020, SINDJA developed plans to file complaints by multiple workers concerning unpaid benefits as an issue-based organizing strategy and supported workers during a strike at Dos Mares, resulting in payment of unpaid wages.[xix] Among the most active worker organizers are members of Women United in Defence of Indigenous Female Agricultural Day Laborers (Mujeres Unidas en Defensa de Jornaleras Indígenas - MUDJI). MUDJI is a non-governmental organization (NGO) and uses foundation grants to lead organizing among women in San Quintín Valley communities.

After production, retail is the other stage of Mexico's berry supply chain with some unionism. Transportation of berries is primarily controlled by the medium- and large-size companies in the industry (reflecting the importance of temperature control and timing for sales of the perishable product) and is not unionized. Mexico's berries exported to the USA are transported by land, avoiding unionized ports.[86] In the US, 4% of general retail workers and 14% of grocery store workers are union members.[87] Among major food retailers, the International Brotherhood of Teamsters represents workers at Costco stores on the US east and west coasts, and the United Food and Commercial Workers represents workers at Kroger, Albertson's, and Meijer stores.[xx]

Who Gets What: The distribution of value in the strawberry supply chain

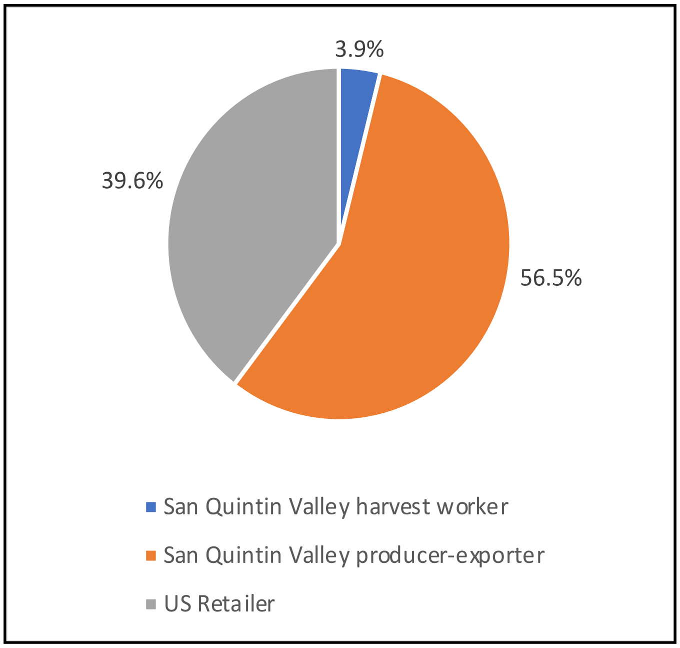
In the strawberry sector, the practices of paying harvest workers by the pound and selling to consumers by the pound exposes the distribution of value from the final sale to production workers. In 2019, for every pound of fresh strawberries from the San Quintín Valley sold by US food retailers for $3.08, 12 cents (4%) went to the workers who picked them.

The share that goes to production companies that employ harvest workers varies depending on whether they export and sell directly to retailers or sell to a brand like Driscoll's, which charges a minimum of 18% for the

[xix] July 6, 2020, workers stopped work and blocked the trans-peninsular highway around Agrícola Dos Mares, after the manager of Dos Mares, Arturo Silva Sandoval, the uncle of the governmental delegate for the Baja California town of Punta Colonet, announced that workers were let go and the company could not pay them. The manager was apparently seeking to takeover ownership. Dos Mares is currently owned by Agrícola Colonet, whose controlling investor through CitiBanamex is Jay Kawano (see Annex).

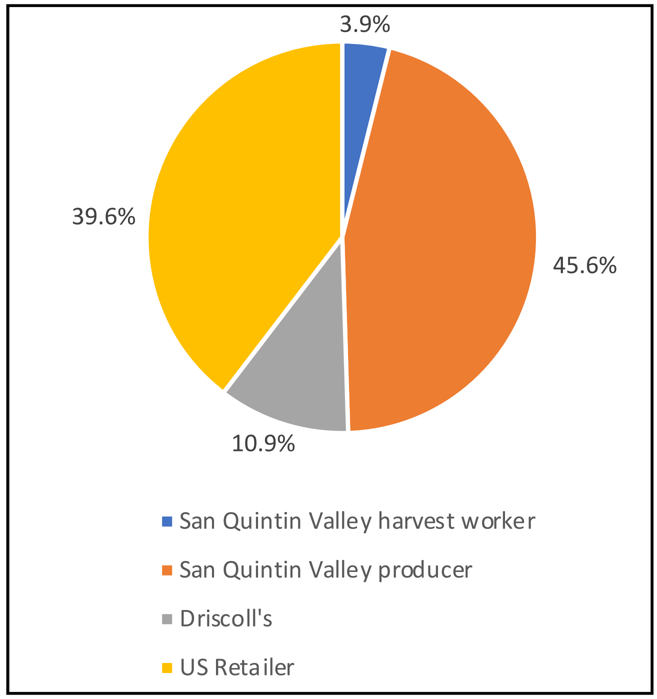
[xx] The Kroger Co. owns Kroger, Dillons, Fred Meyer, Food 4 Less, Owen's, Pay Less Super Markets, Smith's, Ralph's, and Harris Teeter. Albertson's owns Albertson's, Bruno's, Giant-Carlisle, Giant-Landover, BI-LO, Giant Food, Stop & Shop, Tops, and Safeway.

Chart 9: Share of Strawberry Retail Price in 2019 Direct Sales: Producer to US Retail



Sources, Charts 9 and 10: Author's calculations based on UN COMTRADE and US Bureau of Labor Statistics data.[88]

Chart 10: Share of Strawberry Retail Price in 2019 Indirect Sales: Producer to Driscoll's to US Retail



sales services. Charts 10 and 11 show the distribution of value to primary actors in the North American strawberry commodity chain in each instance.[xxi] Image 1 shows the distribution of Driscoll's brand berries produced in Baja California and sold by a US retailer.

While estimates of the distribution of value in the strawberry supply chain from San Quintín Valley to US retailers are 2019 figures, the approximations are indicative of power in the supply chain. The percentage of the retail price distributed to workers indicates their relatively weak position in the supply chain, given employers' ability to replace them and avoid collective bargaining to-date. The relatively high percentage retained by production companies compared to Driscoll's and retailers is somewhat misleading given the revenue from strawberry sales represents a large portion of total revenue for the production companies, a fraction of revenue for Driscoll's, and an even smaller percentage for the retailers. Driscoll's power lies not in the price but in control over the primary input – it controls 27.6% of plant varieties – and distribution – it controls one-third of the total US berry market and 60% of national organic strawberry sales. Retailers' power lies not in the price for strawberries but in their diversified revenue – by selling many items cheaply, they control large segments of total consumer sales – and suppressed labor costs. Notably, the average retail price is lower than prices affixed to specialized berries, which include those sold by Driscoll's, specialty varieties, and production companies certified by Fair Trade USA or EFI.

[xxi] This percentage is based on the UN COMTRADE data for the unit value, which is available through 2019, and the US Bureau of Labor Statistics data for 2019; exporting companies received $1.86 per pound and retail companies $3.08 per pound in 2019.

Image 1: Distribution of Value in the Driscoll's Strawberry Supply Chain

Certification Programs

Many companies that purchase berries from Mexico require private certifications. The most common certifications are Fair Trade USA, Equitable Food Industry (EFI), Rainforest Alliance, and Global Good Agricultural Practices (GlobalGAP). The Mexican berry sector accelerated its use of certifications following the 2015 strike by workers in San Quintín, after which Driscoll's sought Fair Trade USA certification and Andrew & Williamson sought EFI certification for production in Mexico.

Fair Trade USA is an NGO that sets standards and certifies production and sales companies against them. It does not publish a list of certified companies. Berrymex, Andrew & Williamson's Rancho Nuevo and El Milagro de Baja Camalú and San Quintín, San Vicente Camalú, Agrana Fruit México, and GN Productores Agricolas report being certified (see Annex). Fair Trade USA's board includes leaders of financial firms, law firms, production companies, cooperatives, and multinational consumer brands.[89] Fair Trade USA (FTUSA) focuses on terms of trade, meaning its certification intends for the producer of the certified product to receive a premium set by FTUSA and for companies producing the product and selling it to comply with FTUSA standards; for some products, it also means that the producer received at least a minimum price set by FTUSA.[90] According to its standards, each certified company is required to have a Fair Trade Committee that is democratically elected, includes management and workers, and determines use of the premium.[91] Companies must pass an audit against "critical criteria" to obtain certification, and against "progress criteria" over six years.[92] Audits are conducted by SCS Global Services, Peterson Control Union, Oregon Tilth, ARCHE Advisors, TAOS Network, or ELEVATE Limited.[93] Complaints can be filed with and are ultimately decided by Fair Trade USA.[94]

Equitable Food Initiative (EFI) is an NGO that develops certification standards for agribusiness companies. In Mexico's berry sector, all Andrew & Williamson production facilities are EFI certified, including Rancho Nuevo and Rancho Santa Mónica (see Annex). EFI's board includes trade unions, producer companies, retailers, social auditing firms, and consumer, environmental and labor non-governmental organizations

Table 3: Certification Programs Used in Mexico's Berry Sector

Certification Program	Primary Goals	Union Participation	Joint Worker-Manager Committees	Required Production Investment	Complaint Channels
Fair Trade USA	Equitable terms of trade, safe working conditions, environmental conservation	None	Fair Trade Committee oversees standards & premium use	Premium paid by buyer to production company	Directed to & decided by Fair Trade USA
Equitable Food Initiative	Food & worker safety, equitable value distribution across supply chain	United Farm Workers & Farm Labor Organizing Committee are board members	Leadership Team oversees standards	Premium paid by buyer & passed through to production workers	Directed to leadership team or EFI; final decisions by EFI
Rainforest Alliance	Biodiversity conservation & sustainable livelihoods	None	Occupational safety & health committee	None	Directed to certification body or Rainforest Alliance; final decisions by Rainforest Alliance
GlobalGAP	Food safety & quality	None	None	None	Directed to & decided by GlobalGAP

(NGOs).[95] EFI's model aims to improve employment practices, mitigate environmental impacts, and ensure food safety by developing overlapping interests among workers, employers, and buyers in the supply chain.[96] In order to use the EFI label, "Responsibly Grown, Farmworker Assured," a production company commits to applying EFI standards to all workers (directly hired or subcontracted) and to certify 100% of its production operations. Companies hire an EFI-approved audit companies – currently Elevate and SCS Global Services – to conduct certification audits, issue corrective action requests for identified standard violations, and suspend certifications.[97] Certification lasts three years. EFI standards require 40 paid hours of training for workers and the establishment of a joint worker-manager "leadership team" to oversee EFI system implementation.[98] The leadership team is responsible for settling disputes through a process its members develop within legal bounds.[99] Complaints can also be reported directly to EFI, which will make final decisions.[100] Participating retailers – currently Costco and Amazon's Whole Foods – commit to paying a premium that is passed on to workers and identified on their paychecks as the EFI premium.[101]

Rainforest Alliance is an NGO that develops certification standards for agricultural production and reports seven strawberry production companies currently certified in Mexico (Agrícola Amador, Berry Hills, Gavaro Produce, Vigar Produce, Heirloom Farms, Azares Produce, Grupo de Fresas Sustentables) and one raspberry company (San Quintín Valley Farms) (see Annex). The Rainforest Alliance board is comprised of representatives of agribusinesses, business associations, conservation NGOs, development consultancies, financial firms, and foundations.[102] To obtain certification, companies pass an audit against "critical criteria," which include prohibiting forced labor, physical harassment, discrimination, and worst forms of child labor.[103] To maintain certification, companies sustain additionally comply with "continuous improvement" criteria over a six-year cycle. Companies undergo audits every three years by "certification bodies" (auditing companies) that are accredited to ISO certification standards.[xxii] There is a process for suspending certificates. Complaints concerning certified companies can be submitted to Rainforest Alliance or the certification body, and final decisions are made by Rainforest Alliance.[104]

Global Good Agricultural Practices (GlobalGAP) is a set of certification standards focused on food safety and quality managed by the German LLC FoodPLUS GmbH. Several production companies in Mexico's berry sector are GlobalGAP certified, including San Vicente Camalú. An industry initiative, its board includes large agribusinesses and retailers.[105] GlobalGAP certification is also known as the Integrated Farm Assurance Standards (IFA). A company must pass an audit conducted by a GlobalGAP-approved certification body against general standards of the All Farm Base Module and specific sector and crop standards of the Scope and Sub-scope Modules, for each product. Standards include occupational health and safety but do not address other labor standards.[106] Certifications are valid for one year and can cover multiple production sites and companies if they demonstrate a common Quality Management System. Complaints can be directed and are decided by the GlobalGAP Secretariat.[107] GlobalGAP only provides a certification label on floriculture and aquaculture products.[108]

EFI provides training for workers, managers and auditors on agriculture-specific safety and health standards and a clear dispute settlement timeline. Fair Trade USA and EFI transfer money across the supply chain to production employers and workers. Rainforest Alliance and GlobalGAP mitigate environmental impacts. However, studies of certification systems in agribusiness have highlighted common weaknesses shared by the systems used in Mexico's berry sector, including: lack of worker participation in governance, rule-setting, and enforcement; reliance on de-certification despite lack of evidence of attendant impact on sales; lack of reporting of legal violations to authorities; financial dependence of auditing firms on certifications; employers' gaming audits; and ambiguous requirements to correct identified violations.[109] The findings echo twenty years of critiques of private regulation in multiple industries.[110]

Workers at certified production companies in San Quintín either criticized certification systems or reported no knowledge of them during interviews in 2020. A worker at the production company known as Alejandro Munguía Rodríguez, supplier to Berrymex, reported that the day before any inspector or auditor arrives, "the company gives us a talk and tells us what they're going to say and how we need to respond – that everything is good; we work as we like. They tell us that if we don't, they can sanction and close the company." Workers at the EFI- and Rainforest Alliance-certified El Milagro de Baja Camalú reported a modest bonus in their paycheck from EFI. They also reported that the company was certified by Fair Trade USA, had once claimed to use the premium to purchase water barrels and blankets when in fact the government distributed the materials, and later invested the premium into a company store. The workers at Milagro added that the committees for both certification systems are comprised of employees from the company's administrative offices. A worker with nine years of experience at

[xxii] International Standards Organization (ISO) 17065 Conformity assessment – Requirements for bodies certifying products, processes, and services, or ISO 17021 Conformity assessment — Requirements for bodies providing audit and certification of management systems.

San Vicente Camalú reported never seeing an auditor. Another worker with experience at EFI and Fair Trade certified companies said, "It is makeup, because it doesn't protect you . . . it is a way to say that everything is good at the farm."[111] The Annex includes identified companies' certifications.

Conclusions and Recommendations

This report aimed to examine the North American strawberry supply chain from the perspective of field workers in Mexico, particularly those working in the state of Baja California. It did so through analysis of the international, national, and state-level strawberry production and trade data combined with extensive interviews and review of secondary literature. A primary finding of the report is that Mexico became the second-largest exporter of strawberries by constructing a cheap labor supply, subsidizing exporters, and negotiating trade and investment terms with its North American neighbors. The implications are that the sector's status quo of corporate profiting and worker immiseration benefits Mexican producers, and retailers and brands, is reproduced through the political power of export-agribusinesses and is also susceptible to disruption – potential leverage for organized labor to use.

While climatic conditions and proximity to US retail markets make berry production in Mexico logical, the Mexico-USA wage differential makes it profitable. Workers harvesting berries earn four to eight times less in Mexico than in the USA. While one-third of strawberries produced in Mexico are exported, that international trade attracted US capital, particularly Driscoll's, to expand the sector from seasonal to year-round sales. The Mexican government supported the creation of a cheap labor market for the sector by compelling millions of peasants to become wage workers, by abetting protectionist contracts, and by under-enforcing labor and social security laws. The Mexican government should clarify that all workers have the same rights under labor and social security laws; resource and politically support the Federal Centre for Labour Conciliation and Registration to oversee democratic union elections; increase inspections of labor and social security laws and penalties for employer violations; and invest in rural infrastructure, particularly water, waste treatment, electricity, health care, and schools. For its part, the US government should enforce employers' duties to respect workers' rights to concerted activity regardless of citizenship, to reduce obstacles to unionism in US agribusiness, which relies on immigrant field workers.

Employers in Mexico's berry sector avoid labor pressure with the full backing of the government, whose position was demonstrated by sending police to violently end the 2015 strike, in contrast to not investigating reported assaults and arson against worker activists in San Quintín. Employers' claims of full legal compliance, ethical standards communicated by their certifications, and a labor shortage contrast with the experiences of workers who are not registered with IMSS, do not receive payment for overtime, suffer sexual harassment and abuse, and who are compelled to stretch earnings from the peak strawberry harvest throughout the rest of the year when employment and wages drop. Meanwhile, employers stand by their protectionist union contracts. It is incumbent on employers to fully comply with labor and social security duties, including respect for freedom of association and rights to collective bargaining. Employers failing to do so should not be suppliers to brands and retailers or members of business associations. Employers might indicate respect for workers rights by ceasing complicity in protection contracts.

Brands that dominate the berry sector craft and benefit from its public reputation while avoiding responsibility for working conditions by outsourcing management of labor in production and retail. The investment in international growth and patents that propelled Driscoll's to market dominance was only possible with Mexican suppliers that enable year-round production and higher profit margins based on low labor costs. Prices for plants are higher and revenue for production companies is lower due to the fact that companies like Driscoll's extract value through its use of patents and outsize market share. In response to the 2015 strike and its primary demand for freedom of association, Driscoll's and Andrew & Williamson pushed private certifications on their Mexican suppliers and subsidiaries. The decision was a strategy to avoid effective unionism after the stability of protectionist contracts was disrupted. Notably, this occurred after decades of public critiques of corporate-controlled regulation in global supply chains. If berry brands want to claim respect for workers' rights, they should assume a position as co-employers and welcome collective bargaining involving their suppliers and workers' unions.

Leading food retailers in the USA limit wage levels in berry production by sustaining low prices, requiring brands and production companies to focus on securing profits from the production process through low labor costs. While oligopoly power supports retailers' profits from market share, so too do their low labor costs from resistance to unionism. Out of respect for workers' rights and to cease externalizing costs to society,[112] food retailers should cease fervent opposition to unionism and bargain in good faith with organized workers. Unionized retail workers would be better placed to contest sourcing of berries from companies engaged in workers' rights violations.

Certification programs must also be accountable to the workers they claim to support. The model of relying on consumer behavior to drive compliance with standards by selecting certified products, industry-paid auditing companies for inspections, and internal control over complaints has proven ineffective. Certification programs regularly receive recommendations to conduct unannounced visits, train auditors, interview workers in confidential settings, interview workers' union representatives, accurately report on freedom of association, increase transparency, decertify non-compliant companies – all of which would likely improve the results of their audits. Towards legitimacy as assessors of labor standards, they should establish unequivocal requirements for employers to respect freedom of association, establish dispute settlement processes in which workers may contest determinations of standards compliance before a party independent of the companies in the supply chain, report legal violations to government officials to support enforcement of laws as a floor, and welcome union representatives to have decision-making authority on their boards of directors.

Workers in Mexico face the imbricated interests of international capital and North American governments in cheap labor and the ever-present threat of violence against any collective action by labor. Unionizing faces the additional hurdle of decades of protection contracts which decimate workers' perceived utility of unions, and divided labor from gender discrimination. In Mexico's berry sector, workers have the ability to halt production and transport of winter berries for the North American sales market, but must be organized to leverage it. Independent unions can build trust by representing workers, e.g., in legal complaints to recoup lost earnings from under-payment of legal wages and benefits. Unions such as SINDJA can continue the process of adopting gender equity within the labor movement by listening to women workers, supporting women for leadership positions, and educating men and women workers on the role of gender discrimination in undermining labor solidarity and bargaining power. Union organizing can be further supported by know-your-rights education and efforts to identify and resist the use of chemicals in the industry that pose risks to workers and consumers. Towards collective bargaining, unions can explore industry-based and supply-chain bargaining structures to increase their bargaining power.[xxiii]

International labor solidarity offers important support to workers in the North American berry sector. The dependence of field workers on strawberry harvest earnings in key production locations and ability of employers to replace workers limit workers' abil-

[xxiii] As an example of industry-based structures, unions negotiate conventions with employers' associations covering all workers in the agricultural sector of a province in Spain. Supply-chain based structures include the companies in production and sales stages of the supply chain, a model pioneered by the Farm Labor Organizing Committee with Campbell's and its tomato suppliers. Both have challenges and offer a means to establish a floor.

ity to sustain a strike. Pressure on employers can be increased through unionizing the truck drivers transporting the time-sensitive product, coordination with unionized retail workers (although their actions in the USA are limited by regulations on secondary boycotts), and boycotts carried out by allied organizations.[xxiv] Efforts to unite workers across the supply chain by Solidarity Center and allied coalitions, e.g., the Food Chain Workers Alliance, can help.[xxv] In addition to organizing for direct action, allies of workers in Mexico's berry industry can explore legal remedies for workers' rights violations, e.g., through the Mexican legal system, USMCA, ILO supervisory system, and OECD National Contact Points. Further support can be offered to all agricultural and food retail workers by contesting US policy permitting monopoly power, currently vested significantly in retailers.[113]

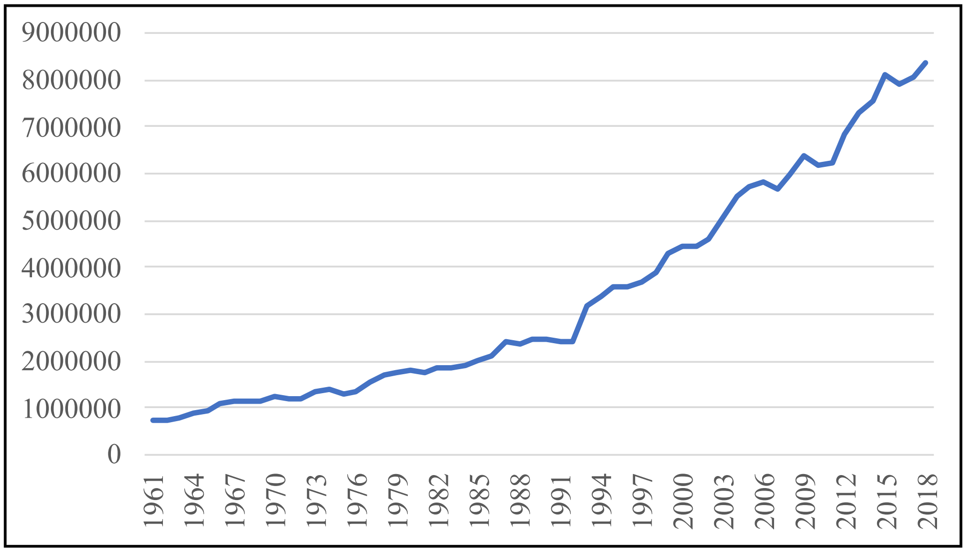
Workers in Mexico's strawberry sector face unacceptable employment terms and conditions. Several actors throughout the North American berry supply chain – the governments of Mexico and the United States, production companies, brands, retailers, certification programs – bear responsibility and have the capacity to transform the sector such that workers' dignity is respected. None of the governmental or corporate actors are likely to engage in such transformative change unless compelled to do so by organized workers.

[xxiv] With all the challenges involved in coalition building and combining strikes and boycotts, it is noteworthy that the only successful unionization campaign in the North American berry industry, led by Familias Unidas por la Justicia (FUJ), benefited from such a coalition strategy to secure a collective bargaining agreement.

[xxv] Indicating potential leverage over the North American supply chain, in San Quintín the Alianza announced a boycott of Driscoll's in 2015, when in the United States FUJ was boycotting Driscoll's. According to members of SINDJA and FUJ, coordination was hampered by distinct positions (FUJ negotiated a collective bargaining agreement in 2017 when CBAs were a remote possibility for SINDJA) and insufficient involvement of San Quintín workers in the boycott.

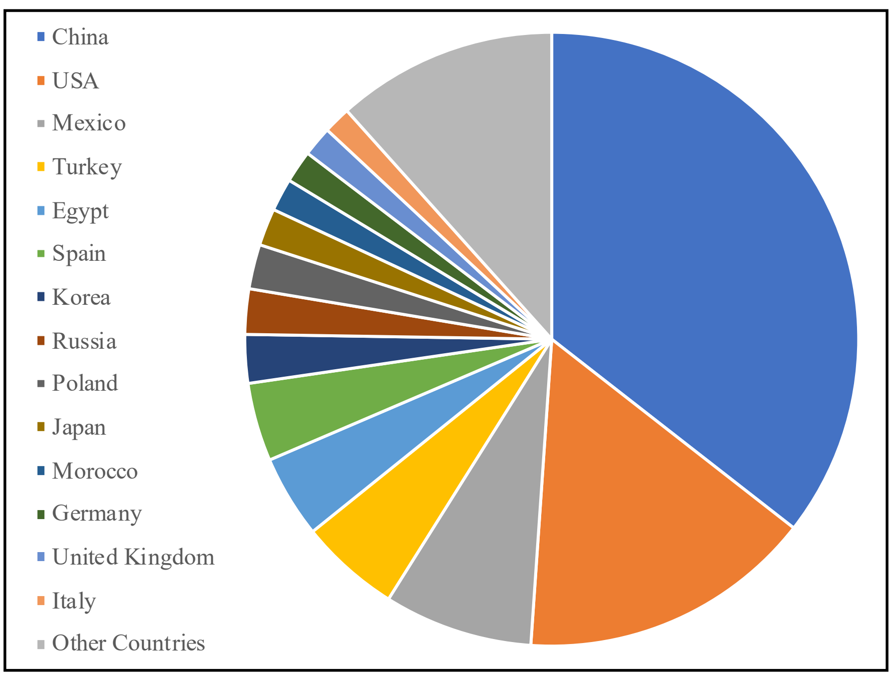
Appendix

Appendix Chart A: World Strawberry Production 1961-2018 (metric tons[xxvi])



Source: Author's calculations with FAO data.[114]

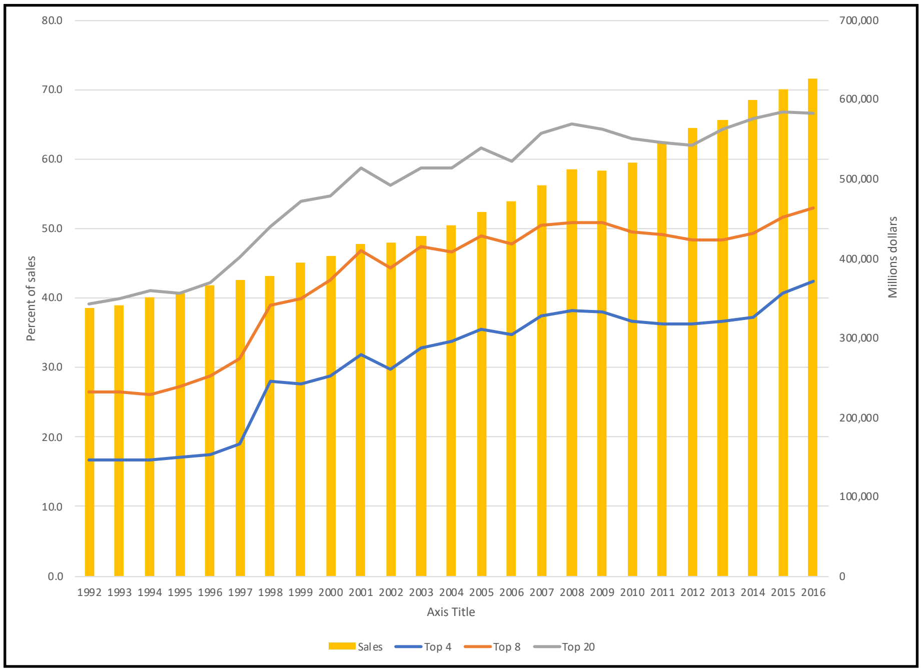
Appendix Chart B: Country Shares of Global Strawberry Production, 2018



Source: Author's calculations with FAO data.[115]

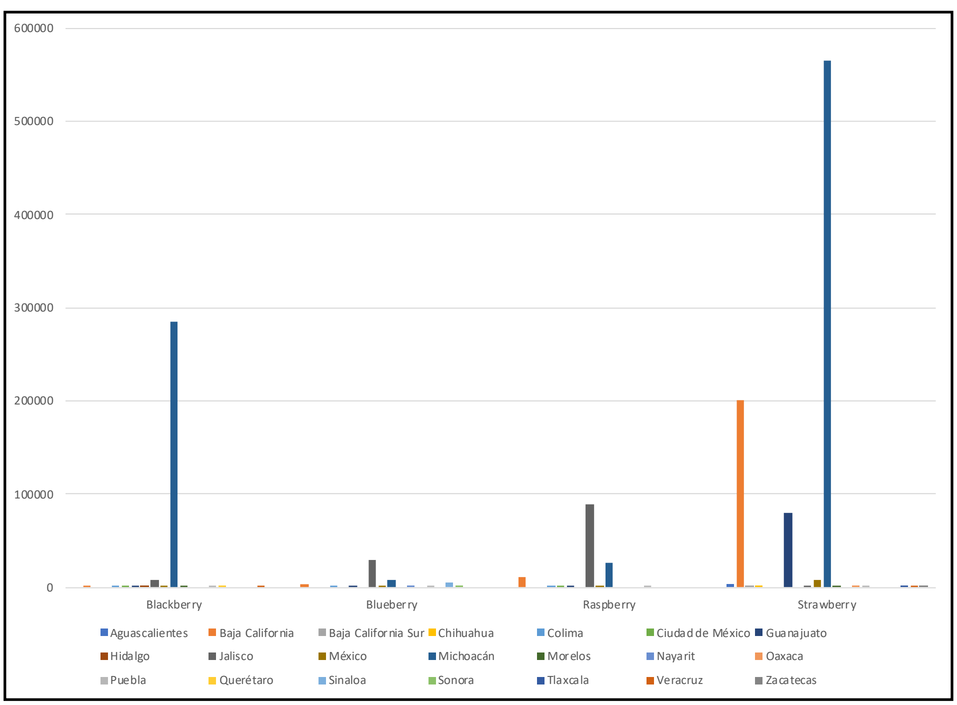
[xxvi] Metric ton = 1,000 kilograms. The international standard in the metric system is used given the anomalous use of the imperial system in the United States.

Appendix Chart C: US food retailers' market share
Top 4, 8, and 20 firms' share of U.S. grocery store sales, 1992-2016



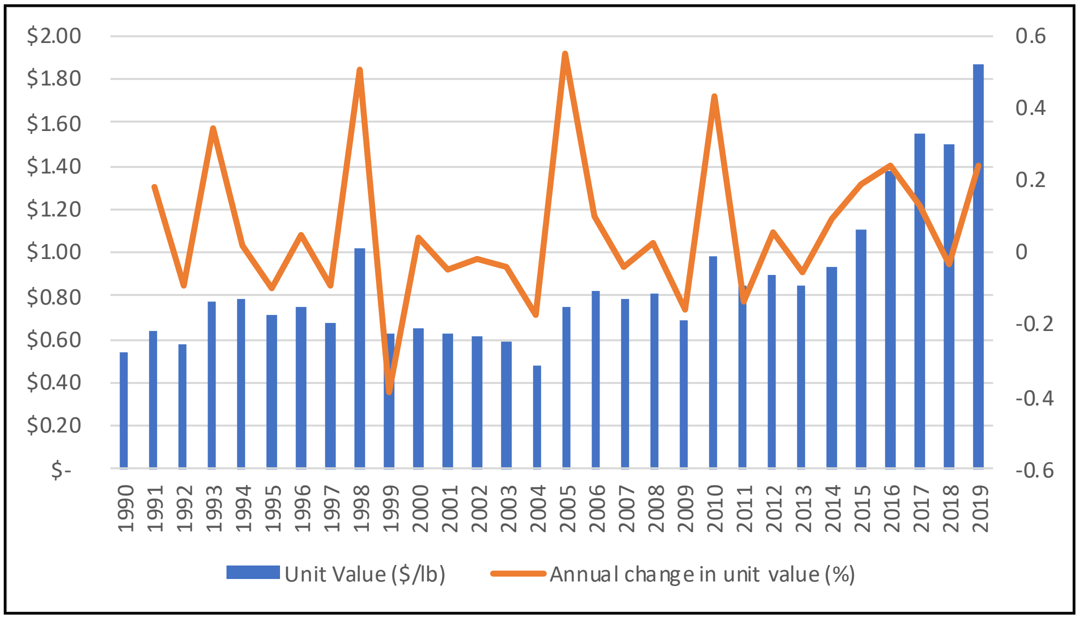
Source: USDA, Economic Research Service, using data from U. S Census Bureau, Monthly Retail Trade Survey, company annual reports, and industry sources. Sales based on North American Industry Classification System (NAICS).

Appendix Chart D: Mexican berry production by state in 2019 (metric tons)



Source: Author's calculations with SIAP data.

Appendix Chart E: Unit Value of Strawberry Exports: Mexico to USA, 1990-2019



Source: Author's calculations with UN COMTRADE data.

Annex

List of Companies in the Strawberry Supply Chain: Baja California to US retail.

Company	Stage in chain	Revenue	Buyer	Store/Farm names	Brands	Ownership	Management (highest level)	Business Associations	Certifications	HQ Location	Union presence
Walmart Stores, Inc.	retail	$524,000,000,000	consumers	Walmart, Sam's Club, (Mexico - Superama, Bodega Aurrera)	Sam's Choice, Great Value, Equate, Mainstays, Ol' Roy, Special Kitty, Parent's Choice, Play Day, Pen+Gear	public	Samuel Robson Walton, board of directors, C. Douglas McMillon, President & CEO	National Retail Federation, Retail Leaders Industry Association		Arkansas, USA	
Amazon	retail	$281,000,000,000	consumers	Amazon, Whole Foods		public	Jeffrey Bezos, Executive Chair of board; Andy Jassy, CEO			Washington, USA	
Costco Wholesale Corporate	retail	$176,000,000,000	consumers	Costco	Kirkland	public	John Walter Meisenbach, board of directors, Walter Craig Jelinke, President & CEO	Retail Leaders Industry Association		Washington, USA	International Brotherhood of Teamsters
The Kroger Co.	retail	$122,000,000,000	consumers	Kroger, Dillons, Fred Meyer, Food 4 Less, Owen's, Pay Less Super Markets, Smith's, Ralph's, Harris Teeter		public	William Rodney McMullen, Board Chairman & CEO	Retail Leaders Industry Association		Ohio, USA	United Food and Commercial Workers
Royal Ahold Delhaize N.V.	retail	$74,600,000,000	consumers	Food Lion, Hannford, Stop & Shop, Giant, Martin's, bfresh		public	Frans Willem Henri Petrus Christian Muller, Chairman, President & CEO	Foreign Trade Association		Netherlands	FNV & CNV (Netherlands)
Albertson's	retail	$60,500,000,000	consumers	Albertson's, Bruno's, Giant-Carlisle, Giant-Landover, BI-LO, Giant Food, Stop & Shop, Tops, Safeway		public	James L. Donald, President & CEO, Vivek Sankaran, President & CEO	National Retail Federation, Retail Leaders Industry Association		Idaho, USA	United Food and Commercial Workers
Publix	retail	$38,500,000,000	consumers	Publix		public	Carol Jenkins Barnett, Board Chairman, Randall TSR Jones Sr., CEO, Kevin S. Murphy, President	Retail Leaders Industry Association		Florida, USA	
Driscoll's	marketing, transportation, varietal production	$454,811,894	retailers, terminal markets			Garland Reiter, Miles Reiter	J. Miles Reiter, President, Kevin E. Murphy, CEO, Sanjeev Tandon, CFO, Soren Bjorn, VP Americas Division			California, USA	
California Giant Berry Farms	marketing, production	$78,643,574	retailers, terminal markets		California Giant	Patrick Riordan	Joe Barsi, President, Bill Moncovich, CEO, Dan Nicola CFO, Nick Chappell COO	Aneberries		California, USA	
Andrew & Williamson (wholly owned subsidiary: Andrew & Williamson Berry Farms de México S.A. de C.V.)	marketing, production	$65,676,680	retailers, terminal markets, institutional buyers	Distribuidora Comercializadora Olmos Agrícola S. de R. L. de C. V., Don Juanito S. de R.L. de C.V., El Fénix de Culiacán, El Milagro de Baja Camalu and San Quintin, El Sol, El Cultivo, y la Tierra, Frutas Anahuac Rancho Purengue, Fruvas S. de R.L. de C.V., Punta Colonet San Telmo S.P.R. de R.I., Rancho Agrícola Santa Mónica S. de R.L. de C.V., Rancho Mezquites, Rancho Miraflores, Rancho Nuevo Produce S.A. de CV..	Good Farms, Make a Difference, Limited Edition	Fred M. Williamson, CEO	Fred M. Williamson, CEO	Aneberries	At least 10 farms EFI certified in México: El Milagro de Baja Camalu and San Quintin, Rancho Nuevo Produce, Rancho Agricola Santa Monica, El Sol, El Cultivo y La Tierra, El Fénix de Culiacán, Frutas Anahuac Rancho Purengue, Rancho Mezquites, Rancho Miraflores, Rancho Don Juanito	California, USA	
ExpoFresh LLC.	marketing, transportation	$3,491,469	retailers, terminal markets		Expo Fresh	San Vicente Camalu				California, USA	
Fruits-Giddings, S.A. de C.V	marketing	$12,407,500	retailers, terminal markets			Inversiones Mexicanas SPA, Giddings	Julio Cesar Giddings, Director, Patricio Fernando Cortes Gamboa, General Manager	Aneberries		Michoacán, México	
Naturberry S.A. de C.V.	marketing	$9,380,472	retailers, terminal markets			Naturipe Berry Growers, Inc. (USA)		Aneberries		Jalisco, México	
Reiter Affiliated Companies LLC	production, subcontracting	$68,400,000	Driscoll's		Driscoll's	Garland Reiter, Miles Reiter	Hector Lujan Valladolid, President & CEO			California, USA	
Berrymex (a.k.a. Moramex)	production, subcontracting	$37,222,500	Driscoll's		Driscoll's	Reiter Affiliated Companies	Manuel Meza, Operation Manager; Angelica Solorzano, Controller	Aneberries	Fair Trade USA	Baja California, México	
Hortifrut S.A. de C.V.	production, marketing	$34,269,515	retailers, fastfood chains, e-commerce companies		Hortifrut, Naturipe, Berry Good, Euroberry, Southern Sunberry, Berry Collection, Joy Wing Mau, Joyvio, Vitafoods	Hortifrut S.A. (Chile, $576,045,000 revenue)	Diego Martinez, Director	Aneberries		Jalisco, México	
Berries Paradise S.A. Promotora de Inversión de C.V.	production, marketing	$19,761,515	retailers					Aneberries	GlobalGAP, USDA Organic, BSCI, Sedex, Senasica, PrimusGFS, Kiwa BCS Öko-Garantie	Jalisco, México	
Fresh Kampo	production, marketing	$8,762,880	retailers, terminal markets			Meridian Fruits, S.P.R. de R.L. de C.V.	Fabricio Blanco, President, Victor Coronado, General Director	Aneberries, Produce Marketing Association, United Fresh Produce Association	GlobalGAP, Primus GFS	Michoacán, México	

Company	Stage in chain	Revenue	Buyer	Store/Farm names	Brands	Ownership	Management (highest level)	Business Associations	Certifications	HQ Location	Union presence
GN Productores Agricolas	production, marketing	$6,879,560	retail, institutions			Javier Navarro Martinez	Javier Navarro Martinez	Consejo Agrícola de Baja California	GlobalGAP, USDA Organic, Primus GFS, Fair Trade USA	Mexicali, México	
San Vicente Camalú S.P.R. de R.L.	production		ExpoFresh			Salvador Garcia Valdez	Francisco Torres Pimental (Accountant), Maria del Refugio Garcia Pimental (Administrative Assistant), Salvador Garcia Valdez (Director Administration)	Consejo Agrícola de Baja California	Fair Trade, Global GAP	Baja California, México	
Gavaro Produce S. de R.L. de C.V	production						Roberto Garcia Valdez, Lucero Lizbeth Bacazegua Juárez		Rainforest Alliance, USDA NOP	Baja California, México	
Agrícola Amador S. de R.L. de C.V.	production						Rene Esquivel Armenta		USDA NOP, Rainforest Alliance	Baja California, México	
Productora Agrícola Hermanos Magaña S. de R.L. de C.V.	production		Fresh Pac						USDA Organic	Baja California, México	
Agrícola Dos Mares S.de R.L. de C.V.	production					Agrícola Colonet, owned by CitiBanamex, primary investor Jay Kawano (Japanese national)	Disputed: Arnulfo Silva Sandoval			Baja California, México	
Alejandro Munguía Rodríguez	production		Berrymex		Driscoll's				Fair Trade USA	Baja California, México	
Rancho Seco	production					Felipe Ruiz		Consejo Agrícola de Baja California		Baja California, México	
Sarabias Strawberries	production					Manuel E. Sarabia Castillo	Sons Ivan and Alan			Baja California, México	
Fragaria	production									Baja California, México	
Heirloom Farms	production, marketing					Walberto Solorio Meza	Walberto Solorio Meza	Consejo Agrícola de Baja California	GlobalGAP, Oregon Tilth Organic, Rainforest Alliance, EFI, SEASICA, Primus GFS	Baja California, México	
Berrigil	production									Baja California, México	
Splendor Produce S. de R.L. de C.V.	production, marketing				Splendor Produce			Aneberries	GlobalGAP, Nurture, PrimusGFS, SENASICA	Michoacán, México	
Cofrusa	production		Fruitrade International Inc.					Aneberries		Michoacán, México	
Optimal Brightness (Optimal Berry Group)	production, marketing				Central West		Juana Alicia Herrera Nunez, Director	Aneberries	EFI, USDA Organic, Primus GFS	Michoacán, México	
Alpasa Farms S. de R.L. de C.V.	production, marketing						Geovanni Oseguera Manzo	Aneberries		Michoacán, México	
Azares Produce S.P.R. de R.L.	production, marketing			Ranchos Barajas, Camalú, Nestor, Paredes 1 & 3, Rosa Blanca 1 & 2		Zavala Berrelleza, José Roberto			Rainforest Alliance	Baja California, México	
Berry Hills S. de R.L. de C.V.	production						Marco Antonio García Lugo		Rainforest Alliance	Baja California, México	
Vigar Produce S. de R.L. de C.V	production		Expo Fresh		Expo Fresh		Vicente Trinidad García Valdez		Rainforest Alliance	Baja California, México	
Grupo de Fresas Sustentables	production			La Playa 2, San Francisco 1 & 2, El Valenciano 1 & 2, Los Aliquines, Manzanillo 1 & 2, La Parrilla, Las Lajas 1-3, El Rincón, El Palmo 1 & 2, Pénjamo			Roberto Acosta Pedroza		Rainforest Alliance	Michoacán, México	
Rancho Tierras del Norte S.A. de C.V.	production		Berrymex		Driscoll's		Virginia Perez, accountant, Abel Elizalde Lara, Administrator, Fernando Villa Corona, Legal Representative			Baja California, México	
Empaque Dos Amigos S.A. de C.V.	production						Fortino Heredia Villegas, General Manager		Rainforest Alliance decertified in 2019; withdrew application for USDA NOP organic certification in 2019	Baja California, México	
Agrícola Chumas S. de R.L. de C.V.	production									Baja California, México	
Horticola Santo Domingo, S. de R.L. de C.V.	production						Raúl Constantino			Baja California, México	
Rancho Camino Real	production										
Sierra Cascade Nursery	seedling production		production companies				Steve Fortin, President			California, USA	
Corteva	fumigant manufacturer	$13,846,000,000	production companies				James C. Collins, CEO			Delaware, USA	
Tri-Cal de Baja California	fumigant distributor	$228,296	production companies				Enjamin Lizarraga			Baja California, México	

Sources: Association, certification and company websites; databases: Nexis Uni, Mergent Intellect, Orbis, Panjiva (public); Deloitte, Global Powers of Retailing 2020; Interviews by author (2020).

Endnotes

[1] Guthman, Julie, 2019. Oakland: University of California Press, page 8.

[2] FAO. Chloropicrin. http://www.fao.org/3/x5042e/x5042E0f.htm; EWG 2019. Pesticides + Poison Gases = Cheap, Year-Round Strawberries. https://www.ewg.org/foodnews/strawberries.php

[3] EWG 2019 *Ibid.*

[4] United States Patent and Trademark Office (USPTO). Patent Assignment Search. https://assignment.uspto.gov/patent/index.html#/patent/search (accessed 9 August 2020)

[5] BASF, DuPont, Bayer CropScience, Jiangsu Lanfeng Bio-Chem, Lianyungang Jindun Agrochemical, NingXia Sanxi Chemical, Anhui Guangxin Agrochemical Group, AnHui JinTai Pesticides Chemical, Bailing Agrochemical, Trustchem, Jiangsu Sinamyang Crop Science, Yangzhou Pioneer Chemical, Hunan Haili Chemical Industry. See Absolute Reports. Global Carbendazim Market Research Report 2020. https://www.absolutereports.com/global-carbendazim-market-15430802

[6] United States Department of Agriculture (USDA), Economic Research Service (ERS). 2020. Retail Trends. https://www.ers.usda.gov/topics/food-markets-prices/retailing-wholesaling/retail-trends/

[7] August 3, 2020. Same berries flavor with continuous innovation. *CE Noticias Financieras English*. https://advance-lexis-com.proxy.library.cornell.edu/api/document?collection=news&id=urn:contentItem:60HB-7PX1-DY1R-B0W8-00000-00&context=1516831; Broussel, L. 2011. Strawberry Fields Forever. www.cio.com June; Crawford, Leslie. June 25, 1997. New pioneers plough ahead in Mexico: Nafta's freer trade is promising fruitful returns to farm investors. *Financial Times*; Goodyear, Dana (August 14, 2017). "Strawberry Valley". *The New Yorker*; Guthman, J. (2017). Life itself under contract: rent-seeking and biopolitical devolution through partnerships in California's strawberry industry. *Journal of Peasant Studies*, 44(1), 100–117; Interview with Driscoll's CEO by author; Lawrence, Dune (July 29, 2015). "How Driscoll's Is Hacking the Strawberry of the Future". Bloomberg Businessweek. https://www.bloomberg.com/cybersecurity (21 November 2019); Mergent Intellect [database]; Roethler, E. (2016). Organic Insights Q&A with Driscoll's Soren Bjorn. *The Snack*. https://www.thesnack.net/article/featured/organic-insights-qa-with-driscolls-soren-bjorn/355/vol-21-connecting-the-world/eva-roethler/00351 (23 November 2019); Shanker, Deena (November 21, 2016). "The Berry of the Future Is Fed a Specialized Diet and Picked by a Robot". Bloomberg. (21 November 2019); Shelman, M. (2018). Driscoll's: Harnessing Digital Technology to Deliver Delight. University of California, Davis. California Agribusiness Executive Seminar. *Supermarket Business Magazine*. 53(10).

[8] Samtani, J. B., C.R. Rom, H. Friedrich, S.A. Fennimore, C.E. Finn, A. Petran, R.W. Wallace, M.P. Pritts, G. Fernandez, C.A. Chase, C. Kubota, and B. Bergefurd. (2019). The status and future of the strawberry industry in the United States. *HortTechnology*, 29(1), 11–24.

[9] Food and Agriculture Organization of the United Nations (FAO). 2020. FAOSTAT.

[10] Wells, Miriam J. 1996. *Strawberry Fields*. Ithaca and London: Cornell University Press.

[11] Holmes, Seth. 2013. Fresh Fruit, Broken Bodies. Berkeley: University of California Press; Interviews of workers by the author.

[12] Wells 1996: 180; Guthman J. 2017. Land access and costs may drive strawberry growers' increased use of fumigation. California Agriculture 71(3):184-191; Interviews with production managers and workers by the author, February-March 2020.

[13] Dupont. 2019. FAQ: What was the Dow Inc. distribution? What was the Corteva, Inc. distribution? https://www.investors.dupont.com/investors/dupont-investors/faq/default.aspx#:~:text=On%20June%201%2C%20

2019%2C%20we,they%20held%20on%20that%20date

[14] USPTO 2020 *Ibid.*

[15] USPTO 2020 *Ibid.*

[16] USPTO 2020 *Ibid.*

[17] Guthman 2019 Ibid.

[18] EWG 2019 *Ibid.*

[19] Interview with production manager by the author, February 2020.

[20] Baicu, A. A., & Popa, M. E. (2018). Trends in prolonging the post-harvest life of strawberries – a review. *Annals of the University Dunarea De Jos of Galati, Fascicle VI: Food Technology*, 42(1), 9-16.

[21] Broussel, L 2011 *Ibid.*

[22] Interviews with production managers by the author, February-March 2020.

[23] Goodyear 2017 *Ibid*; Shanker 2016 *Ibid*; Shelman 2018 *Ibid.*

[24] Mergent Intellect [database]; Lawrence 2015 *Ibid.*

[25] Goodyear 2017 *Ibid.*

[26] Wells 1996 *Ibid*; Guthman 2017. Life itself under contract, *Ibid.*

[27] Guthman 2017; Life itself under contract, *Ibid;* Interviews with production company managers by the author.

[28] Interview with CEO by the author.

[29] Quoted in Goodyear 2017 *Ibid.*

[30] Interview with Driscoll's President by the author, January 2020.

[31] Lawrence 2015 *Ibid.*

[32] Shanker 2016 *Ibid;* Goodyear 2017 *Ibid;* Broussel 2011 *Ibid.*

[33] Driscoll's. 2020. Strawberry Growing Regions. https://www.driscolls.com/about/our-practices/where-we-grow

[34] IndexBox 2018.

[35] Deloitte. 2020. Global Powers of Retailing 2020. https://www2.deloitte.com/global/en/pages/consumer-business/articles/global-powers-of-retailing.html

[36] Deloitte 2020.

[37] USDA Economic Research Service (see Annex Chart C); Fernandez, Cecilia. May 2020. Supermarkets & Grocery Stores in the US. *IBIS World.*

[38] Interview with production company manager by the author. 2020.

[39] *Ibid.*

[40] Ikeler, Peter. 2016. *Hard Sell: Work and Resistance in Retail Chains.* Ithaca: ILR/Cornell University Press; Lichtenstein, Nelson, Editor. 2011. *Wal-Mart: The Face of Twenty-First-Century Capitalism.* New York & London: The New Press; Milkman, R. (2004). Win or lose: lessons from two contrasting union campaigns. *Social Policy*, 35(2), 43–47; Spector, Robert. 2000. *Amazon.com: Get Big Fast.* New York: Harper Collins; Brandt, R. 2011. *One Click: Jeff Bezos and the Rise of Amazon.* London: Penguin; United States Department of Agriculture, Economic Research Service. 2020. Retail Trends. https://www.ers.usda.gov/topics/food-markets-prices/retailing-wholesaling/retail-trends/

[41] Velasco, L., Zlolniski, C., & Coubes, M.L. (2014) *De jornaleros a colonos: residencia, trabajo e identidad en el valle de San Quintín.* In Región y sociedad. Tijuana: El Colegio de la Frontera Norte.; Zlolniski, C. (2019) *Made in Baja: The Lives of Farmworkers and Growers behind Mexico's Transnational Agricultural Boom.* Oakland: University of California Press.

[42] Velasco et al. 2014 Ibid; Zlolniski 2019 *Ibid*; Interviews of workers and managers by the author, 2020.

[43] Velasco et al. 2014 Ibid; Zlolniski 2019 *Ibid*; Interviews of workers and managers by the author, 2020.

[44] Quoted in Crawford, Leslie. June 25, 1997. New pioneers plough ahead in Mexico: Nafta's freer trade is promising fruitful returns to farm investors. *Financial Times.*

[45] Escobar, A., Martin, P., & Stabridis, O. (2019). Farm Labor and Mexico's Export Produce Industry. Wilson Center, 55-56.
[46] Escobar et al. 2019 *Ibid*.
[47] Cook, Roberta. 2017. Global Fresh Berry Trends: Focus on the European Market. Presentation to the Amsterdam Produce Summit; Martínez, Verónica. (June 21, 2010 Monday). Logran frutillas éxito europeo. *Reforma*.
[48] Escobar et al. 2019 *Ibid.*
[49] Servicio de Información Agroalimentaria y Pesquera (SIAP). Gobierno de México. 2020. Datos Abiertos - Estadística de Producción Agrícola. [database] http://infosiap.siap.gob.mx/gobmx/datosAbiertos_a.php (accessed 19 November 2020)
[50] Zlolniski (2019); *Ibid;* 2 septiembre 2019 lunes. Con planta, BerryMex usa agua de mar en riego. *CE Noticias Financieras Spanish*.
[51] SIAP 2020 *Ibid.*
[52] SIAP 2020 *Ibid*.
[53] Dainzú Patiño. 29 junio 2018 viernes. Cuando México descubrió 'el oro rojo'. Expansión (Mexico).
[54] August 3, 2020 Monday. Same berries flavor with continuous innovation. *CE Noticias Financieras English*.
[55] Reiter Affiliated Companies. 2016. Reiter Affiliated Companies Names Hector Lujan as CEO. https://www.berry.net/reiter-affiliated-companies-names-hector-lujan-ceo/#:~:text=December%2023%2C%202016%20%E2%80%93%20(Oxnard,the%20role%20of%20Executive%20Chairman
[56] Velazco, Jorge. 2 de febrero 2004 lunes. Endulzan la Ribera de Chapala; Genera Berrymex mas de mil 500 empleos en sus cultivos de frambuesa, fresa y zarzamora. *Mural*.
[57] August 2, 2015 Sunday. *SUN* (Mexico); Corpus, Aline. August 17, 2015 Monday. Acusa la IP a Gobierno de atraso en San Quintín. *El Norte (Mexico)*.
[58] This website presented the Driscoll's product tracing system in 2015:
https://asupersavvysaver.com/2015/08/03/trace-your-code-find-where-your-driscolls-berries-are-harvested/. Currently the Driscoll's website states that its products are traceable; it products display a code; but the public-facing tracing system is no longer accessible.
[59] Roethler 2016 *Ibid.*
[60] Bensusán, Graciela. 2000. El modelo mexicano de regulación laboral. Mexico: FES/Plaza and Valdés/FLACSO/ UAM-X.; Bensusán, G. (2020). *The Transformation of the Mexican Labour Regulation Model* and its link to North American Economic Integration.
[61] Bensusán, G. Bouzas Ortiz, J.A., Hernández Cervantes, A., Juan Pineda, C.P., Xelhuantzi López, M., Muñoz, M., Robles, J., Reyes Ramos, L.O. (2007) Contratación Colectiva de Protección en México. Informe a la Organización Regional Interamericana de Trabajadores (ORIT).
[62] Velasco et al. (2014): 237-239.
[63] Interviews by the author. February - March 2020
[64] Interviews by the author. (2020).
[65] Escobar et al. 2019: 2.
[66] Interviews with workers by the author, February-March 2020
[67] Velasco et al. (2014): 195-200
[68] Workshop by labor lawyer Ramiro Nuñez Díaz, 26 February 2020 Wednesday.
[69] Interview with IMSS by the author, 6 March 2020 Friday; Interviews of workers by the author, February-March 2020.
[70] Corpus 2015 *Ibid*.
[71] Interviews by the author, February-March 2020. Escobar et al. 2019 *Ibid.*
[72] Interviews and observations by the author, February-March 2020.
[73] En San Quintín Nada Cambió. August 2, 2015 Sunday. *SUN*. Corpus, Aline. July 25, 2015 Saturday. Anuncian en

BC recorte jornalero; Niegan castigo por protestas de trabajadores. Afirman empresarios que paros afectaron a los peones de San Quintín. *Reforma*.

[74] Andrade. Frida. March 31, 2016 Thursday. Exporta agro a nivel récord; Afirman productores que sector ya rebasa a petróleo y turismo como generador de divisas. *El Norte (Mexico)*.

[75] Escobar et al. 2019 *Ibid*.

[76] Bensusán, G. (2020).

[77] Arteaga, Arnulfo, and Jorge Carrillo. (1988). "Automóvil: Hacia la flexibilidad productiva." El Cotidiano 21: 79–88; Bensusán (2000); Bensusán (2020); Bensusán, Graciela, and Luis Reygadas. (2000). "Relaciones laborales en Chihuahua: un caso de abatimiento artificial de los salarios." Revista Mexicana de Sociología 62 (2): 29–57; Bensusán, Graciela, and Nelson Florez. (2019); "Los empleos en la industria manufacturera de exportación y el TLCAN." In Trabajo y Desigualdades, edited by Carlos Alba. Mexico: El Colegio de México (MIMEO) Bizberg, Ilán. (2015). "México: una transición fallida". Desacatos 48: 122–139; Carrillo, Jorge, and Redi Gomis. (2013). "El empleo femenino en multinacionales maquiladoras y no maqui- ladoras de México". In Género y trabajo en las maquiladoras de México: Nuevos actores en nuevos contextos, edited by María Eugenia De la O. México. 31–54. Mexico City: Publicaciones de la Casa Chata.

[78] Bensusán (2020): 19-23

[79] Bensusán (2020): 22

[80] Office of the U.S. Trade Representative, Executive Office of the President. Agreement between the United States of America, the United Mexican States, and Canada. 7/1/20 Text. https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between [hereinafter USMCA 2020]

[81] Secretaría de Gobernación (SEGOB), Estados Unidos Mexicanos, Comisión para el diálogo con los pueblos indígenas de México. (2017). Notas Informativas sobre el Conflicto de los Jornaleros Agrícolas del Valle de San Quintín, Ensenada, Baja California, Marzo 2015 – Mayo 2017; Interviews of participants by the author, February-March 2020.

[82] Interviews by the author, February-March 2020.

[83] Cruz, J. E. 2016. El movimiento laboral-comunitario de los jornaleros del Valle de San Quintín. Acción colectiva en el sector agroexportador mexicano. Facultad Latinoamericana de Ciencias Sociales - Sede Académica de México; Interviews by the author February-March 2020.

[84] Geffert, G. G. (2002). H-2A Guestworker Program: A Legacy of Importing Agricultural Labor. In C. Thompson & M. Wiggins (Eds.), The Human Cost of Food: Farmworkers' Lives, Labor, and Advocacy. Austin: University of Texas Press; Guerra, L. (2004). Modern-Day Servitude: A Look at the H-2A Program's Purposes, Regulations, and Reatlities. Vermont Law Review, 29(185–214); Cortes, A. V. (2006). The H – 2A Farmworker : The Latest Incarnation of the Judicially Handicapped and Why the Use of Mediation to Resolve Employment Disputes Will Improve Their Rights. Ohio State Journal on Dispute Resolution, 21(2), 409–446; Schmitt, A. L. (2007). Ending the Silence: Thai H-2A Workers, Recruitment Fees, and the Fair Labor Standards Act. Pacific Rim Law & Policy Journal, 16(1), 167–196; Stockdale, K. E. (2013). H-2a Migrant Agricultural Workers: Protected From Employer Exploitation on Paper, Not in Practice. Creighton Law Review, 46(4), 755–776.

[85] Observations and interviews by the author, February-March 2020.

[86] ImportGenius, a database of imports through US ports, yielded no results.

[87] Hirsch, Barry and David Macpherson. 2020. *Unionstats*. [Database, updated February 24, 2020] https://www.unionstats.com/

[88] COMTRADE. Mexico Exports to USA. HS code 81010 (Strawberries, fresh) https://comtrade.un.org/data/; U.S. Bureau of Labor Statistics. Strawberries, dry pint, per 12 oz. (340.2 gm) in U.S. city average, average price, not

seasonally adjusted. https://beta.bls.gov/dataViewer/view/timeseries/APU0000711415;jsessionid=F749B39DBDE5B4BE0BDD17E6394E659F (accessed 23 January 2021).

[89] Fair Trade USA Board of Directors https://www.fairtradecertified.org/about-us/board

[90] Fair Trade. (2017). Agricultural Production Standard, Version 1.0.0. At a Glance. https://www.fairtradecertified.org/sites/default/files/filemanager/documents/APS/FTUSA_GUI_APSOverviewWebLong_EN_1.0.0.pdf (accessed 8 November 2019)

[91] Fair Trade. (2019). Agricultural Production Standard, Version 1.1.0 https://www.fairtradecertified.org/sites/default/files/filemanager/documents/APS/FTUSA_STD_APS_EN_1.1.0.pdf (accessed 8 November 2019)

[92] Fair Trade. (2019). Agricultural Production Standard, Version 1.1.0 *Ibid.*

[93] Fair Trade. 2019. Frequently Asked Questions. https://www.fairtradecertified.org/business/producer-certification (accessed 8 November 2019)

[94] Fair Trade USA. 2020. Report an issue. https://www.fairtradecertified.org/why-fair-trade/global-model/report-an-issue

[95] EFI Board members: Andrew & Williamson Fresh Produce, software marketing strategist, Costco, Farmworker Justice, NatureSweet Tomatoes, former Forest Stewardship Council board chairperson, Bon Appetit Management Company, Center for Science in the Public Interest, Consumer Federation of America, National Center for Appropriate Technology, United Farm Workers, Pesticide Action Network North America, Oxfam America, J.V. Smith Companies, and Farm Labor Organizing Committee. https://equitablefood.org/board-and-staff

[96] Scully-Russ, E., & Boyle, K. (2018). Sowing the Seeds of Change: Equitable Food Initiative Through the Lens of Vygotsky's Cultural-Historical Development Theory. New Directions for Adult and Continuing Education. 2018(159): 37–52.

[97] EFI. Certifying Bodies. https://equitablefood.org/certifying-bodies/ (accessed 6 January 2021).

[98] EFI. (2019). EFI Social Standards I Version: 2.1 https://equitablefood.org/wp-content/uploads/EFI-Social-Standards_v2.1.pdf

[99] EFI. (2019). EFI Social Standards I Version: 2.1 *Ibid.*

[100] EFI. (2020). Complaint Management System. Version 1. Reporting form available at https://equitablefood.org/contact-us/

[101] EFI. (2018). Commodity Schedule and List of Buying Partners | Version 1.1. https://equitablefood.org/wp-content/uploads/FINAL_Commodity-Schedule-Buying-Partners_v1.1-Oct-2018.pdf

[102] Rainforest Alliance Board of Directors https://www.rainforest-alliance.org/leadership

[103] Rainforest Alliance. (2017). Rainforest Alliance Sustainable Agriculture Standard for farms and producer groups involved in crop and cattle production. Version 1.2. https://www.rainforest-alliance.org/business/wp-content/uploads/2017/11/03_rainforest-alliance-sustainable-agriculture-standard_en.pdf (accessed 28 September 2019)

[104] Rainforest Alliance. (2018). Rules for the Authorization of Certification Bodies. https://www.rainforest-alliance.org/business/wp-content/uploads/2018/03/15_rules-authorization-certification-bodies_en.pdf (accessed 28 September 2019); Rainforest Alliance. (2019). Rainforest Alliance. Inquiries and Complaints. https://www.rainforest-alliance.org/business/solutions/certification/agriculture/governance/inquiries-complaints/ (28 September 2019)

[105] GlobalGAP Board: VBT Association of Belgian Horti.Coop., Assomela Societa Cooperativa, Fyffes, CLAMA GmbH & Co. KG, New Zealand Apples & Pears Inc., Vion Food, Fresh Produce Centre/Groentenfruit Huis, Cencosud Retail Perú S.A., EDEKA AG, Aeon Co. Ltd., Ahold Delhaize, Salling Group, REWE Group Buying GmbH, Metro AG.

[106] GlobalGAP. (2019). Integrated Farm Assurance: All Farm base – Crops Base – Fruit and Vegetables. https://www.globalgap.org/.content/.galleries/documents/190201_GG_IFA_CPCC_FV_V5_2_en.pdf
[107] GlobalGAP. (2020). Incident/Complaint form. https://www.globalgap.org/uk_en/who-we-are/about-us/incident-complaint-form/index.html
[108] GlobalGAP. (2019). GlobalG.A.P. General Regulations. https://www.globalgap.org/.content/.galleries/documents/190201_GG_GR_Part-I_V5_2_en.pdf
[109] Lindgren, K. (2016). Justice in the Fields: A Report on the Role of Farmworker Justice Certification and an Evaluation of the Effectiveness of Seven Labels. Fair World Project. [online] https://fairworldproject.org/resources/certifier-analysis/farmworker-certification-analysis/
[110] See for example: O'Rourke, D. (1997). Smoke from a Hired Gun: A Critique of Nike's Labour and Environmental Auditing in Vietnam, as Performed by Ernst & Young; Elliot, K. and Freeman, R. (2003). *Can Labor Standards Improve Under Globalization?* Washington, DC: Institute for International Economics; Esbenshade, J. (2004). *Monitoring Sweatshops: Workers, Consumers, and the Global Apparel Industry*. Philadelphia: Temple University Press; Barrientos, S., Gereffi, G., Rossi, A. (2011). Economic and social upgrading in global production networks: A new paradigm for a changing world. *International Labour Review*; Anner, M. (2012). Corporate social responsibility and freedom of association rights: the precarious quest for legitimacy and control in global supply chains. Political Sociology. 40 (4), 609-644; Finnegan, B. (2013). *Responsibility Outsourced: Social Audits, Workplace Certification and Twenty Years of Failure to Protect Worker Rights*. Washington DC: AFL-CIO. [online] https://aflcio.org/reports/responsibility-outsourced (27 September 2017)
[111] Interview by the author, March 2020.
[112] See for example: Lichtenstein, Nelson, Editor. (2011). Wal-Mart: The Face of Twenty-First-Century Capitalism. New York & London: The New Press.
[113] See Olson, Dennis. (2014). Lessons from the Food System: Borkian Paradoxes, Plutocracy and The Rise of Wal-Mart's Buyer Power. In *The Global Food System: Issues & Solutions*, William D. Schanbacher, Editor, Santa Barbara, California, Denver, Colorado, Oxford, England: Praeger.
[114] Food and Agriculture Organization of the United Nations. (2020). FAOSTAT.
[115] Food and Agriculture Organization of the United Nations. (2020). FAOSTAT.