



Farm Labor and Mexico's Export Produce Industry



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Agustin Escobar, Philip Martin, and Omar Stabridis

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PREFACE

The United States imports fresh fruits and vegetables from Mexico, where reports of poor conditions and abuse of workers on farms that produce tomatoes and berries for US consumers have raised concerns. These reports are bottom up in the sense that they describe the wages and working conditions of particular workers without providing a top-down picture of average conditions for workers employed on export-oriented farms. This study develops a statistically valid picture of the average conditions of workers employed on export-oriented farms.

Agustin Escobar, Philip Martin, and their colleagues reached three important conclusions. First, Mexico has a competitive advantage in producing some fruits and vegetables because of its favorable growing climate, lower labor costs, and widespread use of protected culture or plastic-covered hoop structures that raise yields and reduce pest and weed issues. Second, Mexico's export agriculture is dominated by large farms that often include US partners who provide production and marketing assistance and increase grower sensitivity to worker wages and working conditions.

Third, the expansion of export-oriented agriculture is reducing rural poverty in Mexico. Almost all farm workers in export-oriented agriculture earn more than the Mexican minimum wage, and many earn two or three times the minimum wage during the harvest season. More than 90 percent of workers on export-oriented farms report that their employers have enrolled them in Mexico's comprehensive social security system, IMSS (Instituto Mexicano del Seguro Social), which provides health care and other benefits to covered employees. However, some workers report that they do not receive services from these payroll-tax supported government agencies. Export-oriented agriculture is expanding in northern and central Mexico, drawing workers from poorer mountainous areas and southern Mexican states to richer areas, a migration pattern that may speed upward mobility for farm workers and their children.

The combination of Mexico's competitive advantage (which fuels agricultural expansion), frequent international partnerships that are sensitive to labor conditions, and higher wages and more opportunities for some of Mexico's poorest residents leads to the conclusion that export-oriented agriculture is a success story. In our opinion, supporting and improving wages and working conditions in export-oriented agriculture requires dealing with three major labor issues: migrants, benefit programs, and a future strategy.

First, export-oriented agriculture is expanding in relatively richer areas of Mexico that have few additional local workers, increasing migrancy and the use of contractors to recruit workers. Although Mexico certainly needs to better regulate labor contractors to reduce the potential for worker abuse during recruitment, the greater need is a strategy for farm worker migration. Should family or solo migrancy be encouraged? Moving families to areas with more opportunity means that migrants and their children may benefit from higher wages, better schools, and upward mobility, but migrants

who settle in host areas may face backlashes. Leaving migrant families in poorer areas while solo adults send home remittances, by contrast, leads to better housing and more spending on children's schooling and health care, but may not transform poorer areas into richer areas.

Second, the current model in which almost all farmers pay social security taxes but some of their employees do not receive benefits is unsustainable. There are three options to maintain formal jobs on export-oriented farms: government agencies provide benefits to workers, offer employers credits against payroll taxes for health care, child care, housing, and other employer-provided services, or some combination of both. Of course, credits for privately provided services raise issues of who ensures that farmers are actually providing services and that these services satisfy quality standards.

Third, Mexico needs a future-oriented strategy for export-oriented agriculture. Labor costs are rising in both Mexico and the United States, as farmers on both sides of the border compete for the same workers to fill seasonal jobs. Most US farmers are responding by investing in housing to employ H-2A guest workers from Mexico and speeding up the development of labor-saving mechanization, while others are investing abroad in places with the labor, climate, and infrastructure to produce fruits and vegetables for Americans.

The ways in which fresh fruits and vegetables are produced may change in the next decade in response to rising labor costs in both Mexico and the United States. Uncertainties about trade policy, technological developments, and guest worker policies raise questions about the optimal level of private and public investment in housing, health care, and other facilities for migrant and seasonal farm workers whose numbers may shrink quickly in the future. For example, if strawberry harvesting machines prove viable, will they spread quickly in the United States and Mexico, displacing most of

the 75,000 workers employed in the two countries to harvest the most labor-intensive commodity in North America?

Mexico's export-oriented agricultural sector provides good jobs for low-skilled rural Mexicans, but the industry is at a crossroads. Stakeholders require better data, effective protective labor laws and their enforcement, and an employer-worker-government council that considers options to deal with issues that have no easy answers, from family migrancy to privately provided benefits for farm workers.

The Wal-Mart Foundation supported this study to obtain the data needed for evidence-based policymaking. We were able to collect statistically reliable data, develop recommendations to improve protections for workers, and work collaboratively with stakeholders to ensure that the recommendations are implemented.

Agustin Escobar, CIESAS

Philip Martin, Migration Dialogue

Duncan Wood, Wilson Center



ÁREA DE
PERTENENCIAS
PERSONALES

INFORMACIÓN
DE INTERÉS
PARA LOS
USUARIOS



EXECUTIVE SUMMARY

This study analyzes production systems and labor markets in Mexico's export-oriented agriculture. Its purpose is to develop reliable data on the wages and working conditions of the workers employed on Mexican farms that export fruits and vegetables to the United States, and to identify gaps in labor protections.

From December 7 to 14, 2014, the *Los Angeles Times* published a four-part series documenting forced labor, debt peonage, and poor living conditions for some of the internal Mexican migrants employed on Mexican farms that grow fresh fruits and vegetables for US consumers (Marosi 2014). The antitrafficking nongovernmental organization (NGO) Polaris (2017) reported that 2,000 trafficking victims were detected in Mexico in 2014. Citing an International Labour Organisation (ILO) estimate of 3.1 forced laborers per 1,000 Mexican residents, Polaris suggested that almost 380,000 people in Mexico could be in forced labor situations, including sex exploitation. An unknown number of these victims could be in agriculture.

Mexico exported \$9.4 billion in fruits and vegetables (including juice) to the United States in 2013, triple the \$3 billion of Mexican fruit

and vegetable exports of the early 1990s. Meanwhile, US exports of fruits and vegetables to Mexico tripled to \$1.4 billion over the same period (Zahniser et al. 2015). These figures indicate that the United States has a fruit and vegetable trade deficit with Mexico, importing six times the value of fruits and vegetables that it exports to Mexico. Mexico has exported more agricultural goods to the United States than it imported since 2014, meaning that Mexico runs an agricultural trade surplus with the United States. The United States had an overall agricultural trade surplus with the rest of the world of \$17 billion in 2017, and has exported more in farm commodities than it imported since 1960 (USDA 2019).

The North American fruit and vegetable industry is becoming integrated. US firms often contract or partner with Mexican producers to grow commodities for US consumers. Some invest in Mexican food packing and processing facilities, and some are involved in selling food via supermarkets to Mexicans. Buyers of exported commodities, including those destined for Mexican supermarkets, prefer to deal with fewer and larger farms that can supply large quantities of consistent quality produce year-round.

This study analyzed production and employment systems in five commodities that are exported from Mexico to the United States,

Buyers of exported commodities, including those destined for Mexican supermarkets, prefer to deal with fewer and larger farms that can supply large quantities of consistent quality produce year-round.

interviewed farm workers in four commodities to learn about their characteristics and migration patterns, and conducted focus groups to better understand the operation of the farm labor market and to identify gaps in labor protections for hired workers. We worked with stakeholders to understand production and marketing systems in these commodities and to identify the features of the farm labor market that are associated with better and worse farm labor conditions.

The analysis, interviews, and focus groups provide the best available portrait of farm worker migration patterns and wages and working conditions in Mexico's export-oriented agriculture. The data and analysis enable stakeholders to better understand where farm labor issues arise and to implement recommendations to prevent and remedy forced and abusive labor situations. We are grateful to the workers, employers, produce buyers, government agency and NGO staff, and researchers and others who increased our understanding of Mexican agriculture and the farm labor market, provided constructive critiques of our analysis, and cooperated to make this study possible.

Key Findings

The study includes four key findings. First, Mexico's export-oriented agriculture creates good jobs for workers with little education, which reduces rural poverty. The 3,065 workers who were interviewed in the winter and spring of 2019 were an average of 32 years old, had 7.2 years of schooling, and earned 200 to 300 pesos (\$10 to \$15) a day plus in-kind benefits, significantly higher than Mexico's minimum wage of 103 pesos a day. Harvest workers who are paid piece wages earn more, up to 500 pesos a day. Most workers are local residents, but a rising share are migrants from poorer mountainous regions of the Mexican states with export farms and southern Mexican states.

Second, more than 90 percent of the workers on export-oriented farms reported that their employers paid taxes to the comprehensive social security system IMSS (Instituto Mexicano del Seguro Social), compared with 48 percent of all Mexican workers covered by IMSS. However, IMSS often fails to deliver services to farm workers, especially child care and health care. If IMSS provided more comprehensive child care services, more local women could work on farms, reducing the need for internal migration.

Third, the expansion of export agriculture in Mexico creates jobs that reduce unauthorized Mexico-US migration but increase internal migration within Mexico. Migration offers opportunities for people living in poorer areas to earn higher wages within Mexico and to send remittances to poorer areas, improving housing and increasing investment in their children's education and health care. Longer seasons are encouraging some migrants to settle near export-oriented workplaces, which moves workers and their families from poorer to richer areas of Mexico that offer more opportunity.

Fourth, this study did not find significant differences in labor market conditions between commodities, states, and small and large growers. Almost all association-affiliated growers comply with labor laws, and our top-down survey confirmed almost universal payment of wages above the minimum wage and employer contributions to IMSS.

Major Recommendations

These findings lead to several major recommendations for the stakeholders in Mexican export-oriented agriculture.

1 First, stakeholders should raise awareness that export-oriented agriculture creates good jobs for workers with little education. More than three-fourths of local and migrant workers employed on Mex-

ican farms that export produce to the United States are satisfied with their seasonal jobs and plan to return next season.

Recent reductions in extreme poverty in rural Mexico are due in part to more and better jobs in export agriculture. The government of President Andrés Manuel López Obrador (AMLO), which has put helping the poor at the center of Mexico's economic agenda, should understand that continued incremental improvements in farm worker wages and working conditions will do more to reduce rural poverty than attacking export-oriented agriculture as a system that benefits mostly elites in Mexico and abroad. Timely and reliable data can reinforce the message that export agriculture reduces poverty.

Export-oriented agriculture faces labor and other issues, many of which arise from the increasing numbers of internal migrants. A major issue is whether to encourage or discourage family migration from poorer areas with farm workers to richer areas with farm jobs. Family migration means dealing with everything from housing and education to health care while moving poor people to areas with higher wages, better schools, and more opportunities for upward mobility. Encouraging solo worker migration, however, generates remittances for poorer areas that may improve housing and increase investments in schooling and health care, but may not transform these areas, which could mean that the children of migrant farm workers would have to migrate as well in search of economic opportunity.

Most hired workers on Mexican farms that export fruits and vegetables have little education. However, these farms also hire professionals, from accountants and managers to pest advisors, who stay in or move to agricultural areas for the opportunity to work in an expanding Mexican industry. Strengthening links between local educational institutions and the local agriculture industry would generate mutual benefits for workers, farmers, and regional economies.

2 Second is the payroll tax issue. Almost all of the workers interviewed on export farms reported that their employers paid payroll taxes to IMSS and Infonavit (National Workers Housing Fund), the Mexican federal agency that subsidizes housing for workers whose employers contribute. However, not all workers have effective access to the services that these agencies are supposed to provide, including health care and child care. Some growers pay taxes to IMSS and Infonavit and also provide health care and child care for their employees, a situation that provides incentives for employers to cheat by reporting lower than actual wages or not reporting all wages to reduce payroll taxes.

To address the payroll tax and services provision issue, the Mexican government and agricultural interests will have to devise a Grand Bargain under which government agencies provide the services they are funded to provide, employers that provide missing services receive a credit against payroll taxes owed, or both sides agree on a combination of improved government services to farm workers and credits for private provision of services. Without such a bargain, it likely will prove difficult to maintain high levels of employer compliance.

IMSS also provides pensions, which are likely to become an issue as the farm workforce ages. Under the current system, farm employers contribute on behalf of their workers. However, many of their employees will not qualify for IMSS pension benefits because they work only seasonally and thus do not obtain sufficient credits to receive benefits. Other farm workers are older, and may just be starting a retirement savings account, when they hold their first jobs with formal employers at a later age in life. Adjusting IMSS qualification rules so that more farm workers qualify for pension benefits, as is done in parts of Sinaloa, would increase worker attachment to agriculture and reduce poverty among retired farm workers.

Mexico considers the jobs for which employers pay IMSS and Infonavit taxes the major component of private-sector formal-sector jobs. We also interviewed farm workers employed informally in San Luis Potosí, Jalisco, and Michoacán, and learned that they receive lower cash wages and receive no work-related benefits. Informal jobs are a majority of the jobs in Mexican agriculture and the Mexican economy, but not in Mexico's export-oriented agriculture.

3 The third issue is migration and recruitment. The Mexican states where export agriculture is concentrated have few additional local workers, so they are recruiting more workers from poorer mountainous regions and southern Mexican states. The share of migrants varies by state. Workers recruited in these poorer areas have little education; may speak poor Spanish; and often rely on oral promises made by recruiters about wages, working conditions, housing, and other aspects of working away from home that differ from the provisions of the written contracts that the workers sign. Standardized contracts could help to educate workers about their rights and obligations, and government brochures in simple language that include government and private hotlines for complaints could help keep recruitment lawful.

A diverse group of labor contractors and other intermediaries move farm workers from one area to another. Some are employed directly by farms and supervise the workers they recruit, while others recruit workers but do not travel with migrants to the workplace. Many recruiters organize, transport, and supervise only one or two crews of 20 to 50 workers. Government efforts to regulate recruiters have had mixed results. One option is to make the farms that use recruiters jointly liable for any labor law violations committed by the recruiter. If enforced, such joint liability would encourage farms to have their own employees recruit or encourage them to rely only on vetted recruiters who comply with labor laws.

4 Fourth is the settlement of migrant workers. Migrants move from poorer to richer areas of Mexico, and some settle near their workplaces, moving from on-farm housing into low-cost housing in surrounding towns and cities and increasing demands on local governments for schooling and other public services. Local governments, which may not receive extra funding from federal and state governments to provide services to settled-out migrants for five to 10 years after settlement occurs, may blame export-agriculture for what is really a revenue-sharing issue. Coordinating councils of growers and local governments could anticipate and document settlement issues and promptly inform other levels of government to ensure that settled-out farm workers receive services.

5 Fifth is making export agriculture sustainable and compliant with labor laws. Most buyers of fresh produce require sellers to abide by food safety protocols that involve farm-level plans to reduce the risk of contamination by testing water and commodities to ensure that food is safe, and to have trace-back systems to quickly identify where food safety problems originated. Growers have an interest in promoting food safety because of externalities; if a shipment of fresh produce sickens consumers, all producers suffer from reduced demand and lower prices. Similar joint seller-buyer incentives can ensure labor compliance and avoid the same externalities that arise when the activities of one “bad apple” hurts all producers. Furthermore, industry-led efforts such as AHIFORES (La Alianza Hortofrutícola Internacional para el Fomento de la Responsabilidad Social; the major association of Mexican farm exporters) and the ethical charter can be more effective than enforcement directed against individual farms that violate labor laws, because industry insiders are most aware of problem employers and labor law enforcement depends on complaints. Relatively few low-skilled farm workers complain.

Export-oriented agriculture is sometimes accused of sending scarce water and other resources abroad in the form of fruits and vegetables. To remain sustainable, farm exporters should minimize the use of chemicals that could taint aquifers and cause worker illnesses, be mindful of competition between agriculture and nearby cities for clean water, and plant trees to increase forested areas and improve the environment.

This study also identified informal growers and casual workers in export agriculture. Informal employers are partly registered and partly unregistered and do not belong to export associations. They provide a small share of exported commodities but account for a large share of labor violations. Employer associations and US buyers face several options to deal with informal growers, including helping them to comply with labor laws and refusing to deal with or buy produce from them. Informal growers often receive lower prices for produce that is exported because they must sell to an exporter who is a member of an association and in compliance with labor laws. Bringing informal growers out of the shadows could increase transparency and improve labor law compliance.



CHAPTER

1

INTRODUCTION

This report analyzes production systems and labor markets in Mexico's export-oriented agriculture. It develops statistically reliable data on farm workers to determine the prevalence of compliance with labor laws, and to identify forced labor and trafficking among workers employed on Mexican farms that export produce to the United States.

Trafficking subjects people to compelled service for the purpose of exploitation, such as inducing people to work through the use of fraud, force, or coercion. Compared with smugglers, who generally move willing participants over borders, traffickers may move migrants who want to travel but are enslaved or exploited at the destination. One distinction holds that smuggling is a crime against the state, with the smuggler as well as the person being smuggled subject to prosecution, whereas trafficking is a crime against people because of the force, fraud, or coercion used by the trafficker against the victim, making victims eligible for government assistance and protection. In practice, the distinction between smuggling and trafficking is often blurred.

In 2000, the United Nations (UN) approved three Palermo Protocols to deal with smuggling, trafficking, and firearms, and made the UN Office on Drugs and Crime (<http://www.unodc.org>)

responsible for monitoring the Palermo Protocols. The Protocol Against the Smuggling of Migrants by Land, Sea, and Air defines smuggling as “the procurement, in order to obtain directly or indirectly, a financial or other material benefit, of the illegal entry of a person into a State Party of which the person is not a national or a permanent resident.” The Protocol to Prevent, Suppress and Punish Trafficking in Persons defines trafficking as: “The recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, or fraud, of deception, of the abuse of power or of a position of vulnerability or the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation or the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs.”

The US Victims of Trafficking and Violence Protection Act (TVPA) of 2000 requires the US Department of State issue an annual Trafficking in Persons (TIP) report that rates each country’s efforts to prevent trafficking, prosecute traffickers, and protect victims. The TIP report classifies countries in Tier 1, the highest tier, if their governments have implemented the 3-P framework by enacting laws to prevent trafficking, prosecute traffickers, and protect victims of trafficking. Tier 2 governments are not in full compliance but are making “significant efforts” to achieve compliance, and Tier 3 countries are not in compliance and are not making significant efforts to achieve compliance. The Tier 2 “watch list” of countries often gets special attention because it includes countries that have a significant or increasing number of trafficking victims, few government efforts to combat trafficking, and weak commitments to reduce trafficking. Countries that are on the Tier 2 watch list for two years, and would be designated Tier 2 watch list for a third

consecutive year, are automatically designated Tier 3. The threat of a Tier 3 designation, which can lead to reductions in US aid and US efforts to deny World Bank and International Monetary Fund assistance to the country, often prompts governments to take action against trafficking.

The 39 Tier 1 countries in 2018 included the richer industrial countries of Western Europe and Asia. Mexico is one of the more than 80 Tier 2 countries. It has been a Tier 2 country for the past five years, while Guatemala was moved from Tier 2 to the Tier 2 watch list in 2017 and 2018. Some of the victims of trafficking in Mexico are Central Americans transiting Mexico en route to the United States. The 23 Tier 3 countries include China and Russia as well as Belize and Venezuela.

Mexico's 2012 antitrafficking law prohibits all forms of human trafficking, and prescribes sentences of 5 to 30 years for convicted traffickers. Many trafficking cases are handled by state governments; 14 of 31 Mexican states had aligned state antitrafficking laws with the federal law by 2017 (23 in 2018), and 27 states had a special prosecutor to deal with trafficking by the end of 2017. In 2016, Mexico initiated 188 federal and 288 state investigations of trafficking,



and Mexican courts convicted 228 traffickers (US Department of State 2017, p. 279). No Mexican government official was convicted of complicity in trafficking between 2011 and 2016.

The 2017 US TIP report (pp. 279–81) noted that the Mexican government identified and supported trafficking victims and convicted traffickers, but did not deal effectively with complicity by local officials in trafficking and had an inadequate number of shelters for victims. It recommended that the Mexican government increase efforts to detect and assist victims of trafficking and strengthen efforts to prosecute traffickers, improve antitrafficking laws, increase cooperation between agencies, improve the training of police and prosecutors, and collect and publish more data on forced labor and trafficking. The 2017 report (p. 280) also noted press reports of 81 exploited tomato workers in Querétaro and the arrest of seven suspected traffickers. In 2016, the Mexican secretary of labor and social welfare published an inspection protocol for federal job centers with agricultural activities to facilitate the detection of forced labor and report cases to law enforcement. The 2017 TIP report asserted that “some Mexicans are held in debt bondage in agriculture, and are indebted to recruiters or to the company itself.” (p. 282).

The 2018 US TIP report (pp. 301–3) kept Mexico on the Tier 2 list but noted that the government had obtained fewer convictions of traffickers than previously and provided limited specialized services to trafficking victims, including operating too few shelters for them. The report noted (p. 301) that limited resources prevented the Mexican government from prosecuting more complaints of forced labor in agriculture. Corruption and complicity continue to inhibit effective enforcement of anti-trafficking laws, and the report recommended that the Mexican government strengthen the labor inspection system, particularly in the agricultural sector (p. 301). The 2018 TIP report (p. 303) also stated that the special inspection protocol in federal job centers with agricultural activities conducted

132 inspections and identified 54 children working in agriculture in violation of labor laws. NGOs complained that such inspection efforts were insufficient. The report (p. 304) noted the wide gap between NGO estimates of the number of forced laborers in Mexico (375,000) and the 1,500 victims identified between 2013 and 2017. The methodology behind the 375,000 estimate of victims is not clear.

The State Department's TIP reports and NGOs often assess government progress to reduce trafficking and find it insufficient. Progress is sometimes measured by the number of training courses and workshops offered to police and prosecutors to raise awareness and improve the detection of trafficking victims. The State Department prefers that governments take "concrete actions" rather than only training and retraining police and prosecutors, and also prefers to count the number of traffickers who are identified, prosecuted, and incarcerated; the number of victims identified and assisted; and the number of new or amended antitrafficking laws.

It is difficult to determine whether the NGO focus on hotlines for victims and training to improve the detection of trafficking, or the TIP report's emphasis on traffickers convicted and victims assisted, is the best metric to measure progress against trafficking. Some argue that the best measure of progress against trafficking is economic development, or the rate of increase in per capita income. There are fewer trafficking victims in the richer countries that dominate the TIP Tier 1 watch list, in part because people and workers in richer countries usually have the option of saying no to abusive and exploitative working conditions. Reducing trafficking requires a combination of approaches, from hotlines and education to prosecution and victim assistance to economic development.

The overall debate between those who favor specific versus general antitrafficking policies mirrors the dilemma in many areas of public policy. For example, should efforts to cope with the negative

effects of climate change focus on projects that protect coastal cities or should they seek to speed development generally, under the theory that better-educated and higher-income residents will be better able to cope with climate change regardless of the form that it ultimately takes? Similarly, what is the optimal balance between focusing limited resources on antitrafficking campaigns compared with helping to improve wages and working conditions in migrant areas of origin to reduce opportunities for trafficking?

Mexican Migrant Workers: *Los Angeles Times*

In December 2014, the *Los Angeles Times* published a four-part series based on an 18-month investigation of farm labor conditions in Mexico's export-oriented agriculture (Marosi 2014). The series made four major charges. First, it argued that many of Mexico's estimated 150,000 migrant farm workers are effectively trapped in camps on or near the farms where they work. Some of the migrant housing is of very poor quality, concrete block rooms with little or no furniture and inadequate sanitation. Because migrant farm workers have few or no choices in where they live, they have little recourse to improve their poor health and living conditions. Second, migrant workers employed on export-oriented farms are often recruited and supervised by contractors from their area of origin. Some of these contractors withhold workers' wages to discourage them from leaving for other employers who may offer higher wages, better working conditions, or improved housing. Some contractors retain workers' wages until the end of the contract, making the workers effectively indentured during their typical three-month contracts. Third, some workers wind up in a form of debt peonage, owing money to in-camp stores operated by third parties that sell alcohol, supplemental food, and other items. Workers whose wages are withheld by their employers often buy items at high prices on credit from these stores, and are not allowed to leave the camp until camp-store debts are repaid. Fourth, US buyers of

Mexican produce have not enforced social responsibility guidelines that require Mexican suppliers to pay farm workers regularly and to provide migrants with decent food and housing.

The *Los Angeles Times* stories profiled mostly indigenous and sometimes non-Spanish-speaking workers recruited in poor areas of Mexico and employed on farms in northern Mexico that produce fresh fruits and vegetables for US consumers. The reporting emphasized that these internal migrant workers, who often are recruited by contractors from their areas of origin, are expected to work six days a week for the equivalent of \$8 to \$12 a day, which is two to three times Mexico's minimum wage. The produce is sometimes treated better than the workers, as growers often enforce food safety protocols more effectively than worker protection standards.

Vegetable Exporters

Reporters visited camps housing workers employed by Bioparques de Occidente in San Gabriel, Jalisco, which supplies Kaliroy tomatoes to Walmart (<http://kaliroy.com>); Rene Produce in Sinaloa (www.reneproduce.com), which in 2014 exported \$55 million in tomatoes to US buyers, including to Whole Foods; and Agrícola San Emilio, 20 miles west of Culiacán, which in 2014 exported 80 million pounds of tomatoes to US buyers, including Andrew and Williamson of San Diego and Triple H of Sinaloa. Many tomatoes and other vegetables are grown under protected culture, often plastic-covered hoop structures rather than more expensive glass greenhouses.

Agrícola San Emilio reportedly hired 1,000 workers, half of whom were housed just behind the major packing facility in windowless cinderblock buildings with concrete floors and no furniture. Each building accommodated four to six workers. The workers who were interviewed were recruited by a contractor who promised them \$8 a day, and these workers did not expect to receive their

wages until the end of their three-month contracts. Withheld wages kept them at Agrícola San Emilio, and some reported that the inadequate food provided in their cafeteria prompted them to buy supplemental food on credit from camp stores.

The recruitment of migrant workers occurs in rural areas of extreme poverty. Contractors offer workers willing to migrate to Sinaloa wages of 100 pesos a day (\$5.50 in June 2017) and housing and food where they work. The reporters encountered recruiters who were accused of trafficking or withholding wages; the contractors denied these charges. The reporter described recruitment as a bidding process. Contractors offered the assembled Huasteca workers spending money for the two-day bus trip from their home areas to labor camps in Sinaloa. After 40 workers boarded the bus for Sinaloa, they were read their three-month contracts, which included no wage payments until the end of the contract.

Withholding wages until the end of the contract can lead to conflict. The recruiter believes that pay at the end of three-month contracts ensures worker loyalty, and workers agree to end-of-contract pay at the place where they were recruited. However, Mexican law specifies that farm workers must be paid weekly, which makes end-of-contract pay agreements invalid. Agrícola San Emilio provided three meals a day, but some camp residents said this camp food was insufficient, explaining why they purchased supplemental food on credit from in-camp stores. Some tomato growers pay workers electronically, providing ATM cards to workers who give them to the contractor who recruited them for “safekeeping.”

Bioparques de Occidente, owned by Eduardo De La Vega, has more than 500 acres of greenhouses and a packing plant in the San Gabriel Valley 100 miles south of Guadalajara and operates Agrícola La Primavera in Sinaloa. It exported some six million boxes of Kaliroy tomatoes to the United States in 2013. Bioparques has several labor camps with schools, clinics, and day care fa-

cilities. *Los Angeles Times* reporters visited the Bioparques 4 camp, which lacked these amenities. Many of the workers at the Bioparques 4 camp were from Huasteca, a mountainous region of subtropical heat that covers parts of three central Mexican states: Hidalgo, San Luis Potosí, and Veracruz. The Huasteca migrants were brought 550 miles to Bioparques by contractors promising wages of 100 pesos a day. However, workers in the Bioparques 4 camp complained that they had to pick 60 buckets of tomatoes a day to earn 100 pesos, a productivity standard that was difficult for older workers to achieve. Bioparques 4 residents said the food offered in the camp was insufficient and of poor quality, and guards prevented them from leaving until they paid the debts they owed to the in-camp store.

On June 11, 2013, Jalisco authorities raided the Bioparques 4 camp, when it had 275 residents. Buses were provided for Huasteca migrants who wanted to return home, and Huasteca contractor Plácido García and two Bioparques employees were charged with exploiting workers. The Bioparques employees were later exonerated and a \$700,000 fine was canceled after the labor camp was improved; contractor García was not located. Walmart stopped buying tomatoes from Bioparques, but the World Bank did not withdraw a loan to Bioparques, saying the labor camp issue was an aberration for an otherwise good firm.

Campo Isabeles houses several hundred workers for Rene Produce, a producer of tomatoes, cucumbers, bell peppers, and eggplants in greenhouses and open fields south of Culiacán that shipped 200 million pounds of tomatoes to the United States in 2014. The *tienda* (private store) within the camp pays rent to Rene and charges workers high prices for food, alcohol, and other items that are often bought one-by-one on credit.

Monopoly in-camp stores are a well-known problem. In the 19th century, company stores on haciendas sometimes kept peasants

in perpetual debt. Some growers operate camps that sell items at cost, and the government has opened discount stores in some farm labor camps. However, the *Los Angeles Times* reported that private stores with unmarked prices and expensive credit are the rule. Rene Produce expressed surprise about debt bondage in its labor camps, since it expected to be certified as in compliance with Fair Trade USA labor standards. In response to the exposé, Rene Produce said it may begin to sell staples goods to workers in its labor camps at cost.

The December 2014 story reported that 100,000 children under age 14 work for wages in Mexican agriculture. One profile covered the story of a 12-year old Mixtec Indian girl from Guerrero who picked chili peppers in Guanajuato. Reporters noted that large export-oriented farms had almost no child workers. Instead, children were found on small and medium-sized farms picking light crops such as chili peppers, placing them into 15-pound buckets that are dumped into 60-pound sacks. Workers are paid \$2 per sack, and the 12-year old girl reported earning \$20 a day, four times the minimum wage. The indigenous workers employed to harvest chili peppers in Guanajuato were assembled into a crew of 50 by a Mixtec contractor who traveled with the crew and supervised them at work. Contractors say that parents want children to work with them to increase family earnings, while migrant advocates say that low wages force families to encourage their children to work.

Several themes run through the *Los Angeles Times* series. First, the most exploited workers were indigenous, recruited by indigenous contractors, and bussed several days from their homes to labor camps on or near the farms where they do harvest work. Second, workers receive housing and food in the camps where they live while working, but the quality of these items varies, leading to examples of workers bathing in irrigation canals because showers do not function and purchasing supplemental food at high

prices from in-camp stores. Third, a common complaint involved withheld wages, that is, workers not receiving wages until the end of their contracts. Contractors inform workers that they will not be paid for three months, and workers agree to these terms by getting on contractor buses. However, Mexican law requires farm workers to be paid weekly, invalidating contractor-worker agreements to withhold wages. Some workers and contractors say that workers “want” wages withheld so that they can return to their homes with savings, rather than spend their earnings on alcohol and other items.

There were several reactions to the *Los Angeles Times* series. The Fresh Produce Association of the Americas (FPAA), which represents Mexican exporters and US importers, called the stories one-sided. The FPAA stressed that its members have a “long and rich history of improving worker conditions . . . in Mexico” (FPAA 2016, p. 2) and that the abuses detailed in the series are the exception, not the rule. It said that increased regulatory vigilance, worker education, and peer pressure among employers has greatly reduced abuse of workers. Some of those reacting to the series suggested that third-party auditors who already visit farms to do food safety checks should investigate labor conditions as well.



Worker advocates suggested that farm worker abuses on export-oriented produce farms are more systemic than occasional, and that top-down pressure from US produce buyers could effect lasting change. Many US buyers require Mexican producers to sign social responsibility statements and undergo labor standards audits, which often take the auditor a day and cost the grower \$1,500. Critics allege that auditors can be misled by growers who take them to showcase labor camps and allow only preselected workers to be interviewed.

AHIFORES (La Alianza Hortofrutícola Internacional para el Fomento de la Responsabilidad Social; International Fresh Produce Social Responsibility Alliance), an organization created by the Confederation of Agribusiness Associations in Sinaloa and the FPAA in December 2014, promised to ensure that Mexican labor laws are obeyed on its member farms, which account for more than 90 percent of Mexican produce exports to the United States. brings growers together with other stakeholders to discuss farm labor conditions and ways to improve them each year. The second AHIFORES meeting in Guadalajara held on February 28 and March 1, 2018, highlighted three themes:

- As production for export increases, farm producers have become more dependent on internal migrants. Local workers who previously worked seasonally in agriculture have found nonfarm jobs, are staying in school, or are not available due to declining fertility and rural-urban migration. There is often a wide gulf between the indigenous migrants who do a rising share of the work in export agriculture and growers and residents of local communities in the richer areas of Mexico where most export-oriented farms are located, which can lead to tensions as some indigenous workers settle. During the discussion, there were frequent references to farmers who offer housing to indigenous migrants who must teach their workers about toilets, appliances, and modern living.
- There is frustration with the work-related programs financed by payroll taxes. Most harvest workers are paid more than Mexico's 88 peso or \$4.67 a day minimum wage in 2018, with 200 pesos a day the prevailing wage for most berry workers in Jalisco and Michoacán. However, some growers do not enroll their workers in the IMSS system that provides health and pension benefits, and some avoid the payroll tax that supports Infonavit and allows workers to save and receive subsidies for their housing. There was widespread agreement that most migrant workers from poor and mountainous areas do not benefit from IMSS and Infonavit programs, so growers can save the 25–30 percent of their wage bill that would be paid in payroll taxes without antagonizing workers. They do this by not registering all of their employees, or registering their workers but reporting that they were paid only the minimum wage rather than their actual higher wage. Some growers provide health and housing services to workers, and want credit from

government in the form of lower payroll taxes because of the private services they provide. Instead, government agencies that acknowledged they do not provide services to migrant workers proposed pilot and new programs to serve farm workers. The result is frustration for those growers who pay taxes to IMSS and Infonavit *and* provide services to workers that these government agencies should (but do not) provide.

- Many migrants are settling in areas where they do farm work, especially as periods of employment lengthen. This can increase tensions with local residents *and* local governments. Farmers who provided housing and food in their on-farm camps typically do not provide services to workers who live in local communities. However, some local governments also fail to provide water and other services to current and former farm workers in the informal housing areas where some settle. The resulting frustration with growers *and* local governments can explode into protests, as in the San Quintín area of Baja in March 2015. Many migrants who settled in this area did not receive basic sanitation and water services from farmers or the local government. Government inspectors who visited San Quintín in March 2015 found some indigenous workers living under plastic tarps strung between trees.

In February 2015, the Mexican government pledged to step up enforcement of Mexican labor laws and to improve housing, schools, and health care for the estimated one million workers and their families employed on Mexican farms that produce fruits and vegetables for export. If there are 150,000 migrant workers on these farms, 85 percent of workers in the export-oriented produce industry are local workers.

Berry Exporters

On March 17, 2015, berry workers went on strike in the San Quintín Valley of Baja California 200 miles south of San Diego, demanding an increase in wages. Strikers said that most of the area's 30,000 farm workers were earning 110 pesos (\$8) a day picking strawberries at piece rates of 10 to 14 pesos a tray or box. The strikers, organized by the independent union Alianza de Organizaciones Nacional, Estatal y Municipal por la Justicia Social demanded a minimum wage of 200 pesos (\$13) a day from the area's 12 major farm employers, and shut down the Transpeninsular Highway in the area to prevent harvested berries from being shipped to the United States

Baja farm workers, many of whom are Mixteco, Triqui, and Zapoteco internal migrants from southern Mexican states, are represented by unions affiliated with the Confederation of Mexican Workers (CTM) and the Regional Confederation of Mexican Workers (CROM). The Alianza charged that these CTM and CROM unions signed agreements with farm employers without informing the workers employed under these contracts, and that some CTM and CROM staff were paid by berry growers. Some of the Alianza strike leaders gained experience mounting demonstrations while employed in the United States, and used this experience to organize protests in Mexico (Vilagrim 2015). In June 2015, after 12 weeks of intermittent strikes and losses estimated at \$80 million, growers agreed to raise daily wages to at least 180 pesos (\$11.50) a day on large farms and to 150 pesos (\$9.50) a day on small farms. The agreement also required farm employers to make IMSS social security contributions on behalf of workers and called on state and local governments to improve area schools, clinics and other infrastructure for workers who had settled in towns and cities near the farms.

Wages traditionally have been higher in northern Mexican border regions to compensate for the higher cost of living near the US border. In the past, some migrants from southern Mexico continued to migrate northward into the United States after harvests ended in San Quintín Valley, but tougher US border controls encouraged settlement in Baja in areas that lack government services.

BerryMex, which hires a peak 4,500 workers and markets berries through Driscoll's, is a wage and benefit leader in the San Quintín Valley. In March 2016, BerryMex was paying at least 226 pesos (\$12) a day, with some workers earning \$2 to \$3 an hour picking at piece-rate wages. Certified by Fair Trade USA in 2016 as having good conditions for its workers, BerryMex provides housing for 500 workers, and Costco and Whole Foods pay a 50-cent premium per tray for BerryMex berries to fund community projects. However, union leaders complained that BerryMex required pickers to work seven days a week during peak harvests, and required workers who refuse seven-day work schedules to take unpaid days off.

The December 2014 *Los Angeles Times* series, the spring 2015 strikes in Baja, and concerns about wages and working conditions on US farms producing fruits and vegetables prompted the Produce Marketing Association and the United Fresh Produce Association to release an ethical charter that calls on growers to abide by labor laws and to educate their employees about their rights and responsibilities. The UF-PMA Joint Committee consulted a wide range of stakeholders to "evaluate local, national and international standards, growers' best practices, and common customer expectations for labor practices to take advantage of the opportunity to harmonize this effort with other relevant frameworks. In doing so, industry members are coming together to identify, learn from, and leverage industry practice."

The UF-PMA ethical charter released in 2017 asserted that “re-sponsible labor practices are the right thing to do and our success as an industry depends on it.” The charter laid out goals for employers, including compliance with applicable wage, hour, and work safety laws. It dealt with the management of workers, asserting that “direct communication between workers and management is the most effective way of resolving workplace issues and concerns.” Ethical recruitment involves growers using only contractors who comply with labor laws and “seeks to mitigate the risks of forced labor, child labor and human trafficking in their [growers’] recruitment and employment practices.” The charter also dealt with the fundamental rights of workers, including nonharassment and nondiscrimination, and called on growers to bar children below legal employment age (usually age 15 in Mexico) from working. The charter asserted that “All work must be conducted on a voluntary basis, and not under threat or menace of penalty.” The charter called on growers to pledge to combat “forced labor, involuntary prison labor, bonded, debt bondage, indentured labor, or the trafficking of persons.”

On May 10, 2019, Mexico’s National Commissioner for Human Rights signed an agreement with the US United Farm Workers union that urged the Mexican government to implement policies to prevent forced labor in agriculture. The commissioner noted that Mexico ratified international agreements that prohibit forced work, and urged the government to enact laws and programs to ensure that there was none. The Human Rights Commission made recommendations to the Ministry of Labor; the Social Security Institute; and the governments of Baja California Sur, San Luis Potosí and Colima to improve efforts to detect forced labor, prosecute perpetrators, and protect victims (Notimex 2019).

Poor working conditions in Mexican agriculture continue to be the subject of numerous exposés. The newspaper *El Campo* reported

on the use of contractors to hire internal migrants who are not registered by their employers for health and social security benefits, and concluded that there are too few inspections to detect violations of labor laws. Gallegos (2018) reported that the Ministry of Labor (STPS; Secretaría del Trabajo y Previsión Social) made 2,557 inspections of farms throughout Mexico between 2006 and mid-2017 and found 55,800 violations, resulting in fines totaling 58 million pesos (\$3.1 million), of which 2.5 percent were paid. Employers often appeal fines levied by STPS to encourage courts to reduce, revoke, or annul them. Gallegos was especially critical of the enforcement of laws protecting farm workers from pesticides and other chemicals. In February 2018, the Ministries of Agriculture, Livestock, Rural Development, Fisheries and Food (SADER; Secretaría de Agricultura y Desarrollo Rural) and Labor (STPS) agreed to cooperate to improve the enforcement of labor laws in agriculture and extirpate child labor in the fields (Notimex 2018).

Polaris: Trafficked Workers

Mexico enacted its first federal antitrafficking law in 2007. The antitrafficking NGO Polaris (2017) commissioned an analysis of labor trafficking in Mexico that emphasized the lack of data on the extent of trafficking. An ILO (2012) report estimated that the prevalence of forced labor in Latin America was 3.1 victims per 1,000 residents, which would imply almost 380,000 trafficking victims in Mexico (ILO 2012, p. 15). The Intersecretarial Commission to Prevent, Prosecute, and Eradicate Human Trafficking Crimes identified about 2,000 victims as of 2014.

Polaris operates a National Human Trafficking Hotline. Operators are trained to identify trafficking victims using indicators such as low wages and poor working conditions, bad health, and lack of worker control (Polaris n.d.). Work-related indicators of trafficking

include working long hours for little or no pay; having restricted breaks at work; and working or living in excessively secure conditions, as in buildings that restrict ingress and egress. Health indicators of trafficking include physical injuries, fear and anxiety, and limited eye contact, while lack of control indicators include employer retention of a worker's personal documents, no control over money, and few personal possessions. Most of these indicators of trafficking vary by industry and occupation.

Most Mexican government agencies contacted for the Polaris report failed to provide requested information on their antitrafficking activities. Mexico has a National Human Trafficking Hotline operated by Consejo Ciudadano de la Ciudad de México. Less than 10 percent of the 10,175 trafficking victims identified between 2009 and 2016 in Mexico involved labor trafficking, including cases of workers not being paid until their three-month contracts were fulfilled. Most of the other 90 percent of victims involved sex trafficking.

The Polaris reported cited 2009 data that found two million hired farm workers, including 83 percent employed in just five commodities (Table 1). The largest number of workers, 994,000 (49%), were employed in coffee. The second-largest employer was tomatoes, including 178,000 (9%) in red or ripe tomatoes and 95,000 (5%) in mature-green tomatoes. Chile peppers employed 195,000 workers, sugar cane 124,000, and mangos 106,000. Since 2009, employment in coffee has decreased, and employment in fresh fruits and vegetables has increased.

Table 1. Mexican Farm Worker Survey, 2009

	Workers	Share	Under 18	Share	Ratio all/ under18
Coffee	993,510	49%	26,011	6%	8.1
Chile peppers	194,826	10%	55,635	13%	0.7
Tomatoes (red)	178,385	9%	44,797	10%	0.8
Sugar cane	124,464	6%	31,069	7%	0.9
Mango	105,855	5%	21,676	5%	1.0
Tomatoes (green)	94,756	5%	43,352	10%	0.5
Subtotal	1,691,796	83%	222,540	51%	1.6
Total	2,040,414	100%	433,516	100%	1.0

Source: Encuesta Nacional de Jornaleros (2009) Ratios greater than 1 mean lower shares of under-18 workers in a commodity

These five commodities included more than 80 percent of all hired workers but only half of workers under age 18. Chilies and tomatoes employed a third of the under-18 farm workers, and the share of child workers in green tomatoes was twice the share of all workers in green tomatoes. (Ratios greater than 1 mean lower shares of under-18 workers.) Melons and zucchini employed higher shares of under-18 workers than all workers, as did apples and peaches. The share of children in coffee was much lower than the share of all workers employed in coffee.

The report estimated that 406,000 families migrated from their usual homes to do farm work, often leaving their homes in November and December. Many move to export-oriented farms in Sinaloa, where the harvest of tomatoes and other vegetables peaks in March and April. More than half of Mexican farm workers reportedly are employed for six-day work weeks.

Trafficking information questionnaires sent to 44 Mexican NGOs in 2016 resulted in 26 responses that reported 60 cases of trafficking and/or labor exploitation in 2014, mostly in agriculture, including

24 labor trafficking cases on farms in 2015 and 25 in 2016. NGOs reported that many labor trafficking victims were indigenous men, some illiterate and non-Spanish speaking, who complained that the verbal promises about wages and working conditions made by contractors were not fulfilled at their seasonal workplaces.

The recruitment system involves contractors who recruit workers in the same communities each year, a practice that should reduce forced labor and other abuses over time as workers learn which contractors are trustworthy. Most contractors are known in the communities where they recruit workers, and some are well-established community leaders. Many growers advance money to contractors to cover the cost of recruiting workers and to enable contractors to offer workers incentives to board buses. Some growers deduct these recruiter costs and incentive payments from worker wages, while others recoup them in lower wages than they would otherwise pay rather than as a line-item deduction. There is also word-of-mouth recruitment, as when growers invite workers to bring friends and relatives into the crew. However, few workers have their own vehicles, making it difficult for them to travel from their homes to export-oriented farms without the bus transportation provided by contractors. Some growers send buses to areas with reliable or returning workers and bypass contractors.

Combating trafficking involves the three Ps of prevention, prosecution of violators, and protection of victims. Prevention in the case of migrant Mexican farm workers is made more difficult by the fact that many are indigenous and migrate to export-oriented farms for higher wages via community-based contractors. Prosecution is difficult because out-of-area contractors may disappear, and fines levied on growers may be reduced or eliminated if they pay back wages owed to workers and fix the housing that led to worker complaints. Protection of victims is also complicated because migrant workers must complain to authorities in areas where

growers have influence in local governments and migrant workers are outsiders.

A combination of an increased demand for farm workers, the lack of an effective system to enforce labor law compliance on farms, and the ability of farm employers to avoid penalties by bringing labor conditions into compliance combine to make it difficult to extirpate trafficking in agriculture. Mexico's labor and antitrafficking laws generally are considered adequate, but their enforcement is often lacking. There are calls for more data and research, modifications to Mexican law, and more aggressive enforcement of labor and other laws. Employers, unions, and local authorities sometimes combine to discourage workers from filing or pursuing charges of trafficking.

In 2018–19, Polaris planned a 12-point program with a four-person team based in Mexico to operate a National Hotline Against Human Trafficking and to deepen local capacities to understand the scope and scale of labor trafficking. Polaris worked with a local partner to push and pull information to and from farm workers in San Luis Potosí via SMS messaging. The app provides information on worker rights in exchange for workers providing information on their wages and working conditions.

Polaris and other antitrafficking NGOs want more efforts at federal, state, and local levels to detect labor trafficking, assist victims, and prosecute traffickers; structural and systematic changes to reduce labor abuses; and improved laws aimed at reducing trafficking. Many of the activities undertaken to achieve these goals have objectives that are difficult to measure. For example, how does one measure progress toward the goal of strengthening networks of NGOs who identify and provide services to victims of trafficking? What about increasing collaboration to enhance data collection and sharing among stakeholders?

Polaris operates a hotline for potential victims of labor trafficking and exploitation. Between December 2007 and September 2017, the hotline recorded 550 cases of potential labor trafficking and 1,808 cases of potential labor exploitation in agriculture. Polaris indicators of labor trafficking include unpaid wages, misrepresentation of jobs, threats to report workers to immigration authorities, excessive working hours, and denying workers items they request. Polaris refers those who contact its hotline to local resources; it does not know or follow up on what happened to workers in particular cases.

Most trafficking victims have low levels of education and skill. However, some highly skilled workers are trafficking victims because recruiters forced them to sign affidavits promising to pay the recruiter if they did not fulfill their contracts. In one case, before arriving in the United States Filipino nurse Rose Ann Paguirigan signed a contract that would require her to pay \$25,000 if she did not fulfill her contract. She later sued both her recruiter and her US hospital employer for trafficking. Some state courts have held that contracts with early termination fees are not enforceable in the United States, although they may be enforceable in the workers' country of origin.

In 2017, Hispanics in Philanthropy (HIP) released a report on trafficking in Mexico that involved a survey of NGOs. The HIP (2017) report noted that local government officials in Hidalgo and Puebla helped recruiters to induce workers to board their buses to pick fruits and vegetables in Baja California, and found that there was labor exploitation and trafficking in commercial agriculture and maquilas in northern Mexico and in the Bajío.

Urban Institute: Trafficked Workers

In 2014, Urban Institute researchers completed a report for the US Department of Justice that examined labor trafficking in the United

States 14 years after the enactment of the Victims of Trafficking and Violence Protection Act of 2000 (TVPA), which made labor trafficking a federal crime (Owens et al. 2014). The Department of Health and Human Services can certify non-US citizens as trafficking victims if they were subjected to forced sex or labor, and grant assistance to the victims.

The TVPA was enacted in response to the US Supreme Court's 1988 *United States v. Kozminski* decision, which limited the definition of involuntary servitude to "physical" or "legal" coercion. With TVPA, Congress created a federal crime when "persons are held in a condition of servitude through nonviolent coercion." The report accompanying the TVPA defines unlawful coercion as "physical or nonphysical, including psychological, financial, or reputational harm, that is sufficiently serious, under all the surrounding circumstances, to compel a reasonable person of the same background and in the same circumstances to perform or to continue performing labor or services in order to avoid incurring that harm." The act defines labor trafficking as "the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt peonage, or slavery." All US states have made human trafficking a criminal offense, and most have criminalized labor trafficking. The three key elements of labor trafficking are an *act* such as recruitment; a *means* such as force, fraud, or coercion; and having the act and means taken for the *purpose* of exploiting another person. The most complex part of this act-means-purpose trilogy is force, fraud, or coercion, with fraud (as when recruiters promise higher wages than are paid) being the most common.

The Urban Institute study was based on 122 closed labor-trafficking cases in four US cities. All of the victims were immigrants, including 71 percent who had temporary visas, primarily H-2A and H-2B visas that allow foreign workers to fill seasonal farm and

nonfarm jobs, respectively. The victims experienced fraud, force, or coercion via overpayment of recruiting fees (an average \$6,150), the withholding of their documents once they were in the United States, and other acts. Most victims arrived in the United States legally, but 69 percent were unauthorized when they came in contact with the NGOs that assisted them. Half of the traffickers involved in these cases were arrested.

The Urban Institute used the Freedom Network to locate 11 NGOs that assisted at least 20 labor trafficking victims after 2000. Four of these NGOs were selected for visits and a review of cases, resulting in 122 cases selected for analysis, including 19 percent or 23 cases in agriculture. The agricultural victims were 91 percent male, with two-thirds aged 18 to 39; 91 percent unauthorized; and 78 percent from Latin America. Of the 169 suspected perpetrators of trafficking identified, two-thirds were farm labor supervisors.

The Urban Institute acknowledged the difficulty of separating labor exploitation, defined as not paying minimum wages or adhering to labor standards, from labor trafficking, which involves force, fraud, or coercion. The study noted (2014, p. 77) that “many victimization experiences appeared to be only exploitative labor situations” rather than trafficking. One table (2014, p. 80) notes that the most common exploitation involved paying less than promised wages or making unlawful deductions, whereas labor trafficking included threats to use violence or to report unauthorized workers to authorities.

Indicators of trafficking highlighted in the report included workers living in isolated camps with only the employer providing transportation away from the camp, as well as employers calling workers derogatory names or providing them with poor housing. Many of the victims did not know they were trafficked until NGO service providers informed them of their rights. Few victims sought help from NGOs to secure the T-visas (intended for victims of traffick-

ing) that can lead to immigration visas; most did not know about T-visas for trafficking victims until the NGOs informed them of this special visa category.

The Urban Institute's review of agriculture (2014, pp. 10–12) contained errors that could affect its conclusions. The farm labor survey cited in the report is a measure of average employment, not unique workers; the number of unique workers is higher than average employment due to seasonality and turnover. The number of H-2A visas is not capped, and in 2014 there were fewer than 100,000 H-2A workers in the United States, rather than the 300,000 cited in the study. Also, even though the Urban Institute considered the isolated living condition of farm workers to be an indicator of trafficking, many farm workers are housed on farms or in rural areas to be near their jobs.

The Urban Institute recommended changes to US guest worker programs, so that workers are not tied to one employer; greater enforcement of labor laws; and the expansion of state laws, such as California's Transparency in Supply Chains Act, that hold buyers at the top of supply chains liable for forced labor among suppliers in the chain. The study also recommended more training for those who could identify victims of trafficking, the creation of a Department of Homeland Security agency that focuses on antitrafficking; and improved services for trafficking victims, including housing and vocational training.

Thinking about Trafficking

Trafficking is a difficult topic. The ILO office devoted to forced labor, modern slavery, and human trafficking estimated that 25 million workers were in forced labor in 2016, including 16 million in the private sector. Another five million were in forced sexual exploitation, and four million in forced labor imposed by governments (ILO n.d.).

The ILO estimated that 21 million people worldwide were in some form of forced labor at some time during the decade from 2002 to 2011, including 14.2 million who were “victims of forced labor exploitation” in the private sector (2012, p. 13). These private-sector victims were 60 percent men and 73 percent adults. Eighteen percent were international migrants, and 15 percent were internal migrants. This indicates that most trafficking victims were local, meaning that they did not cross international or internal borders. Half of all cases of forced labor were estimated to last less than six months, though 5 percent persisted six or more years.

ILO estimates are based on “reported cases” of forced labor that include the event, number of victims, place, and time. The methodology is capture-recapture, which involves comparing the number of cases of forced labor in two samples and determining how many cases are in both. There are four critical assumptions needed to make a global estimate with the capture-recapture methodology: (1) there was no change in the universe over the period studied, (2) victims were identified correctly, (3) the probability of case selection was equal in the two samples, and (4) the samples were drawn independently (ILO 2012, p. 22). The total number of cases is estimated to be the number in sample 1 times the number in sample 2 divided by n , the number reported in both samples. For

example, if sample 1 had 50 cases and sample 2 had 30, and there were 10 cases in both samples, the total number of cases is 150 ($50 \times 30 = 1,500/10$). If the average case had 10 victims, then the total number of victims is estimated to be 1,500.

The ILO sampled by geographic region, and used both recorded incidents of forced labor and data extracted from media reports, NGOs, police and court reports, and union and other reports. The result was 72 variables on each case, including 28 variables that dealt with forced labor as signified by involuntariness and penalties on workers for nonperformance of the work assigned to them. It assumed that data from government sources, international organizations, and international NGOs was valid. Two independent teams validated about 7,500 cases of forced labor over the 2002–11 period. The critical assumption is that each reported case of forced labor represents 27 unreported cases, meaning the ILO assumed that its analysis identified 3.6 percent of the total number of cases of forced labor.

These ILO estimates and NGOs dedicated to extirpating trafficking suggest that sex and labor trafficking are widespread, and that



more trafficking would be detected and victims rescued if more law enforcement professionals and others were trained to recognize the crime and more resources were available to detect and prosecute trafficking. Critics counter that the number of victims identified is far smaller than ILO and NGO estimates.

Are the assumptions undergirding ILO and other estimates of trafficking victims conservative or exaggerated? One motivation for the 2000 TVPA was a US Department of State report asserting that 50,000 victims of trafficking arrived in the United States each year. This 50,000 number came from the U.S. Central Intelligence Agency, and was based on a review of foreign media accounts (Markon 2007). The TVPA provided funds to the Department of Health and Human Services to distribute to groups fighting trafficking, and they used most of these antitrafficking funds to educate law enforcement professionals and others about how to recognize victims.

In the United States, there are many critics of the TVPA and the role played by the TIP report abroad. Feingold (2010, p. 47) says that discussions of trafficking are marked by “numerical certainty and statistical doubt,” meaning that victim estimates are not based on reliable data. Feingold explained that antitrafficking advocates attacked Simon Baker’s study of socioeconomic changes in northern Thailand that led to more girls than boys going to secondary school, so that fewer girls were available to be enticed into the sex industry. Advocates feared that Baker’s optimistic conclusion of fewer potential trafficking victims could reduce the funds available to them for antitrafficking campaigns (2010, pp. 51–52).

Mahdavi (2018) reinforced skepticism about the US role in preventing trafficking via TIP reports, finding that UAE (United Arab Emirates) and Japanese government efforts to avoid being placed on TIP’s Tier 2 watch list wound up increasing the vulnerability of migrants. For example, additional police targeted sex workers,

some of whom voluntarily worked in the sex industry, which took police resources away from monitoring labor exploitation. Mahdavi concluded that government efforts to deter trafficking in the UAE and Japan to avoid a Tier 2 watch list designation made some migrants, especially the irregular foreigners detected and removed by the UAE and Japanese governments during antitrafficking campaigns, worse off.

Many NGOs exaggerate the number of trafficking victims they identify or assist. For example, the Coalition of Immokalee Workers (CIW) reported helping 400 workers escape from farm labor contractors Miguel Flores and Sebastian Gomez in 1997 (CIW 2012), while *the United States vs Flores* case decision reported 25 victims (UNODC n.d.). The CIW also claimed credit for helping to expose Global Horizons, a Beverly Hills–based firm that brought Thai H-2A workers who had paid high fees for jobs into the United States. The Thai workers say they were told in Thailand that they would earn at least \$2,500 a month picking apples in Washington. Instead, they worked only a few months, and earned far less. In September 2010, Global’s president, Mordechai Orian, was charged with human trafficking for bringing 400 Thai farm workers to Washington and Hawaii under the H-2A program between May 2004 and September 2005 and forcing them to work to repay their recruitment debts. Five Thais based in Los Angeles and Thailand were also charged in what US authorities called the largest-ever case of human trafficking to date. However, the human trafficking charges in Hawaii were dismissed when the government conceded that it could not prove its case (Associated Press 2012).

McDonald (2018, p. 87) reviewed US and UN efforts to reduce human trafficking since 1990 and concluded that “the impact has

been minimal at best.” Comparing these efforts with global efforts to end slavery, piracy, counterfeiting currencies, and aircraft hijacking, McDonald (2018, p. 89) predicted that ending trafficking “will never succeed to the extent that other global prohibition regimes have done.”

One trafficked worker is one too many, but this review of the estimates of trafficking shows that most have weak statistical foundations. Groups seeking funds to reduce trafficking have incentives to exaggerate the number of victims, a fact that must be considered when reviewing victim estimates. Even more difficult is drawing the line between labor exploitation and trafficking in industries such as agriculture, when some usual features of the workplace, such as housing workers in employer-owned camps that workers leave with employer-provided transportation, may be considered indicators of trafficking.



CHAPTER

2

MEXICO: AGRICULTURE AND EXPORTS

Mexico is the world's 11th most populous country, with 130 million residents in 2018. Mexico has the world's 16th largest economy, with a gross domestic product (GDP) of \$1 trillion—the same as Indonesia, which has twice as many people. The International Monetary Fund reported that Mexico's per capita GDP in 2016 was \$8,555 (nominal), less than the global average of \$10,000.

CONEVAL, Mexico's official Council for the Evaluation of Social Development Policy, estimated that 42 percent of Mexicans were poor in 2018, including 7 percent who were extremely poor. In rural areas, 55 percent of residents were poor and 16 percent were extremely poor. In 2015, almost 21 percent of Mexico's residents were in rural areas, down sharply from the half of Mexican residents who lived in rural areas in 1960. Based on the 2014 poverty line of at least 2,542 pesos a month in urban areas and 1,615 pesos a month in rural areas, 46 percent of Mexicans were poor, including 61 percent of rural residents and 42 percent of urban residents. In Chiapas, Oaxaca, and Guerrero, more than 60 percent of all residents had incomes below the poverty line.

How did Mexico develop one of the highest poverty rates for a middle-income developing country? Spanish *encomienda* (to entrust) colonial policies granted farm land to selected white settlers

and obliged local indigenous residents to live on these estates and work for their owners, who were to provide them with food and housing as well as convert them to Catholicism. The result was a system of haciendas or *latifundia*, large estates devoted to crop and livestock farming that hired and housed hundreds and thousands of peasant families. In 1910, about 2,000 families owned 87 percent of Mexico's rural land.

The Mexican Revolution of 1910–17 was fought in part to ensure that peasants could own land. Article 27 of the Mexican Constitution of 1917 allowed Mexico's Agrarian Reform Ministry to redistribute large private land holdings to *ejido* communal farms, and by 1990 more than 55 percent of Mexico's land was in ejidos or other communal lands. *Ejidatario* members received the right to continue to farm their plots of ejido land as long as they actively worked and lived on the ejido; their heirs inherited the land. The government did not want peasants to lose ejido land, so ejidatario farmers could not sell or rent their land, nor could they borrow money using their land as collateral. As of 1990, most of the 32,000 existing ejidos included 50 to 100 farmers and their families, who often produced corn and beans without irrigation. Most ejidatario farmers and their families were poor, and few could produce a surplus to sell to the government at the inflated prices offered to farmers in the government's major antipoverty policy in rural areas. Instead, large farmers using irrigation and modern technology gained most of the benefits from the government's high-corn-price policy.

President Carlos Salinas, who proposed what became the North American Free Trade Agreement (NAFTA) in 1990, persuaded Mexico's Congress to amend Article 27 of the constitution in 1992 to permit *ejido* land to be sold, rented, and used as collateral for loans. In the quarter-century since, relatively little ejido land has been privatized, in part because a two-thirds majority of the ejidatario farmers must approve any sales during a meeting with at least 75 percent of members participating. Many ejidatarios live

in the United States or in Mexican cities, making the participation requirement difficult to satisfy and explaining why less than 5 percent of the 10 million hectares of ejido land was sold between 1992 and 2015. The ejido land that has been sold has frequently gone to urban developers rather than staying in agriculture.

Mexico changed its agricultural policies in the 1990s, switching from subsidizing the price of corn to providing direct income support to poor farmers. The theory behind this policy change was that large private farmers would switch from corn to fruits and vegetables, while poor farmers would get direct payments from the government. The government reasoned that corn and grains could be imported more cheaply than producing these commodities in Mexico.

Since NAFTA went into effect in 1994, Mexico's annual economic growth averaged 2.6 percent. Mexico consistently runs a trade deficit, some \$22 billion in 2016, reflecting imports of \$388 billion and exports of \$374 billion. Remittances of \$27 billion, foreign direct investment of \$27 billion, and foreign tourism receipts of \$20 billion help to offset the trade deficit.

Farm Structure and Sales

As of 2012, Mexico had about 25 million hectares (62 million acres) of arable land, and the agricultural sector employed 14 percent of the labor force and contributed 4 percent to GDP. The difference between the 14 percent of the labor force in agriculture and agriculture's 4 percent contribution to GDP helps to explain low rural incomes and the concentration of extreme poverty in rural areas. Mexico has about 3.6 million farms, including 70 percent with less than five hectares and half with less than two hectares. The 25,000 farmers with more than 100 hectares of farm land had 30 percent of all land.

There are distinct differences between agriculture in northern and southern Mexico. Farms in the north are larger and rely on irrigation to produce crops that are often exported to the United States. Farms in the south are smaller, often rely on rainfall to provide water for plants and animals, and produce mostly corn and grains for home consumption. There are exceptions to these generalizations in both northern and southern Mexico.

Corn occupies a special place in Mexico, with tortillas a staple of the Mexican diet. In 2015, some 8.2 million hectares of land—37 percent of Mexico’s 22 million hectares of crop land—was devoted to corn. Corn farming involved 3.2 million farmers, family, and hired workers, including 92 percent who worked on farms with less than five hectares of corn. More than 80 percent of Mexican corn is rain fed rather than irrigated (Gonzalez and Macias 2017). Almost 93 percent of Mexican corn acreage was white corn, and most of the 25 million tons of white corn in 2015 was used for tortillas. The remaining 7 percent of acreage and 14 million tons was yellow corn used mostly for animal feed.

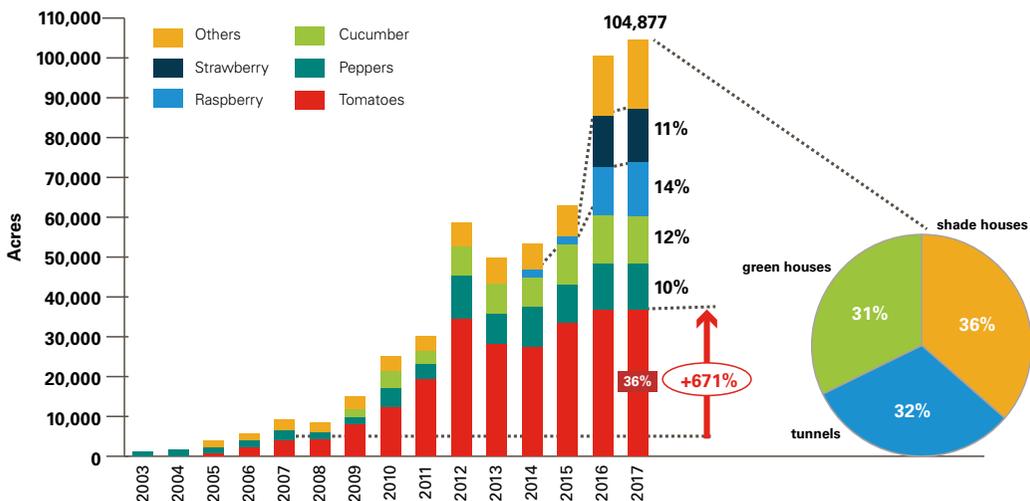
Mexico produces about 80 percent of the corn consumed in the country. Mexican corn yields averaged five tons a hectare in 2014 (only 3.2 tons for white corn), versus 11 tons in the United States. Corn yields in the north are similar to US yields, 12 to 15 tons per hectare, while yields in the south are 1 to 2 tons per hectare. Another 20 percent of Mexican farm land is devoted to grains, but the 70 percent of Mexican farm land used for corn and grains accounts for only 35 percent of Mexico’s farm sales. Fruits and vegetables, by contrast, occupy 10 percent of Mexico’s crop land but generate 40 percent of Mexican farm sales. Fruit and vegetable exports to the United States, totaling \$11 billion in 2016, were almost half of Mexico’s \$23 billion in farm exports, making Mexico’s farm exports comparable in value to remittances and tourism receipts. Mexico’s \$18 billion in farm imports from the United States were dominated by corn and soybeans, meat, and dairy products. Mexico has an

overall trade surplus with the United States, and has had a surplus in agricultural trade with the United States since 2014.

The Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA, now SADER) had a budget of \$6 billion in 2016, and the Rural Development Program had a budget of \$24 billion. About half of SAGARPA's budget is used to make payments to farmers under the PROAGRO Productivo program, including payments of \$100 per hectare for up to 100 hectares. Total per hectare payments were \$1.1 billion in 2012, and another \$335 million was spent to provide \$30 per animal, with a maximum payment of 100,000 pesos (\$7,750) per crop cycle (CRS 2017, p. 13). PROAGRO Productivo aims to help Mexican farmers to respond to market incentives and to alleviate rural poverty, but the OECD (Organisation for Economic Co-operation and Development) says that Mexico's agricultural subsidies continue to be regressive, favoring the most well-off farmers who produce corn, milk, and sugar.

Mexico has been encouraging farmers to shift to protected culture production, subsidizing half of the cost of new structures that cost up to \$200,000 (Canadles, et al 2019). There were about 105,000 acres of protected culture in 2017, divided about equally between greenhouses, shade structures, and high tunnels. A third of protected culture acreage was used to produce tomatoes, followed by a quarter for berries (Figure 1).

Figure 1. Mexico's Protected Agriculture



Source: Canales, et al 2019

Commercial and export-oriented agriculture that depends on hired workers is concentrated in Baja California, Chihuahua, Michoacán, Sonora, and Sinaloa. These five states account for 75 percent of Mexico's agricultural exports. A quarter of Mexican crop land is irrigated, and this irrigated farm land produced commodities worth 60 percent of total farm sales of \$62 billion in 2014. SIAP (2017, pp. 10–11), the Agrifood and Fisheries Information Service, reported farm sales of 944 million pesos (\$51 billion) in 2016, including 54 percent from crops, 42 percent from livestock, and 4 percent from fishing. Data on farm sales are not consistent between sources. For example, one source reported that corn and grains from 7.1 million hectares were worth \$28 billion in 2014, followed by \$25 billion worth of fruits and vegetables. The average yield of corn was reported to be 3 tons per hectare, but the range was wide, from 10 tons per hectare in Sinaloa to 2 tons per hectare in Campeche. The value of animal commodities was reported to be

\$24 billion, including two-thirds from beef and pork and almost a third from poultry. Fisheries and aquaculture commodities, mostly tuna and shrimp, were worth \$1.6 billion, which adds up to total farm sales of \$77 billion.

Mexico's Fruit and Vegetable Exports

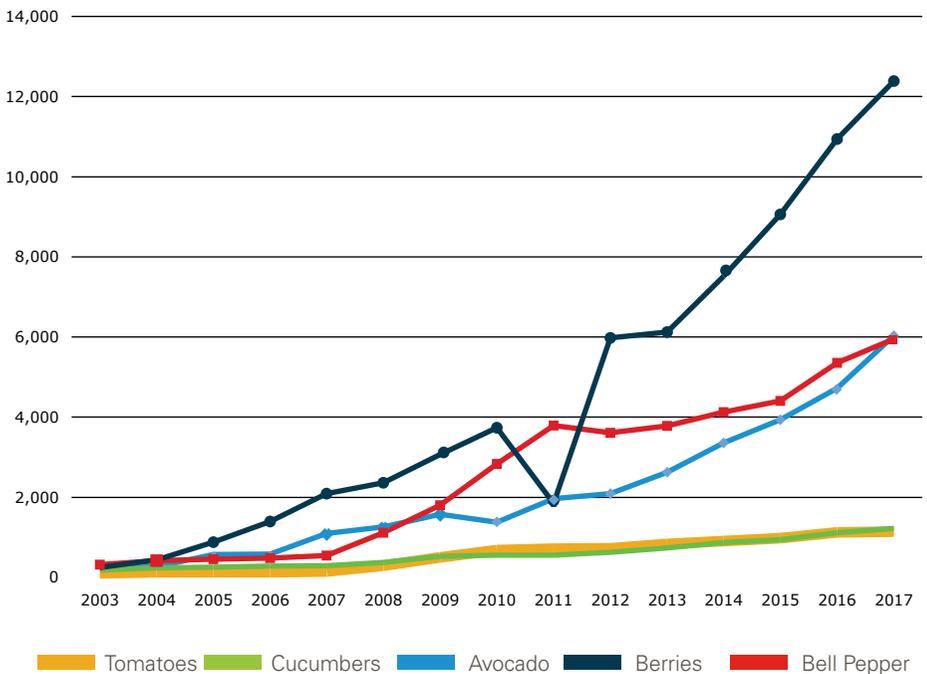
US consumption of fresh fruits and vegetables is rising, reflecting health consciousness, affluence, and year-round supply. Per capita US consumption of fresh fruits rose 30 percent from 1970 to 2010, and consumption of fresh vegetables rose 20 percent. About half of the fresh fruit available to Americans is imported, as are a quarter of the fresh vegetables (Zahniser et al, 2015, p38). About half of the fresh fruit and three-fourths of fresh vegetables imported to the United States are from Mexico.

Mexico exported an average \$21 billion of agricultural products a year between 2010 and 2012, including 81 percent to Canada and the United States—a seven-fold increase from agricultural exports of \$3 billion a year between 1991 and 1993. Mexico's agricultural imports rose more than six-fold from \$4 billion to \$26 billion a year during this period. Friedland (1994, p. 177) did not mention Mexico as source of fresh produce for the United States in the early 1990s, and noted only Chile as a fresh produce exporter to the United States. Two decades later, Mexico is the leading source of US produce imports.

There has been spectacular growth of Mexican exports of some commodities, including avocados, bell peppers, berries, cucumbers and tomatoes. Between 2002 and 2017, the value of Mexican berry exports increased 125-fold, the value of avocado and bell pepper exports by 60-fold, and the value of cucumber and tomatoes exports by 10-fold. The value of Mexican exports of these five commodities rose from \$232 million in 2002 to almost \$7 billion in 2017. For these five commodities, the value of Mexico's exports rose

faster than the tons of exports, suggesting higher prices. For example, the tonnage of Mexican tomato exports increased by 5 percent between 2010 and 2017, but the value of Mexican tomato exports rose by 68 percent. Similarly, the tonnage of Mexican berry exports increased by 130 percent between 2010 and 2017, but the value of Mexican berry exports rose by 230 percent (Figure 2).

Figure 2. Value of Exports of Five Commodities, 2002-17 (2002=100)



Mexico exported fresh produce to the United States worth \$10.6 billion in 2016, about half fresh fruit and half fresh vegetables. In 2016, Mexico provided 45 percent of US fresh fruit imports (excluding bananas) and 70 percent of fresh vegetable imports. SIAP (2017, p. 15) reported that Mexico exported avocados worth \$2.2 billion in 2016, tomatoes worth \$1.9 billion, and berries worth \$1.7 billion.

We examined labor conditions in five commodities: avocados, berries, tomatoes, bell peppers, and cucumbers. The analysis focused on tomatoes, bell peppers, and cucumbers in Sinaloa and Baja California, avocados and berries in Michoacán, and berries and vegetables in Jalisco. Except for blueberries, most US imports of these five commodities are from Mexico. The highest per-capita US use of Mexican commodities are fresh tomatoes and bell peppers, the highest share of imports in US consumption are avocados and cucumbers, and the fastest growth of US imports is in raspberries, most of which are imported from Mexico (Table 2).

Table 2. Five Commodities: US Consumption, Imports, Import Growth

	Per Capita	Import Share (%)	2010–15 Change (%)
Avocados	7.1	81	18
Strawberries	9.8	13	19
Blueberries	2	53	10
Raspberries	0.9	62	44
Tomatoes	21	57	11
Bell Peppers	11	60	5
Cucumbers	8	74	14

Sources: ERS (Economic Research Service) Fruit and Vegetable Yearbooks

Per capita use is pounds per person available

Strawberries is total consumption; fresh is 8.0 pounds

Blueberries and raspberries are fresh only

Tomatoes, bell peppers, and cucumbers are fresh only

Tomatoes are Mexico’s major fresh produce export, accounting for a third of Mexico’s fresh vegetable exports by volume. In 2013, the United States imported 1.4 million metric tons of fresh tomatoes from Mexico worth \$1.6 billion. Sinaloa is the largest producer and exporter of fresh tomatoes, followed by Sonora and Baja California.

Many Mexican farms that produce fruits and vegetables for export are partnerships between US and Mexican grower-shippers, with the US partner providing the capital and technology to improve quality, increase yields, and market the commodity to US buyers. In this way, the North American fresh produce industry is becoming integrated in a manner similar to auto industry, with US firms sometimes taking the lead to establish operations in Mexico and provide inputs.

Grocery retailers and food service firms that buy fresh fruits and vegetables prefer to partner with large farms that can provide significant quantities year around. As a result, many of Mexico's export-oriented produce farms have large operations. Cook and Calvin (2005, p. 21) reported that Sinaloa was dominated by 40 export-oriented producers with 25,600 hectares of tomatoes around Culiacán. Tomatoes are harvested between January and April and trucked to Nogales, Arizona, for distribution throughout the United States. Cook and Calvin (2005) reported 50 growers and 12 shippers in the San Quintín Valley of Baja California who specialized in Roma tomatoes.

Avocados are the most valuable fruit exported from Mexico to the United States, worth \$1.5 billion in 2016 (Table 3). Michoacán accounted for 83 percent of Mexico's avocado export sales, and Michoacán gets higher prices for its avocados than other Mexican states because Michoacán exports fresh rather than processed avocados. In Jalisco, where avocado acreage is increasing rapidly in anticipation of winning permission to export fresh avocados to the United States, a third of its acreage was not harvested in 2016 because it had not yet come into production.

Berries for export were grown on 33,000 hectares in 2016, producing 858,000 tons of fruit that generated \$1.2 billion in export sales.

The most valuable berry was strawberries, worth \$468 million, followed by blackberries worth \$239 million and raspberries worth \$113 million. Michoacán had two-thirds of Mexico's acreage of berries and generated 71 percent of export sales, but the berry industry is growing fast in Jalisco, which had almost 20 percent of the acreage and generated 10 percent of export revenues. Almost all of Mexico's blackberries are in Michoacán, which also accounts for 42 percent of blueberry export revenue, 26 percent of raspberry revenue, and 69 percent of strawberry revenue. Jalisco has a rapidly expanding raspberry industry, and Baja achieves the highest blueberry yields, almost 1.4 times Mexico's average.



Table 3. Five Mexican Fruit and Vegetable Exports, 2016

Fruits	Mexico Production (2016)			Total hectares	Average yield	Average value (\$)	
	Hectares harvested	Metric tons	Value (\$mil)		tons/hectare	\$/hectare	Non harvested share
Avocados	180,536	1,889,354	1,533	205,250	10.5	8,492	12%
Michoacán	135,996	1,477,263	1,280	148,424	10.9	9,409	8%
Jalisco	13,236	143,505	98	19,538	10.8	7,366	32%
Mexico State	8,412	109,209	76	8,877	13.0	9,023	5%
All Berries	33,209	858,488	1,147	33,635	25.9	34,551	1%
Michoacán	21,553	603,201	820	21,803	28.0	38,038	1%
Jalisco	6,418	107,109	115	6,418	16.7	17,880	0%
Baja California	2,576	83,091	168	2,661	32.3	65,137	3%
Blackberries	12,963	248,512	469	13,082	19.2	36,181	1%
Michoacán	12,277	238,832	458	12,390	19.5	37,343	1%
Jalisco	441	7,141	5	441	16.2	10,381	0%
Colima	136	1,647	3	136	12.1	21,706	0%
Blueberries	2,946	29,067	84	3,207	9.9	28,421	8%
Michoacán	524	6,595	35	614	12.6	66,731	15%
Jalisco	1,501	13,354	23	1,501	8.9	15,461	0%
Baja California	140	1,893	13	220	13.5	89,329	36%
Raspberries	6,208	112,661	198	6,254	18.1	31,678	
Jalisco	4,448	85,960	86	4,448	19.3	19,441	0%
Baja California	562	9914.7	60	562	17.6	106,495	0%
Michoacán	1,176	16,644	52	1,222	14.1	43,897	4%
Strawberries	11,091	468,248	397	11,092	42.2	35,750	0%
Michoacán	7,576	341,130	275	7,576	45.0	36,273	0%
Baja California	1,823	70,661	93	1,823	38.8	50,798	0%
Guanajuato	1,064	37,593	14	1,064	35.3	13,180	0%
Vegetables							
Bell peppers	8,037	525,869	231	8,139	65.4	28,803	1%
Sinaloa	4,981	306,405	91	4,993	61.5	18,235	0%
Sonora	1,639	89,406	46	1,639	54.5	28,103	0%
Guanajuato	397	37,663	23	397	94.8	58,216	0%
Cucumbers	18,603	886,270	244	18,891	47.6	13,110	2%

Sinaloa	4,802	361,887	107	4,802	75.4	22,305	0%
Sonora	1,352	140,721	37	1,361	104.1	27,344	1%
Michoacán	4,230	101,699	18	4,230	24.0	4,267	0%
Tomatoes	51,299	3,349,154	1,209	51,861	65.3	23,572	1%
Sinaloa	13,832	924,153	244	14,221	66.8	17,634	3%
San Luis Potosí	2,676	306,621	104	2,731	114.6	39,002	2%
Michoacán	6,917	235,785	81	6,947	34.1	11,672	0%

Source: SAGARPA SIAP

Sinaloa is Mexico's major source of fresh vegetable exports. Bell pepper exports were worth \$231 million in 2016. Sinaloa had 60 percent of the bell pepper acreage but only 40 percent of the export revenue, while Guanajuato had 5 percent of the bell pepper acreage and 10 percent of the export revenue, suggesting that Guanajuato bell pepper exports are sold at higher prices.

Cucumber exports generated \$244 million in revenue in 2016, including 44 percent from Sinaloa. Sinaloa and Sonora generated more than half of the cucumber export revenue from a third of the acreage, while Michoacán had almost a quarter of cucumber acreage but accounted for less than 10 percent of cucumber export revenues, suggesting lower prices.

Tomatoes are the most valuable vegetable export, generating \$1.2 billion in export revenue in 2016. Grower prices fluctuate, explaining why Sinaloa, with 27 percent of tomato acreage, received only 20 percent of export revenue, while San Luis Potosí, with 5 percent of acreage, obtained 9 percent of the export revenue.

CHAPTER

3



MEXICO'S FRUIT EXPORTS

The United States produced fresh fruit worth almost \$20 billion in 2016, including \$16.6 billion worth of noncitrus fruit and \$3.4 billion worth of citrus (ERS Fruit Yearbook Table A-3). In 2016, the leading fruits by value were grapes for all uses (\$6.3 billion), apples (\$3.6 billion), strawberries (\$2.3 billion), and oranges (\$1.9 billion). These four fruits accounted for 70 percent of US fresh fruit production in 2016.

Americans had 116 pounds of fresh fruit per person available to consume in 2016, plus an additional 104 pounds of fruit available in the form of juice (85 pounds), canned fruit (14 pounds), dried fruit (10 pounds), and frozen fruit (5 pounds). The major fresh fruit were bananas, whose consumption averaged 28 pounds per person in 2016, followed by 18 pounds of apples, nine pounds of oranges, eight pounds each of grapes and strawberries, and seven pounds each of pineapple and avocados.

About half of US fresh fruit worth \$14 billion in 2016 is imported, led by bananas (\$2.4 billion), avocados (\$2 billion), fresh grapes (\$1.7 billion), fresh raspberries and blackberries (\$871 million), and fresh strawberries (\$560 million) (Workman 2019d). The United States exported fresh fruit worth \$6.5 billion, giving it a fresh-fruit trade deficit of more than \$7 billion. Mexico is a major exporter of

many fresh fruits consumed in the United States, exporting avocados worth \$2 billion in 2016 and watermelons worth \$381 million.

The structure of the fresh fruit industry differs from the fresh vegetable industry in several important respects, including farm structure, specialization, and wages. First, fruit farming requires more capital, since farmers must wait several years before trees or vines produce a first crop, so the concentration of fresh fruit production is generally less than for fresh vegetables. For example, the largest apple growers may have 5,000 to 10,000 acres of the 320,000 acres of US apples, but they may have less than 5 percent share of US apple acreage, smaller than the 10 percent or more share of lettuce or broccoli of each of the largest US fresh vegetable growers.

Second, most fruit production involves shorter harvest seasons than vegetables, with exceptions for berries that are picked several times a week for four or five months. Most fruit is harvested over four to eight weeks in one location, and few fruit farmers attempt to supply fresh fruit year-round from various locations around the United States, as do many fresh vegetable farms. Instead, fruit farmers often join cooperatives that market their fruit, such as Sunkist for fresh citrus. Some grower shippers, especially in table grapes and berries, have partnerships with producers in Chile, Mexico, and elsewhere to supply their customers year-round. Many fruit farmers specialize in apples or peaches, but not both, a contrast to vegetable growers who often produce several leafy green vegetables.

Third, wages are often lower in fruit than in vegetable production because of the seasonality and the nature of labor markets in fruit areas. Many fruit farmers rely on farm labor contractors to provide workers for their relatively short harvests, and many harvest work-

ers are paid piece rate wages because it is often easier to monitor worker output, such as how many bins are picked, than to monitor the effort of workers who climb ladders to pick fruit in trees. This means that fruit-harvesters are guaranteed the minimum wage, but they and their employers think of wages as \$25 to pick a half-ton bin of apples. Piece rate earnings vary from day to day and over the season, reflecting yields, ease of picking, and other factors that affect worker productivity, but generally exceed minimum or prevailing hourly wages so that workers have an incentive to work fast without close supervision. Farm labor contractors are most common in citrus and grape harvesting, while apple and berry growers more often hire harvest workers directly.

Fruit farmers around the world are planting smaller and fast-growing trees and vines that come into production sooner and produce fruit that is easier to harvest. Shorter periods until the plant produces a full crop reduce the cost of capital for farmers, and dwarf trees reduce the need for ladders to harvest fruit. Most tree nuts are harvested by machines that have an arm to grasp the trunk and shake almonds and walnuts to the ground, after which another machine sweeps up the harvested nuts. Mechanical fruit harvesters in use and in development rely on the same tree-shaking technology used to harvest nuts, but these machines have catching frames so that the falling fruit does not touch the ground. After falling into a catching frame, conveyor belts take the harvested fruit to waiting bins or trucks. The major challenges slowing the mechanical harvest of fresh fruits include uneven ripening, which means that a once-over harvesting machine would miss some marketable fruit, and damage to the fruit and the tree from shaking. For example, citrus greening in Florida, which damages orange trees, has slowed efforts to use tree and limb shakers to harvest

oranges destined for processing into juice.

Avocados

Avocados (also known as alligator pears) are native to Latin America, likely originating in the Mexican state of Michoacán. Like bananas, they are a climacteric fruit that matures on the tree but ripens off the tree. Avocados are picked when they are hard and ripen at room temperature in two weeks, or faster if exposed to ethylene gas. Avocados can remain on trees without damage for weeks.



Avocados, along with mangoes, pineapples, and papayas, are considered the major tropical fruits. Globally, avocados are 5 percent of the four global tropical fruits, compared with more than half for mangoes, 28 percent for pineapples, and 15 percent for papayas. US consumers had 2.2 million tons of avocados available in 2015, including 85 percent that were imported, mostly from Mexico. US per capita use of avocados was more than seven pounds per person in 2015–16, double the per capita consumption in 2005–6.

In 2016, Mexico harvested 180,000 hectares of avocados that produced 1.9 million metric tons, an average of 10.5 tons per hectare or 4.3 tons an acre. Other major avocado producers are the Dominican Republic, producing 430,000 tons of avocados in 2014, Peru, 350,000 tons, Indonesia, 310,000 tons, and Colombia, 290,000 tons. About half of Mexican avocados are exported, and three-fourths of Mexican avocado exports go to the United States. Global avocado exports were worth \$4.3 billion in 2016, and Mexico accounted for \$2 billion (or almost half), followed by the Netherlands (\$477 million), Peru (\$397 million), and Chile (\$359 million) (Workman 2019a). The six-digit Harmonized Tariff System code for avocados is 080440.

Ramón Paz of the Association of Mexican Avocado Producers and Export Packers, which represents some 20,000 avocados growers and 47 handlers, says that the United States takes 80 percent of Mexican avocado exports, followed by Canada and Japan (Fariza 2017). Mexico exports avocados year-round because the high altitude at which the trees grow ensures that they flower four times a year. Mexican avocado production was 1.9 million metric tons in 2017, including 1.5 million tons (80%) from Michoacán and 144,000 tons (8%) from Jalisco (Table 4). There were 205,000 hectares of avocados in Mexico in 2016, including 25,000 nonbearing acres. Michoacán has 72 percent of Mexico’s avocado acreage (148,000 hectares), but avocado acreage is growing faster in Jalisco, where a third of the 19,500 hectares in 2016 were nonbearing. Most Mexican avocados are the Haas variety and produced by growers with 5–10 hectares. Production costs are \$3,600 to \$5,200 per hectare, with higher costs reflecting drip irrigation. Yields average about 10 metric tons per hectare, for gross revenues of \$45,000 to \$65,000 per hectare.

Table 4. Mexico Avocado Acreage by State, 2015–16 and 2016–17

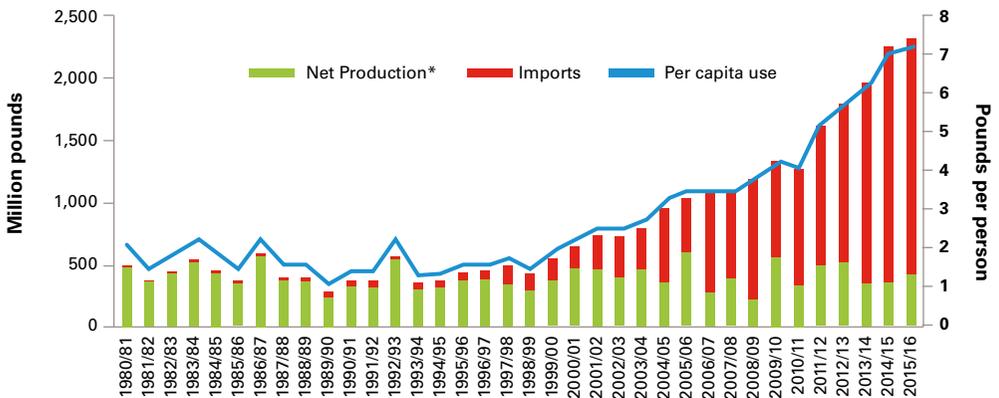
Planted Area for Selected States			
States (Ha)	Estimates MY 2015/16	Estimates MY 2015/16	Percent increase
Chiapas	3,147	3,294	4.6
Guerrero	4439	4,468	0.6
Jalisco	17,041	17,812	4.5
Michoacan	134941	147,720	9.4
Mexico State	8,162	9,434	15.6
Total	187,327	203,732	8.7

California produces an average 350 million pounds of avocados each year, 85 percent of US production; the state's production peaks during the summer months. Avocados are an example of a commodity where rising consumption, especially of guacamole, led to sharply rising imports and stable US production (Figure 3). Table 39 of the 2012 COA reported 7,500 US farms with 73,500 acres of avocados, including 120 farms that each had 100 or more acres and accounted for 40 percent of total US avocado acreage.

The most labor-intensive phase of avocado production is harvesting, when crews of workers pick avocados into bags that are dumped into bins. Most US orchards are picked three times, twice for size and then a third time to strip the remaining fruit. It takes 60 avocados that each weigh less than 7.5 ounces to fill a 25-pound box, and 48 avocados that each weigh 7.5 to 9.5 ounces to fill a 25-pound box. In March 2018, farmers received \$1.35 a pound for larger avocados (the 48s) and \$1.05 a pound for the smaller (the 60s).

Figure 3. US Production and Imports of Avocados, 1980-81 to 2015-16

Avocado imports play a dominant role in meeting growing U.S. demand



*Domestic production minus exports.
Source: USDA, Economic Research Service.

Avocado production is expanding rapidly in Michoacán, the only Mexican state permitted to ship fresh avocados to the United States. The city of Uruapan, with a population of 300,000, is the center of Michoacán's avocado production. Packing house workers in Uruapan reportedly work 12-hour days for \$130 a week. Harvesting avocados involves using pruning shears to cut the ripe fruit. Packers and distributors used to hire harvesting crews and provide them with contracts and benefits, but today most harvesters in Mexico are employed by contractors for hourly wages of about \$6 and no benefits.

Berries

The berry industry includes two major subsectors: strawberries, which usually are planted each year, and perennial blueberries, raspberries, and blackberries, which can produce fruit for more than a decade (although most farmers replant after three or four harvests). Demand for fresh berries has been rising because of their perceived health benefits as well as year-round availability and convenient packaging, making berries the highest-revenue fresh produce item in US supermarkets.



In 2017, strawberries represented 47 percent of the \$6.4 billion in US retail fresh berry sales, followed by blueberries at 26 percent, raspberries at 14 percent, and blackberries at 9 percent (Cook 2017). Cook estimated that Americans consumed 1.7 million metric tons of berries worth \$6.4 billion in 2017, an average 12 pounds per person. Retail berry sales were 20 percent of the \$31 billion in US fresh fruit sales. Berries are high-value commodities; they were

only 8 percent of the quantity of fresh fruit sold in US supermarkets, but 20 percent of fresh fruit value (Table 5).

Table 5. US Retail Berry Volume and Sales, 2017

	Volume	Spending
Strawberries	65%	47%
Blueberries	21%	27%
Raspberries	7%	14%
Blackberries	5%	9%
Total	98%	97%
Total	1.8	\$6.40
Total volume is billion pounds; Total spending is \$ billion		

Source: Cook (2017)

US strawberry consumption per person doubled from four to eight pounds between 2001 and 2016, while blueberry consumption quadrupled from 0.5 pounds to two pounds. Raspberry and blackberry consumption are each less than a pound per person per year, but their rate of increase is much faster, up eight-fold since 2001 (Cook 2017).

Most of the strawberries available to US consumers are produced in the United States, whereas most blackberries, blueberries, and raspberries are imported. The share of imports in US strawberry consumption is 14 percent, compared to 53 percent for blueberries and 55 percent for raspberries. (There are no data on blackberries, but almost all US blackberry imports are from Mexico.) Mexico's strawberry exports peak between December and March, and raspberry exports peak between October and May. Most blackberry imports are from Mexico, except during the summer months when California is producing. California and Mexico can produce the four major berries almost year-round, and berry exports from Mexico are expected to continue increasing.

Table 40 of the 2012 COA reported 10,400 US farms with 67,500 acres of strawberries, including 155 farms that each had 100 or more acres and accounted for 63 percent of total US strawberry acreage. There were 13,400 US farms with 96,200 acres of blueberries, including 190 farms that each had 100 or more acres and accounted for almost half of total blueberry acreage. There were 8,100 US farms with 23,100 acres of raspberries, and 7,300 farms with 15,000 acres of blackberries, dewberries, and marionberries, but no size distribution data.

California dominates the production of fresh strawberries and plays a growing role in cane berry production. California's fresh berries were worth \$2.5 billion in 2015, including three-fourths from strawberries, a fifth from raspberries, and 5 percent from blueberries. Four firms market most fresh strawberries in the United States, led by market leader Driscoll's, which is also the dominant marketer of raspberries, accounting for 90 percent of US raspberry sales from California and Mexico. Naturripe Farms, the leading US marketer of blueberries, also markets other berries. Both Driscoll's and Naturripe market Mexican blackberries, especially via Costco.

In 2016, the US supply of fresh strawberries was 2.9 billion pounds, including 365 million pounds or 12 percent imports. US consumption was 2.6 billion pounds or about eight pounds per person, and 277 million pounds of US strawberries were exported, almost all to Canada. The US produces about 30 percent of the world's strawberries, according to FAO (Food and Agriculture Organization of the United Nations) data for 2014, and Mexico is second with about 8 percent of global production, most from Michoacán, Guanajuato, and Baja California. California, which harvests strawberries almost year-round, had 34,000 acres of strawberries in 2018, including 4,000 acres of organic strawberries. Production is rising because growers are planting higher-yielding varieties.

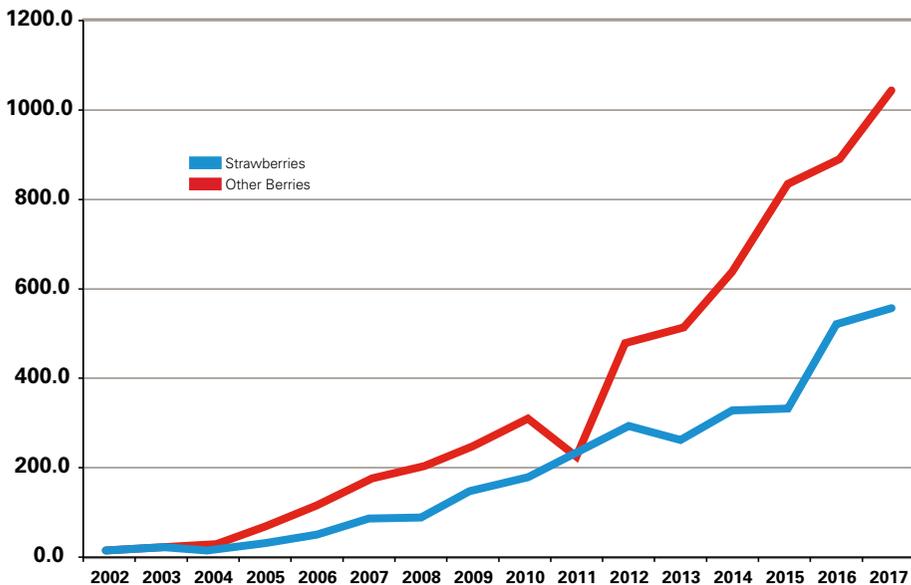
The California strawberry harvest begins in the southern part of the state and moves north. During the January–March winter months, Florida also supplies strawberries. Some Salinas vegetable growers have added strawberries, making the value of strawberries in Monterey County a total \$725 million in 2016, second only to lettuce worth \$1.3 billion. Between 2013 and 2017, strawberry acreage fell in the Watsonville-Salinas area, rose in the Santa Maria area, and fell in the Oxnard area. Baja California is most similar to the Watsonville-Salinas area in having cool summer weather and less humidity.

Mexico's export-oriented berry industry is expanding with the help of US and Chilean partners. Mexico produced about 850,000 metric tons of berries in 2016, including 55 percent strawberries, 29 percent blackberries, and 13 percent raspberries (Cook 2017). A third of Mexican strawberries are exported to the United States, as are almost all of the raspberries and blackberries produced in Mexico. Mexico's major berry production areas are Irapuato, Guanajuato (strawberries), Michoacán (strawberries and blackberries), and Jalisco (blueberries and raspberries). Baja California also produces organic strawberries and raspberries on its sandy soils with desalinated water. Mexican blueberry exports are expanding rapidly, especially during the March/April early spring period (Cook 2017). Mexico is the world's largest producer of blackberries. It had 28,000 acres of strawberries in 2018, and produced 468,000 tons of strawberries in 2016, including 73 percent in Michoacán, 15 percent in Baja California, and 8 percent in Guanajuato (SIAP 2017). Many Guanajuato berries are frozen or used for preserves.

There are several measures of Mexican berry exports. SAGARPA export data show rapid growth in berry exports, especially non-strawberries. The value of blackberry, blueberry, and raspberry exports rose from \$7 million in 2002 to \$300 million in 2010 and to over \$1 billion by 2017. The value of Mexican strawberry exports rose from \$6 million in 2002 to \$180 million in 2010 and \$555 mil-

lion in 2017; Cook (2017) reported that Mexican strawberry exports were worth \$693 million in 2016, up from \$256 million in 2010 (Figure 4).

Figure 4. Mexican Strawberry and Other Berry Exports, 2002-17 (\$ millions)



Mexico produced 29,000 tons of blueberries in 2016, including 45 percent in Jalisco, 22 percent in Michoacán, and 15 percent in Sinaloa. Mexican blueberry exports were worth \$188 million in 2016, up from \$7.5 million in 2010. Mexico produced 112,700 tons of raspberries, 77 percent in Jalisco and 15 percent in Michoacán. Raspberry exports were \$530 million in 2016, up from \$145 million in 2010. Mexico produced 248,000 tons of blackberries in 2016, and blackberry exports were worth \$335 million. Mexican blueberry exports are expected to rise quickly.

All types of berry producers complain of having very few workers. Growers are responding to higher labor costs with mechanical aids to increase labor productivity as well as changes in how berries are produced, such as table-top production of strawberries to reduce stooping during harvest. Longer canes in raspberries and blackberries can facilitate both hand and machine harvesting. Many blueberries are harvested by machine, especially those destined for processing.

Berry Worker Survey: 2018

A survey of 4,489 workers employed by 205 berry farms in Jalisco (100 farms) and Michoacán (105 farms) was conducted between February and May 2018. This survey produced five major findings. First, berry workers are young: two-thirds were between the ages of 18 and 35, and 90 percent were younger than 50. Second, there are more men than women berry workers in Jalisco, and more women than men in Michoacán. Almost 60 percent of the men and women were married, and married workers had an average 2.8 children. Third, about 20 percent of berry workers were indigenous, and 70 percent of these indigenous workers were Purépecha speakers from Michoacán. Fourth, the survey found that more workers were employed year-round (55%) than seasonally (45%). There was little variance by sex in who was employed year-round, but only 40 percent of those speaking an indigenous language were year-round workers, suggesting that many of the indigenous workers were hired to fill seasonal jobs. Fifth, large berry farms hire more indigenous workers to fill seasonal jobs. Indigenous workers have less education and experience, and may be more vulnerable during recruitment and employment.

The employers of these workers were near six cities: Jocotepec (60 growers), Zapotlán el Grande (33), Tapalpa (7), Jacona (51), Los Reyes (350), and Huiramba (19). Smaller growers with fewer than 23 acres of berries hired more local workers, and these local work-

ers were better educated, more experienced, and more satisfied with their wages and working conditions than migrant workers. The largest growers with more than 90 acres of berries hired a higher share of out-of-area migrant and indigenous workers, and these workers expressed more concerns about low wages and poor working conditions.

Some 1,871 workers were interviewed in Jalisco and 2,698 in Michoacán. The number of worker interviews varied by city: Jocotepec (693 worker interviews), Zapotlán el Grande (868), and Tapalpa (310) in Jalisco; and Jacona (1,409 worker interviews), Los Reyes (578), Huiramba (633), and 80 workers interviewed elsewhere in Michoacán. Some 57 percent of the workers interviewed in Jalisco and 46 percent of the workers interviewed in Michoacán were men.

The largest group of workers were ages 18 to 25 (38%), followed 26 to 35 (29%), 36 to 49 (22%), and 50 and older (10%). There were slight differences between Jalisco and Michoacán, with 72 percent of workers in Jalisco ages 18 to 35, versus 63 percent in Michoacán. There are few differences in age between men and women.

Some 57 percent of the workers were married and 37 percent single; others were divorced or widowed. By sex, 65 percent of the men and 50 percent of the women were married, and 63 percent and 68 percent, respectively, had children, an average 2.8 each. There were few differences between men and women or indigenous and nonindigenous workers in marriage rates and number of children.

The most common level of education was primary school, completed by 41 percent of workers: 37 percent in Jalisco and 43 percent in Michoacán. Some 35 percent of workers had completed secondary school: 39 percent in Jalisco and 33 percent in Michoacán. There were more workers with some college (19%)

than with no schooling (6%), and few differences in years of education between men and women. More than 93 percent of the workers could read and write in Spanish, and 99 percent could speak Spanish.

Almost 900 (20%) of the workers were indigenous, defined as speaking an indigenous language. There was a marked difference by state: 10 percent of the workers interviewed were indigenous in Jalisco, versus 26 percent in Michoacán. By sex, 22 percent of men and 17 percent of women were indigenous. The most common indigenous language was Purépecha—the main indigenous language in Michoacán—spoken by 70 percent of the indigenous workers. The next largest group of 129 workers spoke Chiapas languages, Tzotzil, Tzeltal, Ch’ol, and Zoque; followed by 51 who spoke Náhuatl (Mexico’s most common indigenous language); and 40 who spoke the Oaxacan languages of Mixtec, Mazatec, and Zapotec. About 61 percent of the indigenous workers were literate: 82 percent in Jalisco, and 56 percent in Michoacán.

More than half of the workers (55%) were local workers employed year-round. There was little variance by sex. For example, 57 percent of men and 46 percent of women were year-round. There was a significant difference by indigenous status: 59 percent of nonindigenous and 41 percent of indigenous workers were employed year-round. Almost 2,000 workers were employed seasonally in berries, including three-fourths of the local workers. The survey did not distinguish between local and migrant seasonal workers, so it could not indicate how many of the seasonal or temporary workers were migrants living away from their usual homes. Seasonal workers in berries had households with an average of 5.4 members. Indigenous workers had average households of 6 members, while nonindigenous households averaged 4.8 members. A sixth of seasonal workers migrated to the berry farm where they were employed in Jalisco or Michoacán from elsewhere in Mexico; five-sixths were local, which could still mean commutes of an hour



or more from home to work. Most seasonal workers did housework or worked on their own farms when they were not employed seasonally in berries.

There are three major types of berries in Jalisco and Michoacán, and many workers were employed in only one type: 27 percent were employed on farms that grew only strawberries, 26 percent on farms that grew only blackberries, and 25 percent on farms that grew only raspberries. In Jalisco, blackberry and raspberry workers were concentrated in Jocotepec and Zapotlán el Grande, while in Michoacán 60 percent of the workers who were interviewed were employed on farms that produced only strawberries, many in Huiramba. Blackberry and raspberry workers were concentrated in Los Reyes. Michoacán produced 60 percent of Mexico's 392,000 tons of strawberries in 2016, followed by Baja California with 21 percent and Guanajuato with 8 percent.

Growers were considered small if they had fewer than 23 acres (70 growers), medium-sized if they had 23 to 92 acres (69 growers), and large if they had 93 acres or more (66 growers). The small berry growers employed a median 13 workers and a total of 794, the medium-sized growers a median 45 workers and a total of 1,316, and the large growers a median 597 workers and a total of 2,380.

Large berry growers hire more indigenous workers who have lower levels of education, and their workforces include a higher share of workers who are in their first year of picking berries. Small berry producers, by contrast, tend to hire more local workers who have more education and more experience picking berries. Some local workers lived an hour or more from the farms where they work, and 85 percent of employers paid for the transportation needed to get local workers from their homes to the workplace.

Instead of asking workers about the wages they earned, the survey asked workers whether their wages covered basic needs such

as housing, food, health care, clothing, transportation, education costs, and recreational services. Workers answered yes or no, and the yes responses were divided into the seven areas where the survey was conducted. Most workers (61%) said that their wages could cover four of their seven basic needs. Workers employed by smaller producers, who have more education and experience picking berries, reported that more of their needs were covered by their wages.

Most employers enrolled their workers in the social security system IMSS (80%), with a range of 77 percent for workers employed by large farms to 84 to 85 percent for small- and medium-sized producers. It appears that larger producers expanded after most available local workers already had jobs, prompting them to recruit indigenous workers who have less education and experience and less familiarity with IMSS.

Workers reported on conditions in the fields. Some 83 percent reported always having drinking water available, and half said that the bathrooms and dining rooms for workers are good or very good, with a higher share of workers on smaller farms reporting good conditions. More than half of the workers wanted more education on their workplace rights, and a third wanted training on health and safety. Food safety is a major concern of growers and buyers, and more than 80 percent of workers reported that food safety was their concern as well.

Regarding the terms of their employment, some two-thirds of workers signed contracts, and 80 percent fully understood their contracts. About 30 percent of workers reported being required to work additional hours, including 40 percent of those employed on large farms. More than 80 percent of workers are satisfied or very satisfied with their work, with a higher share of workers on small farms satisfied or very satisfied (91%), than workers on large farms (75%). More than 95 percent of workers believe that

the farm where they are working is the same or better than other berry farms, and more than 95 percent would return next year to pick berries. When asked what they most wanted to change on the berry farm where they were employed, over half mentioned (presumably higher) wages, followed by 17 percent who said more and better-quality fruit to pick.

The winter 2018 berry survey found general satisfaction among berry workers in Jalisco and Michoacán: more than 80 percent were satisfied with berry work and 95 percent planned to return to seasonal berry jobs next year. Over half of the workers who were interviewed lived near the farm where they worked and were employed year-round. These local and year-round workers had more education and experience in berry work, and a higher share were employed on smaller farms. Migrant workers employed seasonally were less satisfied with their work. It may be that large berry farms expanded or started operations after all of the local workers had developed stable employment relationships with smaller berry farms, explaining why larger growers recruited less educated and experienced migrants.

Berry Focus Groups: Jalisco 2018

Focus groups in Jalisco in March–April 2018 highlighted the labor challenges and opportunities facing berry growers and workers. Jocotepec, an hour south of Guadalajara on the western shore of Lake Chapala, has hundreds of 20- to 50-acre raspberry and blackberry farms that use plastic-covered metal hoops to protect berries from birds and excessive sun. Raspberries are picked every two to three days, and most farmers hire six to eight workers per hectare.

Workers with shopping baskets containing the plastic clamshells in which blackberries and raspberries are sold (and a bucket for rejects) walk down rows of blackberry and raspberry plants and place the berries into retail clamshells. Most work without gloves. Runners collect the full clamshells from pickers and take them

to a portable checking and repacking area, where they are sorted and placed in boxes or flats, taken to coolers, and transported to markets. Rejects are 10 to 20 percent of berries, including what pickers and inspectors-repackers sort out, and are sold at low prices for processing.

Workers in Jocotepec were paid 10 to 12 pesos (\$0.60) a flat for picking blackberries, and 10 to 15 pesos (\$0.70) a flat (12 six-ounce clamshells) for picking raspberries, with a guarantee of 200 pesos for an eight-hour day (\$10.60). The 200 peso-a-day wage is paid while in training and doing nonharvest work. The higher piece rates are for workers who report each day and are careful pickers, minimizing the need to repack fruit. Daily earnings range from 200 to 400 pesos per day: a 300-peso-per-day worker would earn \$16 a day or \$2 an hour. With six-day weeks, weekly earnings would be \$96, and earnings over a 16-week season would be \$1,500. A worker earning 12 pesos a flat and 300 pesos in an eight-hour day would pick 25 flats a day or three an hour. The best pickers average five to six flats an hour when yields are high, earning 60 to 80 pesos an hour or 500 pesos (\$26) a day.

In addition to piece rate wages of 12 pesos a flat, growers pay 22 percent payroll taxes on their workers' wages and, for migrants, they provide housing and sometimes food. There are also labor costs for checking and repacking, making total labor costs 20 to 30 pesos a flat or about \$1.35. When raspberries are \$15 a flat, growers may receive \$8 to \$9 after paying for plants and cooling and marketing costs, making harvest labor costs 16 percent of grower revenue.

Most hired workers on Jocotepec-area berry farms are local residents, but the availability of other jobs, including providing cooking and gardening services to the growing retirement community of Ajijic for 200 to 250 pesos a day, prompts growers to recruit often indigenous workers in poorer areas of Mexico. Recruiters visit poor

areas with workers and, when they have a busload of recruits, request a grower-provided screener and a bus to select and transport the migrants to Jocotepec and their temporary housing. Migrants typically receive 1,000-peso (\$53) pay advances so that their families have some money until they begin sending remittances.

The major issue for growers is the availability of labor for continued expansion. There is pessimism about attracting more Jocotepec-area residents to be seasonal workers, and few immediate prospects for mechanical harvesting. There appear to be three major labor options. First would be hiring more local youth. Most export-oriented growers do not hire workers under age 18, even though the minimum school leaving and working age in Mexico has been 15 since 2014, versus 16 in the United States. Mexico classified farm work as hazardous and off-limits to youth under 18, so berry exporters do not hire Mexican youth who are 15 to 17.

The second option is to recruit more internal migrants from poorer areas of Mexico. Indigenous-speaking subsistence farmers who are willing to be seasonal farm workers away from home are the major option, and one report (CDI) suggested there are almost 26 million indigenous people in 2015. In the 2010 census, 16 million people self-identified as indigenous. However, the questions asked in 2010 and 2016 were different, so one cannot conclude that the indigenous population of Mexico is increasing. In Oaxaca and Yucatán, two-thirds of residents are indigenous. Berry growers are recruiting more indigenous workers to fill seasonal jobs, but there can be abuses during recruitment and while employed, primarily because of fees charged to workers, recruiters acting as supervisors and withholding wages, and poor housing and food. Keeping the recruitment, employment, and housing of internal migrants “clean” will be a challenge as the number of migrants increases.

The third option is more guest workers. Mexico allows coffee, banana, and other plantation-type farms in Chiapas to employ Gua-

temalan guest workers, and a 2016 KNOMAD survey found that these legal Guatemalans had relatively low migration costs. However, Mexico stopped issuing seasonal work permits to Guatemalan farm workers in 2019, instead restricting them to seven days in Mexico. As a result, the Guatemalan farm workforce in southern Mexican states has become mostly unauthorized.

Some of the Central Americans who move through Mexico en route to the United States to seek asylum, but are required to wait in Mexico for their US court dates, could become seasonal farm workers. In 2019, the Mexican government promised to provide simplified access to work permits for Central Americans, but NGOs report that many Central Americans are finding it difficult to obtain the promised visas and work permits. If, however, they manage to become seasonal farm workers, their availability could undo some of the formalization of the farm labor market in export agriculture.

The Ciudad Guzmán area, 135 kilometers south of Guadalajara, has more than half of Jalisco's berries; the Tapalpa area west of Ciudad Guzmán has a sixth of the state's strawberries; and the Jocotepec area west of Lake Chapala a third. A major theme in all three areas is too few local workers to harvest blackberries, blueberries, and raspberries for export to the United States, which prompts growers to recruit workers in poorer states such as Chiapas, Oaxaca, and Guerrero. Chiapas is the origin of 70 percent of the migrant workers.

Berries are high-value, high-risk crops that require significant investments for uncertain returns; high grower returns in recent years have encouraged the berry industry to expand. There were no costs and returns studies such as those available for US-pro-

duced berries at the University of California Davis Cost Studies program (<http://coststudies.ucdavis.edu>), but the cost of production is generally \$8 to \$9 per flat or tray for blackberries and raspberries, which is 12 six-ounce clamshells or 4.5 pounds. In April 2018, USDA reported FOB (Free on Board) prices (www.ams.usda.gov) for raspberries of \$22 a tray, and of blackberries \$16 a tray, suggesting significant net returns. The cost of harvesting is less than \$1 a tray with payroll taxes, or 10 to 15 percent of grower costs.

The Guzmán berry industry is relatively new, but the plastic tunnels covering the plants are a visible reminder of the expanding production. Most tunnels are about 15 feet high and protect five to seven rows of berries from the sun, birds, and other elements, reducing the need for pesticides. Berry farms are fenced, all have security to check entries and exits, and most transport workers between their housing and the fields in buses, meaning no worker cars on site. Toilets and handwashing facilities are readily available.

We found no data on average labor requirements or the share of berry acreage grown under plastic tunnels. The production estimates in Table 6 below are for all of Mexico, and they suggest that almost two-thirds of berry workers were employed in blackberries in 2011.

Table 6. Mexican Berry Production and Employment 2011

	Production			Workers	
	Hectares	Metric tons	Share Protected Culture	Workers per Hectare	Total workers
Strawberry	7,000	228,900	50%	7	49,000
Raspberry	1,345	21,500	90%	7.8	10,491
Blackberry	11,300	135,600	40%	10	113,000
Blueberry	800	6,700	50%	7.8	6,240
Totals	20,445	392,700			178,731

Sources: Mann (2014); USDA GAIN Berry Sector's Growth has important consequences for the Campo. March 28, 2013

gain.fas.usda.gov/Recent%20GAIN%20Publications/Berry%20Sector%27s%20Growth%20Has%20Important%20Consequences%20for%20the%20Campo%20_Mexico_Mexico_3-27-2013.pdf

The berry exporters association (Aneberries 2016) reported that the acreage of all four types of berries rose 40 percent between 2011 and 2015 to 28,300 hectares, with the fastest increases for raspberries and blueberries. Aneberries reported that 60 percent of Mexico's strawberries were in Michoacán in 2015, three-fourths of the raspberries were in Jalisco, 95 percent of the blackberries were in Michoacán, and almost half of the blueberries were in Jalisco.

Workers pick raspberries every day and blackberries twice a week. Most workers pick blackberries and raspberries directly into retail clamshells that are taken to a packing area to be checked and often repacked. Some growers pick raspberries into two-kilogram buckets. In this case, workers tie six or seven buckets around their waists and carry full buckets to a packing area; two buckets fill 12 six-ounce clamshells or a 4.5-pound tray. We were told that it is easiest to find workers to pick blueberries, and hardest to find strawberry pickers due to constant stooping, even though piece rate earnings can be highest in strawberries. Tapalpa, which has

most of Jalisco's strawberries, is at a higher elevation and is colder.

The prevailing wage for farm workers in the Guzmán area is 170 to 200 pesos per day, at least twice Mexico's 88-peso-a-day minimum wage in 2018. Most Guzmán-area berry growers use piece rate systems that offer higher rates for greater productivity. For example, blackberry pickers may receive 10 pesos a tray if they pick up to 20 trays a day, 11 pesos a tray if they pick 21 to 25 trays, 12 pesos a tray for 26 to 30, 13 for 31 to 35, and 14 pesos for picking 36 to 40 trays a day. Higher piece rates for faster pickers mean that fewer workers are needed to get the crop harvested and keep the best workers at a particular farm. Most workers can pick 35 trays of blackberries and 25 trays of raspberries a day, so that 35 trays of blackberries at 13 pesos a tray means 455 pesos (\$25) in daily earnings. A typical weekly wage during the peak of the harvest season was reported to be 2,500 pesos (\$140) for a six-day, 48-hour week in Jalisco; a 2019 survey of Jalisco berry harvesters reported average earnings of 1,825 a week.

In addition to wages, employers pay taxes of 18 to 23 percent of worker earnings to IMSS (workers contribute another 1.5 to 2 percent) and 5 percent to Infonavit, and workers pay income taxes that begin at 1 percent of earnings. A July 2016 presidential decree exempts employers who pay less than 1.9 times the minimum wage (less than 168 pesos a day in 2016) from some payroll taxes in an effort to persuade them to register their workers. Almost all workers employed in export-oriented berries were paid more than 1.9 minimum wages.

Payroll taxes are frustrating for growers because migrants find it hard to access IMSS services both where they work away from home and in their home areas, where IMSS often has no facilities to provide health care because the number of formal sector workers such facilities would serve is small. Some growers provide

essential medical services to all of their employees at no cost. However, instead of employers receiving credit from IMSS for the services they provide, IMSS wants to continue to collect taxes on all wages paid to farm workers and experiment with mobile clinics and other mechanisms to provide services to farm workers, as IMSS has been doing around Jacona, Michoacán, for workers employed in strawberries. Some Guzmán-area workers were able to obtain preventive health care services under the IMSS PREVENIMSS programs, which encourages them to make return visits for checkups.

Another relevant institution is Infonavit. Infonavit is a government agency that collects payroll taxes to help workers to buy homes. Infonavit mostly provides housing subsidies for year-round workers in major cities, but is experimenting with subsidizing housing in smaller communities. Employers must contribute on behalf of workers for 16 consecutive months to make workers eligible for Infonavit subsidies. Few seasonal farm workers accumulate enough Infonavit credits to recoup their savings and obtain a subsidized mortgage to build or buy houses: less than 5 percent at one major grower over two decades. These facts prompt growers who pay Infonavit taxes *and* provide housing to workers to say that they pay twice, for the housing they provide at no cost to migrants and for Infonavit subsidies that few of their workers receive.

Infonavit owns many abandoned housing units. In November 2017, the *Los Angeles Times* reported that, between 2008 and 2013, Infonavit supported the construction of a million mini-casas— one-bedroom units with 325 square feet, smaller than a typical US two-car garage—that were sold to those who had accumulated enough credits for a \$20,000 to \$30,000 house (Marosi 2017). Many Infonavit housing developments were built in flood zones, and some developers did not complete water or sewer services

before they went bankrupt, as in the case of Homex, Casas Geo, and Urbi, all of which filed for bankruptcy protection in 2014. Local governments often refused to complete the infrastructure that developers should have completed.

The peak berry harvest season in the Guzmán area is March through May. As yields drop, a major challenge is to retain migrant workers when there are other high-earning crops available to pick in other regions. Migrants with land at home often want to return to their farms, prompting some berry growers to offer end-of-season bonuses, paying a one- or two-peso bonus for each tray picked during the entire season to workers who stay until the harvest is completed. These bonuses reportedly persuade 90 percent of pickers to stay until the end of the season.

Many growers employ a mix of local and migrant workers, although migrants and local workers often are segregated in the workplace and in lunch and rest areas. A berry farm with 40 hectares or 100 acres of blackberries and raspberries had 240 workers, and provided housing for the migrants who were about half of the total workforce. Migrants are often preferred workers. They tend to be faster pickers and are willing to work longer hours and Sundays if needed, while local workers may not show up every day and may refuse extra hours. Employers believe that migrants value extra wages more than extra benefits. Migrants are mostly male, while the sex ratio of local workers varies with the season. During nonharvest periods, local men outnumber women, but during the harvest season, local women outnumber men, as in blackberries, when women may be three-fourths of local harvesters.

Network hiring is prominent, with current workers bringing or recommending friends and relatives and often taking responsibility to train and orient them at work. Recruitment, transportation, and pay systems vary, and some recruitment practices reflect conditions in

worker areas of origin. Some communal villages in Chiapas require members who leave to work elsewhere to pay exit taxes of 200 pesos (\$12) because, by leaving the village, they are not available to perform the community service work required of residents. Those who do not pay risk ostracism and the loss of their homes. Workers in these cash-poor areas often need to borrow money to pay exit taxes and transportation, which can involve two- or three-day bus trips to export-oriented farms. Some growers send a bus to pick up migrants and have the driver provide them with food en route to Guzmán at a cost of 2,000 pesos per worker, equivalent to a week's wages. Some migrants arrive in Guzmán in debt to their local communities, or because they accepted pay advances to sustain their families until they earn and remit. Some growers deduct pay advances and transportation costs from worker's wages, while others do not.

One grower built a labor camp for 600 migrant workers who have five-month contracts. The migrants (80 percent men) are housed four workers per room, with each worker entitled to 4.6 square meters. Employer housing costs are 28 pesos (\$1.55) per worker per day or \$46 per month, but it was not clear if this represents only operating costs or includes construction costs. The employer pays for kitchen staff at the camp who cook and serve food. The camp provides transportation to and from fields that are up to two hours away. Workers normally work from 7 a.m. to 3 p.m. with lunch from 10:30 to 11 a.m. Workers pay 70 pesos or \$4 a day for meals that are provided in an on-site cafeteria; many worker camps charge less than 30 pesos for meals. The camp has a training room that offers after-work classes in literacy and other topics. Alcohol is banned. As in Salinas, some local workers in Guzmán asked growers for the same free housing that was provided to migrants.

These observations lead to three major conclusions. First, the Guzmán area has the climate, land, water and infrastructure to produce more high-quality berries for export. Local farmers and in-



vestors have access to capital to begin or expand berry operations and take advantage of a profitable crop, but there is not enough local labor to harvest the berries. Growers recognize that a major threat to berry farming is the availability and treatment of migrant workers, and they are cooperating and paying for efforts by major berry marketers to establish and promote best practices to recruit, house, and supervise migrant workers. Labor appears to be the scarcest resource for the berry industry. Most growers register their workers with government agencies and pay required taxes, unwilling to risk the government fines and loss of access to the US market. There were reports of crew leaders circulating to other farms and trying to “steal” workers. Despite five- or eight-month contracts, we were told there are no penalties for workers who break contracts and change employers.

Second, there is local opposition to the expanding berry industry.

This opposition appears motivated more by environmental than labor issues. For example, the level of the major local lake is rising due to silt, which prompts worries about the lake's capacity to store water. It is not clear whether rising silt levels are due to deforestation in nearby mountains for logging and to plant avocados, or from runoff from berry farms. The Guzmán area has an active logging sector. Logging, berry, and other farming activities generate dust, which many farmers try to reduce by sprinkling water on farm lanes. The berry industry is supporting reforestation by planting rows of trees to reduce wind damage to the fruit; the industry also supports reforestation in the area. Several opinion leaders asserted that the chemicals used to grow berries are raising cancer rates for residents, but none complained of berry workers settling with their families and imposing education, health care, and other costs on Guzmán. One reason for limited settlement is that most migrants are solo men and women; if berry harvesting were to expand from five to eight months, there may be more settlement.

When migrants settle with their families, which often are large, they can experience discrimination at the hands of local residents and governments. This reportedly occurred in the San Quintín area of Baja, where the local government did not provide services to farm workers who settled in homes away from the farms where they worked; some local schools reportedly refused to enroll migrant children.

Third, some migrants in the Guzmán area have done farm work in the United States, but are working in the Guzmán area because they were apprehended or decided to return on their own. The US AEWR (Adverse Effect Wage Rate) of \$13.18 an hour in California for H-2A workers in 2018 was attractive to berry pickers who earn \$2 to \$3 an hour in Guzmán. Some growers with US partners or

operations offer to take their best Guzmán-area pickers to California for the summer-harvesting season. US berries are the largest users of H-2A workers, and half of the workers in the Salinas-Watsonville area are believed to be H-2A workers.

A spring 2018 survey of 378 women employed in berries in Michoacán found a third employed by one (large) employer, and the other two-thirds spread between 18 growers who hired 1 to 38 workers; half of the workers were in Los Reyes. The average age of the women berry pickers and packers who were interviewed was 34, and 80 percent were between 18 and 45. Some 72 percent were employed permanently, that is, they worked an average of six to eight months a year. More than half of the women were married, and 70 percent had an average 2.1 children. Of those with children, 37 percent had children under six, and three-fourths relied on family members to care for their children while they worked. These women with young children would like access to day care facilities, especially between the hours of 7 a.m. and 3 p.m. The survey suggests that private or public day care would enable more women to be berry pickers and reduce absences among current berry pickers who must stay home when others cannot care for their children.

CHAPTER

4



MEXICO'S VEGETABLE EXPORTS

The United States produced fresh vegetables worth \$10.8 billion in 2017, and imported fresh vegetables worth \$6.9 billion. It exported fresh vegetables worth \$1.9 billion, for a fresh vegetable trade deficit of \$5 billion (Parr, Bond, and Minor 2017, Table 1). More than half of US fresh vegetables worth \$6.1 billion were produced in California, followed by 10 percent worth \$1.2 billion in Arizona. Excluding fresh potatoes, US residents consumed (or had available to consume) an average 144 pounds of fresh vegetables in 2016, including 27 pounds of lettuce, 21 pounds of tomatoes, 19 pounds of onions, and 11 pounds of bell peppers. These four fresh vegetables accounted for more than half of the fresh vegetables available to US residents (Minor and Bond 2017, Table 5).

A quarter of the fresh vegetables available to Americans are imported, up from less than 10 percent in the early 1990s. Most fresh vegetables imports are from Mexico, which exported fresh vegetables worth \$7.5 billion to the United States in 2016 (including potatoes and mushrooms). Mexico accounted for 74 percent of the value of US fresh vegetable imports, followed by Canada (13%) and Peru (4%) (Minor and Bond 2017, p. 7).

Many of the fresh vegetables exported from Mexico to the United States are grown with protected culture, usually metal hoops covered with plastic to protect plants from pests and disease. Mexico had 21,000 hectares of greenhouses, plastic-covered frames, and other protected culture structures in 2014, and produced 3.5 million tons of (mostly) vegetables worth \$1.5 billion. Sinaloa, (22%), Jalisco (15%), and Baja California (12%) had half of the protected culture area in Mexico.

Three major trends are reshaping the US fresh vegetable industry and Mexico's role in providing produce to Americans: year-round availability, concentration of production, and more factory-type work settings in protected-culture agriculture. First, Americans prefer fresh to processed vegetables, and consumers expect fresh vegetables to be available year-round. This means that US grower-shippers produce fresh vegetables in different areas of the United States to take advantage of different climatic conditions, and they import vegetables to supply supermarkets and food-service firms year-round. Many grower-shippers sign contracts that oblige them to provide a particular quantity of lettuce or tomatoes each week, and they stagger plantings around the United States and abroad to so that they have a supply of fresh produce to fulfill these contracts.

Second, large grower-shippers of fresh vegetables dominate production and sales to supermarkets and food-service firms. Many are privately held, so there is limited data on the share of US lettuce or broccoli grown or marketed by the largest firms, but most industry insiders believe that the 10 largest grower-shippers of lettuce, tomatoes, broccoli, and other fresh vegetables account for half or more of total US production and/or sales of each commodity. By contrast, fruit farming tends to be less concentrated, and fruit farmers often belong to co-ops that market their fruit

under Sunkist or Sunmaid labels rather than under the firm's label, as with Dole, Andy Boy, or T&A in vegetables.

Year-round production and large firms selling fresh vegetables year-round has implications for workers. Workers employed in the US fresh-vegetable industry tend to be among the farm worker elite, with higher wages and better working conditions during longer periods of employment than many workers employed seasonally on fruit farms. Fresh vegetables produced in protected culture structures such as greenhouses turn farms into factories, with workers entering and exiting through particular doors that record their presence to facilitate food safety and record keeping. Harvested produce is labeled in the protected structures or field, so that any problems can be traced quickly to the crew or sometimes picker who harvested it.

Urban greenhouses in converted warehouses near major US cities such as New York aim to compete with produce grown in open fields and protected culture structures for high-value, short-season crops such as some leafy greens and herbs. Fresh vegetables are mostly water, and these greenhouses are very efficient at converting water into produce. However, local fresh greens from such warehouses are likely to remain niche products for the foreseeable future.



Tomatoes

In 2015, the United States consumed million tons of fresh tomatoes, including 53 percent that were imported, mostly from Mexico and Canada. Mexico is the leading supplier of fresh tomatoes, sending 1.7 million metric tons worth \$2 billion to the United States in 2016. Canada supplies most of the remaining \$300 million of imports.



Between 2014 and 2016, Americans consumed an average 7.5 billion pounds of tomatoes a year, 21 pounds per person, including 54 percent that were imported. Farmers always supply more fresh produce than is sold to consumers, and they typically supply 10 percent more fresh tomatoes than are sold, as some spoil during transit and awaiting sale. US farmers receive 25 to 35 percent of the average retail price of fresh tomatoes.

Tomatoes are a fruit that originated in Central America and were spread by Spanish colonization. The United States has classified tomatoes as a vegetable since 1893, when the US Supreme Court held that tomatoes were “culinary vegetables” because they were generally eaten with dinner rather than dessert. The reason for the US Supreme Court decision was an 1887 law that levied tariffs on vegetables but not fruits, raising the question of whether tariffs had to be paid on imported tomatoes.

SIAP reported that Mexico had 51,900 hectares of tomatoes in 2016, of which 51,300 hectares were harvested to produce 3.3 million tons worth \$1.2 billion (Table 7). The leading state was Sinaloa, with 13,800 harvested hectares producing 924,200 tons worth \$244 million, followed by San Luis Potosí with 307,000

tons worth \$104 million, and Michoacán with 236,000 tons worth \$80 million (SIAP 2017, p. 94).

Mexico is the world’s leading tomato exporter, shipping tomatoes worth \$2.1 billion in 2016 or 25 percent of the world’s \$8.4 billion in tomato exports. The Netherlands was second with \$1.6 billion of tomato exports, Spain third with \$1.1 billion, Morocco fourth with \$509 million, and Canada fifth with \$373 million. The four-digit Harmonized Tariff System code prefix for tomatoes is 0702 (Workman 2019b).

Mexico produced 3.4 million metric tons of tomatoes in 2017–18 and exported half of them, almost all to the United States. Most Mexican tomatoes exported to the United States are grown under protected culture (900,000 tons in 2016), or are Roma or Italian egg-shape plum tomatoes grown in open fields (600,000 tons). In 2015–16, Sinaloa accounted for 27 percent of the 52,000 hectares planted and 27 percent of tomato production, some 924 million metric tons (FAS 2017), followed by 15 percent in Jalisco and 12 percent in Baja California (Cook 2017).

Table 7. Mexico Tomato Production by State, 2015–16

Selected States		
State	Area Planted (Ha)	Production (MT)
Sinaloa	14,220	924,152
Michoacan	6,947	235,785
Zacatecas	3,096	191,654
Baja California	2,820	226,061
Baja Calif. Sur	2,606	135,223
Jalisco	2,290	158,231
Others	19,882	1,478,048
Total	51,861	3,349,154

The acreage of Mexican tomatoes has been declining (from 85,000 hectares in 1990 to 52,000 hectares in 2015), but yields have been rising as more growers switch to shade structures, tunnels, and greenhouses to reduce pest problems, conserve water, and increase yields. There were 15,000 hectares of protected tomato production in 2016–17, most in Sinaloa (shade structures) and in Baja California; an estimated 6,000 of the 14,200 hectares of tomatoes in Sinaloa are grown with protected culture. Yields of Roma tomatoes in Sinaloa average 37 metric tons per hectare in open fields and up to 125 metric tons per hectare in protected agriculture. Sinaloa has hot summers, raising the cost of cooling and explaining why Sinaloa's tomato production is concentrated during the spring months.

Protected culture structures vary widely. Structures can be covered with plastic or glass; have passive or active environmental controls to regulate temperature and light; and grow crops in soil or use hydroponics, as when ground-up rock provides mechanical support for plant root systems and drip irrigation tubes provide plants with water and nutrients. Glass greenhouses with active environmental controls and hydroponics are the most expensive structures to build and operate, and are most common in Canada and the United States. Protected culture requires fewer pesticides, facilitating organic production.

Cook and Calvin (2005, p. 21) explained that the lower-tech protected culture tomato production common in Mexico originated in Spain, and enabled Spanish tomatoes to displace more expensive Dutch tomatoes produced in higher-tech greenhouses in some European markets. The Netherlands continues to export more tomatoes than Spain, even though Spain's climate does not require steel structures and glass to protect growing crops, reducing production costs. Similarly, Mexican producers can gain many of the advantages of protected culture without the steel-framed greenhouses often used to produce tomatoes in Canada.

Mexico's three major tomato export regions are Sinaloa, which exports tomatoes from October through May; Baja California, which exports from May to October; and Jalisco, which exports from October to December. Cook and Calvin (2005, p. 20) reported that Sinaloa and southern Sonora accounted for 70 percent of Mexican fresh tomato exports, with Baja California exporting most of the remaining 30 percent. Baja producers specialize in exporting Roma tomatoes. Cook and Calvin (2005, p. 20) also reported that 40 export-oriented producers (many with sales operations in Nogales, Arizona) grew most of Sinaloa's tomatoes for export around Culiacán. These producers are organized into CAADES (www.caades.org.mx), which also represents producers and exporters of other vegetables. Baja California production is concentrated in San Quintín, 150 miles south of the Mexico-US border, and included about 50 growers marketing through 12 shippers in 2005.

Canadian farmers in the mid-1990s were the first in North America to adopt Dutch-developed greenhouses to produce "hothouse" tomatoes; this Dutch technology later spread to the United States and to Mexico. Central Mexican tomato growers traditionally have produced for the Mexican market, but the temperate climate and extensive light available at high altitudes has encouraged more protected culture production in central Mexico for export. In 2005, US-based Desert Glory, which has operations in Jalisco and Colima, was the largest greenhouse-tomato firm in North America specializing in cherry tomatoes (Cook and Calvin 2005, p. 24). Protected culture operations expanded in the Mexican state of Querétaro to supply tomatoes to Mexican supermarkets wanting premium and safe fruits and vegetables. Tomatoes grown under protected culture structures, usually plastic-covered structures or greenhouses, are usually picked when they are vine ripe or red. Consumers prefer vine-ripened tomatoes. In 2016, hothouse tomatoes were 56 percent of tomato sales at US grocery stores, and hothouse

bell peppers and cucumbers were 37 percent of sales of these commodities. Cook and Calvin (2005, p. 2) emphasize that data on protected culture production in Mexico and the United States are incomplete.

Protected culture is spreading in Mexico's export-oriented agriculture. Some Sinaloa-based producers are also producing in Michoacán, Jalisco, and Querétaro (greenhouses) during the summer months so they can export almost year-round. About 70 percent of the commodities produced with protected culture in Mexico are tomatoes, followed by bell peppers (16%) and cucumbers (10%). Mexico's area of protected culture has been expanding by 1,000 hectares a year, and most protected culture farms use drip irrigation and systems to control the light and air reaching the plants.

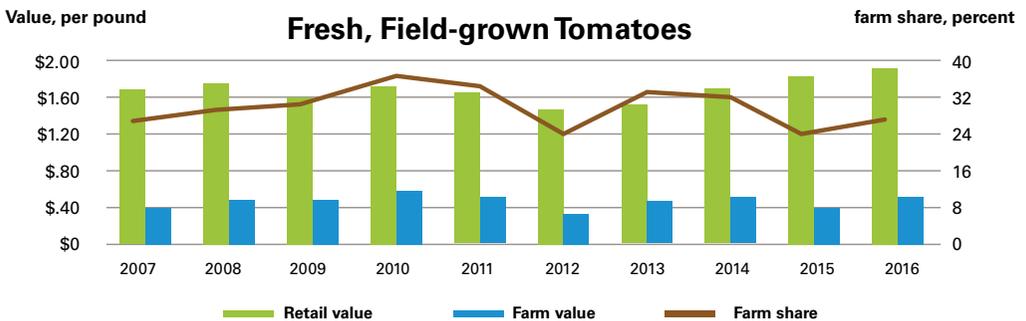
The United States produced 2.4 billion pounds of fresh tomatoes in 2016, with California and Florida the major producers. Florida's production peaked at over 20,000 hundredweight in the mid-1990s and fell almost two-thirds to 7,500 hundredweight in 2016. California is the leading tomato producer, with stable production of 10,000 hundredweight over the past two decades. Most US tomatoes are produced in open fields. Table 38 of the 2012 COA reported 32,400 US tomato farms with 398,000 acres of tomatoes "in the open." The 565 farms that each had 100 or more acres of tomatoes accounted for 90 percent of the total tomato acreage.

Florida growers have several times sued Mexican growers for "dumping" fresh tomatoes in the United States at prices below the cost of production. The US producers' suit was most recently settled by establishing a minimum price for the exported Mexican tomatoes. During the October through June period, the minimum price for Mexican tomatoes grown with protected culture and imported to the United States is \$0.41 a pound or \$10.25 per 25-pound

box, while from July through October the minimum price of protected culture tomato imports is \$0.32 a pound or \$8.12 a box.

Cook and Calvin (2005) conducted the most extensive study of protected culture tomato production in North America. They emphasized that seasonality explains why producers want protected culture to extend the time they can produce and sell tomatoes and that greenhouse tomatoes are different from field-grown tomatoes. Canadian greenhouse tomato production is concentrated during the summer months, US production in Arizona and other southwestern states is year-round despite low summer prices, and Mexican production is concentrated during the winter months, but more Mexican producers have begun to supply tomatoes year-round. The capital required to erect protected culture structures means that producers must obtain higher prices for protected culture than for field-grown tomatoes.

Figure 5. Farm-Value of US Produced Fresh, Field-Grown Tomatoes, 2007-16



Source: Calculated by ERS, USDAA, using data from the Bureau of Labor Statistics and the National Agricultural Statistics Service.

Bell Peppers

The United States consumed about 3.6 million tons of bell or sweet peppers in 2015, including 57 percent that were imported, mostly from Mexico and Canada. Bell pepper imports are rising; in the early 1980s, less than a quarter of US bell peppers were imported. Bell peppers are native to Central America, and were spread by Spanish colonization.



Global bell or sweet pepper exports were worth \$5 billion in 2016. Mexico was the leading exporter, exporting bell peppers worth \$1.2 billion, followed by Spain (\$1.1 billion), the Netherlands (\$944 million), and Canada (\$344 million) (Workman 2019c). The 6-digit Harmonized Tariff System code prefix for fresh or chilled peppers is 070960.

Table 38 of the 2012 COA reported 11,600 US farms with 50,000 acres of bell peppers, including 105 farms that each had 100 or more acres and accounted for two-thirds of the total bell pepper acreage. SIAP reported that Mexico had 8,100 hectares of bell peppers in 2016 producing 526,000 metric tons worth \$231 million. The leading states of production were Sinaloa, with 5,000 hectares producing 306,400 tons worth \$91 million; Sonora with 1,600 hectares producing 89,400 tons worth \$46 million; and Guanajuato with 400 hectares producing 37,700 tons worth \$23 million. Mexico's bell pepper acreage has been rising; there were 6,600 hectares producing 267,000 tons in 2006.

Cucumbers



The United States consumed 2.4 million tons of cucumbers in 2015, including 74 percent that were imported, mostly from Mexico and Canada. Fresh cucumber imports are rising; in the early 1980s, less than 40 percent of fresh cucumbers were imported.

Most Mexican and US fresh cucumbers are grown in fields, but a rising share are greenhouse cucumbers imported from Canada and Mexico. Though Mexican cucumber imports were divided almost evenly between those grown in open fields and under protected culture, most Canadian cucumber imports were from greenhouses.

Global cucumber exports were worth \$2.6 billion in 2016. Spain was the leading exporter, exporting cucumbers worth \$608 million, followed by Mexico (\$497 million), the Netherlands (\$412 million), and Canada (\$197 million) (Workman 2019e). The 6-digit Harmonized Tariff System code prefix for fresh or chilled cucumbers and gherkins is 070700.

Table 38 of the 2012 COA reported 14,200 US farms with 111,000 acres of cucumbers and pickles, including 95 farms that each had 250 or more acres and accounted for two-thirds of the total acreage. California produces twice as many cucumbers as the second leading state, Florida—a sharp change from the mid-1990s, when both states produced about 6,000 hundredweight. In 2016, California produced about 8,000 hundredweight, Florida 4,000, and Georgia 3,000.

SIAP reported that Mexico had 18,900 hectares of cucumbers in 2016 producing 886,300 metric tons worth \$244 million. The leading states of production were Sinaloa, with 4,800 hectares producing 362,00 tons worth \$107 million; Sonora with 1,400 hectares producing 141,000 tons worth \$37 million; and Michoacán with 4,230 hectares producing 102,000 tons worth \$18 million. (Michoacán has low yields.) Mexico's cucumber acreage has been stable since 2010 at 16,000 to 18,000 hectares, but tonnage almost doubled. Mexico's cucumber exports were worth \$286 million in 2016, up from \$138 million in 2010.



CHAPTER

5



MEXICO'S LABOR FORCE AND FARM WORKERS

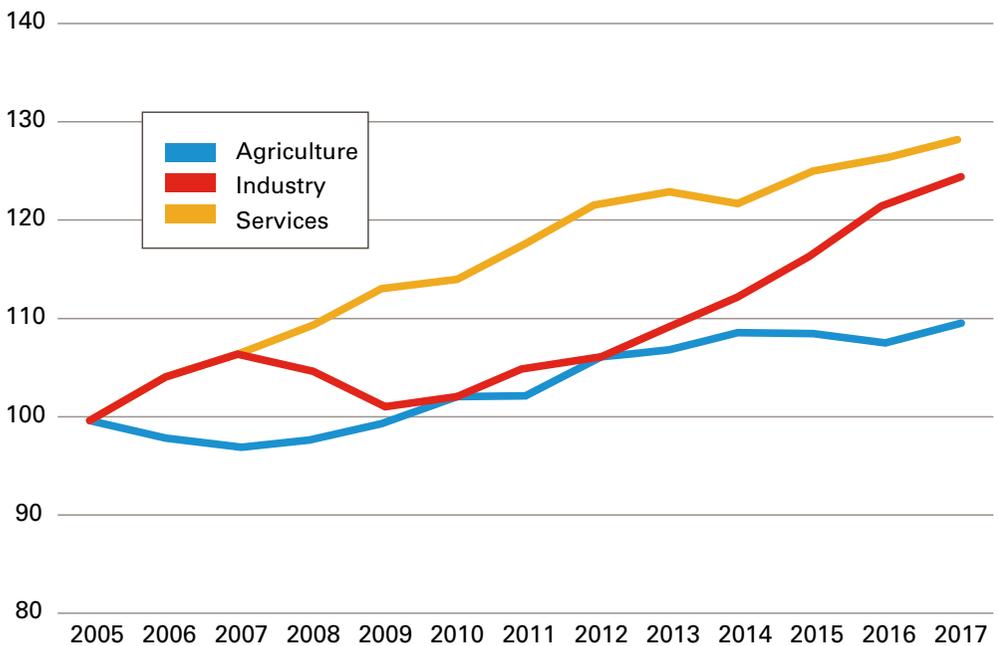
Mexico's population rose from 26 million in 1950 to 38 million in 1960 and doubled to 76 million in 1984. Since the mid-1980s, Mexico's population has increased by almost 70 percent to 128 million in 2016 (World Bank 2017). The rural share of the population fell steadily, from 49 percent of residents in 1960 to 20 percent in 2016, but the number of rural residents rose from 19 million in 1960 to 26 million in 2016.

There are several sources of data on Mexico's total and agricultural labor force. World Bank data reports that the share of Mexican workers employed in agriculture fell from 26 percent in 1991 to 13 percent in 2017, with an unexplained drop to 10 percent in 2014 followed by a rebound. The share of Mexican male workers employed in agriculture fell from 32 percent in 1991 to 19 percent in 2017, down 40 percent, while the share of female workers employed in agriculture fell from 10 percent in 1991 to 4 percent in 2017, down 60 percent.

The OECD reported that Mexico's labor force was 52.3 million in 2017, including 32.4 million men (62%) and 19.9 million women. Mexico's labor force increased by 800,000 a year over the past decade, adding an average 680,000 men and 120,000 women a year. Employment in services and industry rose faster than employment in agriculture,

which rose from 6.2 million to 6.8 million between 2005 and 2017, up 10 percent. Indeed, agricultural employment has been increasing, up 400,000 a year in recent years (Figure 6; Table 8).

Figure 6. Employment in Agriculture, Industry, and Services, 2005-17 (2005 = 100)



The OECD distinguishes between self-employed and wage workers by sector. Agriculture has the lowest share of employees or wage workers, 43 percent, compared to 78 percent in industry and 70 percent in services.

Table 8. Mexico Labor Force, 2015

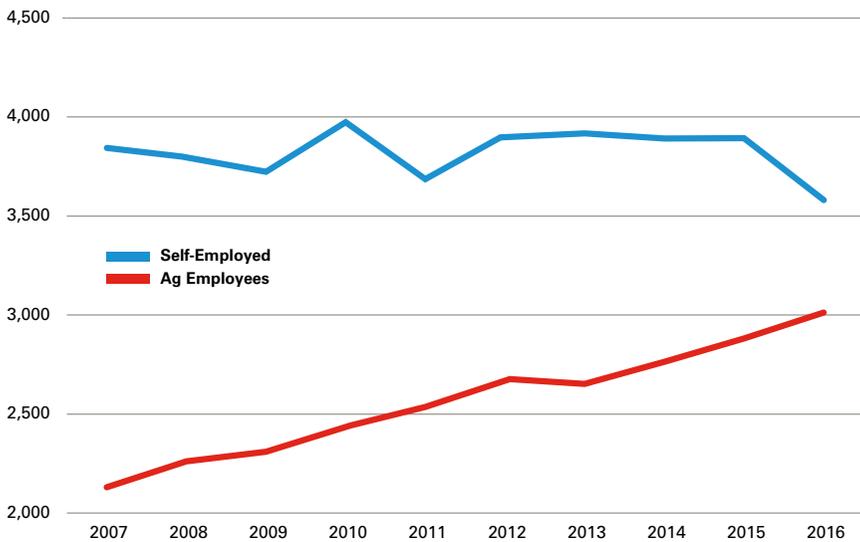
	Millions	Share%
Civilian Labor Force	52.6	
growth 2010–15	0.7	
Men	32.7	62%
Employed	50.3	96%
Unemployed	2.9	
Sector: all employed		Share%
Agriculture	6.8	14%
Industry	12.5	25%
Services	31	62%
Sector: employees		Share%
Agriculture	2.9	43%
Industry	9.7	78%
Services	21.6	70%

Source: OECD Labor Force Statistics (2017)

Of the 50.3 million employed persons in Mexico in 2017, 34.2 million were wage and salary employees, 13.4 million were self-employed (own account), and 2.7 million were unpaid family workers. Some 2.9 million workers were unemployed. By sector, 6.8 million of the 50.3 million employed persons in Mexico in 2016 were in agriculture (14%), 12.5 million (25%) were in industry (including eight million in manufacturing), and 31 million (62%) were in services. Among the 34.2 million employees, 2.9 million were in agriculture (43 percent of those employed in agriculture were employees), 9.7 million in industry (including 6.4 million in manufacturing), and 21.6 million in services. The share of self-employed persons is much higher in agriculture than in industry and services.

Figure 7 below, based on OECD data, shows that the number of self-employed and unpaid family workers in Mexican agriculture fell over the past decade, while the number of wage workers rose by over 40 percent. There are still more self-employed than wage workers in agriculture, but the gap has narrowed significantly. Zahniser et al. (2018, pp. 18–19) emphasize that the probability of rural Mexicans working in agriculture in Mexico or the United States has been declining as better educated rural workers find nonfarm jobs.

Figure 7. Self-Employed and Wage Workers in Mexican Agriculture, 2007-16



Gonzalez and Macias (2017), citing the National Institute for Statistics and Geography (INEGI), reported 6.7 million workers employed in Mexican agriculture in 2015.

Some 24 million people, 18 percent of Mexican residents, lived in rural areas in 2015. In 2010, SEDESOL, the government's Secretariat of Social Development responsible for reducing poverty, released a report on hired farm workers. The report emphasized that most are poor people with few local options for decent work. Some migrants are recruited to work in agriculture far from their homes, including on farms that export produce to the United States.

Mexican government agencies paint different pictures of agriculture and farm worker employment. INEGI's report on farm workers to celebrate farm worker day—May 15, 2016 (INEGI 2016)—reported 5.5 million people employed in agriculture at the end of 2015, 11 percent of the 51 million total workforce, with 56 percent (3.1 million) farmers and 44 percent (2.4 million) support workers. Of these support workers, two-thirds were hired workers and one third were unpaid family members, suggesting 1.6 million hired wage workers in Mexican agriculture—just over half of 2.9 million agricultural employees reported by OECD.

INEGI's report included demographic characteristics. The average age of all persons employed in agriculture was 42 in 2015, average years of schooling was 5.9, and average earnings were 18.5 pesos (\$1) an hour. Chiapas, Oaxaca, and Guerrero had the highest share of workers in agriculture, 30 to 35 percent, followed by 20 to 25 percent in Puebla, Veracruz, Michoacán, and Zacatecas.

The minimum wage in Mexico in 2017 was about 80 pesos (\$4) a day, equivalent to \$0.50 per hour for an eight-hour day. Large farms producing for export typically pay more, 90 to 130 pesos a day, especially in areas that produce high-value commodities in high-cost areas, such as berries in Baja California. Workers who hand-cut sugarcane earn the most, 150 to 200 pesos a day, to

perform a very difficult job. Mexico's minimum wage rose modestly in 2017 and 2018 but much more in 2019, to 103 pesos a day in most of Mexico and to 177 pesos a day in 43 municipalities in the six northern states on the US border. The 2019 minimum wage is the income needed to purchase a basic of essential goods, the Línea de Bienestar or well-being income, making the minimum wage equal to the well-being line and incomes below the Línea an indicator of poverty.

Several southern Mexican states employ legal and irregular workers from Central America, typically on large coffee and other farms. The often indigenous Mexicans who filled seasonal jobs on these farms in the past now migrate north for higher wages, and Central Americans have replaced them. A 2016 World Bank survey found that Guatemalans employed on southern Mexican farms had migration costs that averaged \$60, and earned an average \$240 a month in Mexico. Hondurans and Salvadorans paid more for jobs in southern Mexico, an average \$160, and earned similar wages of about \$240 a month, so that migration costs were less than a month's earnings for these mostly legal guest workers.

Levy's Economic Critique

Mexican economist Santiago Levy, the architect of Mexico's Progres-Oportunidades-Prospera program—which makes small payments to mothers who keep their children in school and ensure that they receive regular health checkups—believes that Mexican economic growth is slowed by a persistent misallocation of excess capital to small firms that offer informal jobs. Between 1996 and 2015, Mexico's economy expanded by 1.2 percent a year



in real per capita terms, and labor productivity rose by 0.5 percent a year, even though the average years of schooling of Mexican adults rose from 7.7 to 9.6. China averaged real per capita growth of more than 7 percent a year during these decades; China’s labor productivity growth also averaged almost 7 percent a year.

In Mexico, Levy believes, too much labor and capital go to informal firms that evade taxes and regulation, and not enough go to formal-sector firms that are globally competitive. This leads to growing gaps between formal and informal firms and between salaried and nonsalaried workers, owing to Mexico’s social insurance system, tax policies, and poor enforcement of contracts. The net effect of these formal-informal differences is that larger formal firms with salaried workers subsidize informal firms with nonsalaried workers, exactly the wrong prescription to increase productivity and incomes.

Table 9: Firms and Workers in Manufacturing, Commerce and Services, 2013 (millions)

	1-5 Workers	6-10 Workers	11-50 Workers	51+ Workers	Total
Firms	6.30	0.27	0.13	0.03	6.73
Workers	13.40	2.10	3.00	6.40	24.90

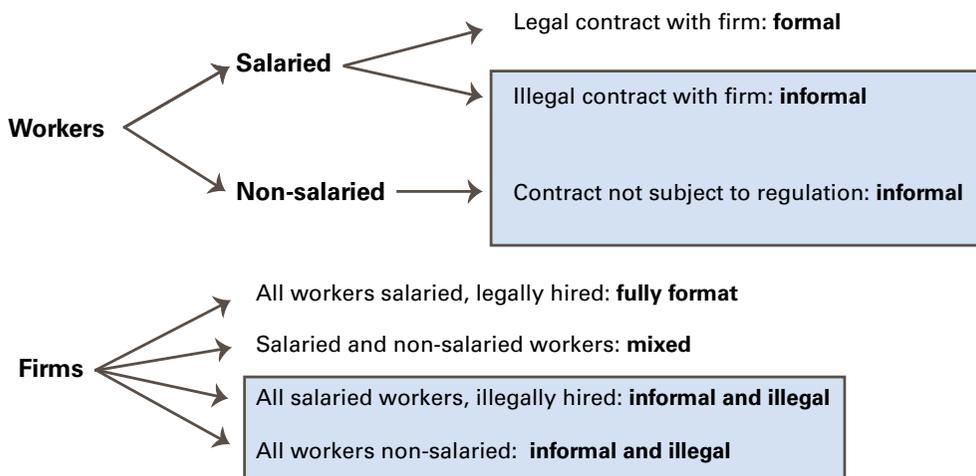
Source: Author’s calculations based on data from the Economic Census and the Employment Survey, Levy (2018)

In 2013, more than 90 percent of Mexican businesses were informal, and they employed 55 percent of Mexican workers (Table 9; Figure 8; Table 10). The productivity of workers in informal firms was half that of workers in formal firms. Most informal businesses were small, with fewer than five employees. Levy warned that rising levels of education are “wasted” if graduates are employed

by small informal firms that fail to raise the productivity of their employees over time.

Figure 8. Formal and Informal Workers in Mexico

Firm-Worker Contracts, formality and Legality



Neither employers nor workers value the health, pension, housing and other services that add 30 percent to wage costs for formal-sector salaried workers. Levy says that most workers will not qualify for pensions or health care in retirement because of frequent job changes and tough eligibility requirements. Payroll taxes add 30 percent to wages, but employers and workers value the benefits received from the programs that these taxes finance at less two-thirds of what employers pay (Levy 2018, pp. 37–38). Levy recommends that social insurance be provided to all workers, that severance pay for workers who are laid off be replaced with unemployment insurance, and that all exemptions to the value-added taxes that are now paid mostly by formal firms be eliminated.

Table 10: Employment by Size of Locality and Formality Status, 2000-2013

(Thousands of workers; and percent share that are informal)

	2000		2003		2008		2013	
	Number	Share Informal						
Locality > 2,500								
In census*	17,060	64.0	18,099	61.3	19,348	57.8	21,949	57.0
Not in census**	8,490	75.2	9,399	76.9	9,989	83.2	11,048	82.4
Locality < 2,500								
Activities in census***	3,589	71.7	3,782	72.3	4,110	77.6	4,734	76.9
Agriculture	6,522	85.1	6,036	87.5	5,945	91.5	6,615	89.8
Public sector workers	4,367	19.4	4,520	20.1	4,926	12.2	5,197	14.2
Total	40,030	54.7	41,838	56.7	44,319	58.0	49,544	58.2
Census/ Total****	42.6		43.2		43.6		44.3	

Source : Author's calculations based on data from Mexico's Employment Survey.

* In establishments with fixed premises that work in activities included in the census.

** In activities excluded from the census or included in it but carried out in establishments with mobile premises.

*** In fixed or mobile premises.

**** Share of total employment captured in the census.

Sinaloa Farm Workers

Mexico's PAJA (Program de Atencion a Jornaleros Agricolas) estimated that there were 200,000 migrant workers in Sinaloa in 2003, while the Sinaloa State Commission on Human Rights estimated 120,000 migrants (de Grammont and Lara 2010, p. 240). Sonora's State Commission on Human Rights estimated 80,000 migrant workers, including 45,000 around Hermosillo.

In Sinaloa, there are three distinct workforces. First are local workers who operate equipment, dominate among packinghouse

workers, and supervise local and migrant seasonal workers. Second are migrants from Sinaloa's mountainous areas who are employed seasonally to plant, weed, stake, and do other preharvest tasks in the export-oriented tomato industry. Third are migrants from southern Mexican states such as Oaxaca (25 percent) and Guerrero (30 percent) who dominate harvest workforces between December and April (de Grammont and Lara 2010, pp. 241–42). At least 80 percent of the migrants in Sinaloa arrived with the contractors who recruited them; half of the migrants had small plots at home while the other half were landless. The education levels of migrants are low, often two or three years. Many migrant workers who circulated between faraway homes and Sinaloa jobs in the past have settled in Sinaloa, reflecting longer seasons of work there and few opportunities at home.

Large Sinaloa grower-shippers operate camps that typically house one family of workers per room that includes a fireplace for cooking. The camps have communal water taps and toilets. Some employers justify these basic housing and camp conditions by saying that their camps offer conditions similar to the living conditions of their employees at home. Most camps are fenced, and most include stores that sell alcohol and packaged food to residents. Moving out of grower camps forces migrants to incur expenses for rent, but gives them more freedom. Interviews with workers and NGOs who serve farm workers suggest that some workers who once lived in farmer-owned camps have moved into nearby communities. Some NGOs report that local residents take advantage of migrants with little local knowledge, charging them high rent and fees for services.

This so-called farm worker service economy often involves people from the same areas who have settled and provide services to newcomers, converting what may have been a black eye for growers into a problem for local governments. Although growers benefit from the workers who commute from "farm worker" slums,

growers are not legally responsible for conditions in such areas.

Family migration reportedly is declining, which reduces child labor in the fields. There are many reasons for this falling-off, including parents who realize that migration is disruptive to their children's health and education and government conditional cash transfer programs such as Prospera that require families receiving benefits to keep their children in school, even if their parents migrate for farm work. Prospera ended in January 2019, and became an unconditional transfer program that pays mothers about half of the previous amount transferred under Prospera. A rise in solo male migrants was reported by Lara and Sanchez in Sonoran table grapes, where growers switched from settled workers living in nearby communities to migrants who arrive for pruning, thinning, and harvesting. The government's SUMLI program facilitates such temporary migration.

Mexican law requires children to attend school through ninth grade. The government has been offering families cash transfers and other services to compensate for the loss of earnings if their children go to school instead of work for two decades. Child labor has decreased in rural areas, but has not disappeared. There are unions, but they reportedly do little to protect worker rights. Neighborhood associations that house settled out workers are more visible and may be more effective to help settled migrants (de Grammont and Lara 2010, p. 246).

After funding was reduced between 2015 and 2018, PAJA was cancelled in December 2018. The AMLO government argued that most of the subsidy went to the growers, not the workers. Most PAJA funds were spent on housing and other physical infrastructure, to transport workers from southern states, and to operate schools and health clinics for migrant workers.



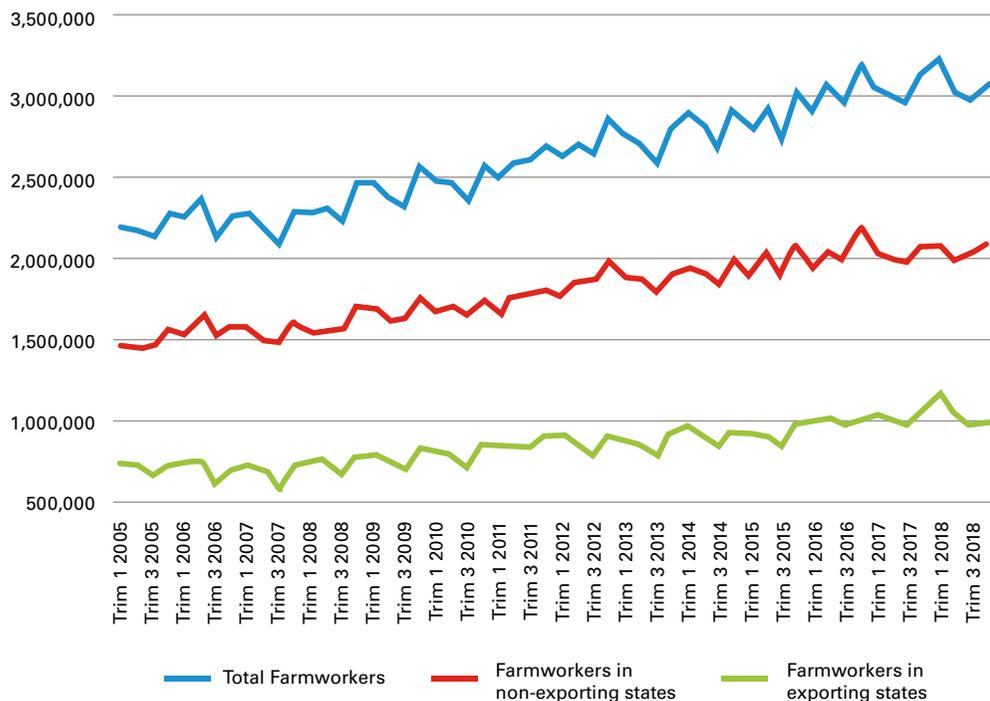
CHAPTER

6

MEXICO'S FARM WORKFORCE

Mexico's farm workforce is increasing, reversing 70 years of decline between 1930 and 2000. Since 2005, the hired or wage farm workforce increased from 2.2 million to 3 million, including an increase in the hired workforce in states with significant export agriculture from 700,000 to 1 million, up 30 percent. Many Mexican states export agricultural commodities, so some of the increased farm employment in nonexporting Mexican states could reflect workers employed in export agriculture (Figure 9).

Figure 9. Farm Worker Employment in High-Export and Low-Export States, 2005 - 2018

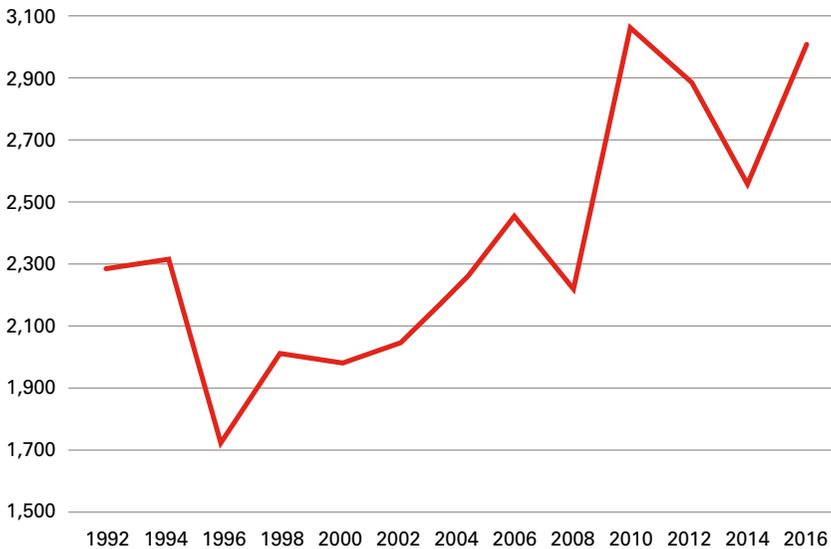


Source: Encuesta Nacional de Ocupación y Empleo (ENOE - NWS), 2005-I to 2018-III.

According to the 2015 National Intercensus Survey of 3.3 million households, the state with the most hired farm workers is Veracruz, a state with low farm worker wages. Puebla and Michoacán also have large numbers of farm workers. Veracruz, Puebla, Oaxaca, and Michoacán are states with low farm worker wages. States with the highest farm worker wages include Jalisco, Sinaloa, Sonora, and Michoacán, with Michoacán being unusual in having both large numbers of high- and low-wage farm workers. The states with the largest share of farm workers in formal jobs, or covered by IMSS and Infonavit, are Coahuila, Nuevo León, and the two Baja Californias.

Data from two national surveys show trends in farm worker wages. The first, from the National Household Income and Expenditure Survey (ENIGH), shows that farm worker wages fell sharply with the 1995–96 economic crisis, and then rose steadily, peaking in 2010 before falling sharply in 2014 and then rebounding in 2016 almost to 2010 levels (Figure 10).

Figure 10. Real Farm Worker Monthly Wages, 1992–2016 (constant pesos, August 2016=100)

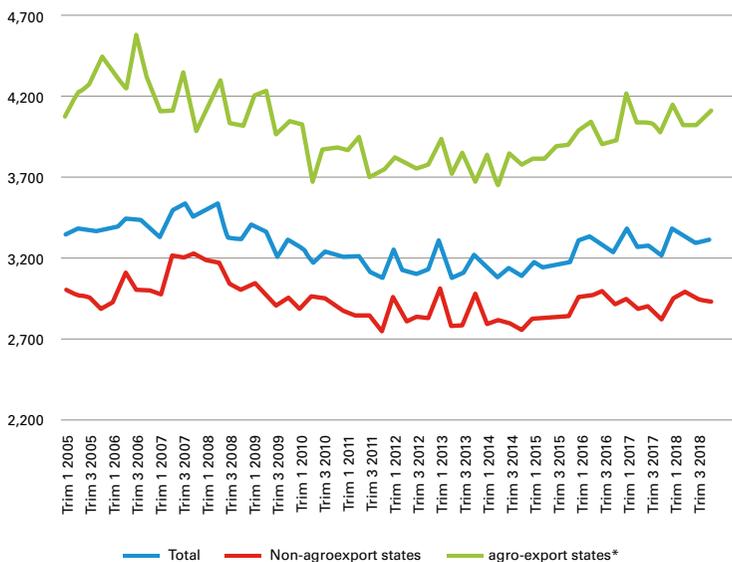


Source: National Household Income and Expenditure Survey, 1992–2016.

The National Occupation and Employment Survey (ENOE) allows estimation of wage differences by state. Farm worker wages in the major states that export farm commodities, Guanajuato, Michoacán, Jalisco, Sinaloa, Sonora, and Baja California, were about 50 percent higher than the wages in nonexporting states. In real or inflation-adjusted terms, farm worker wages in export states

peaked in 2006 and have not yet returned to 2006 levels, while in nonexporting states farm worker wages peaked in 2007 and remain below 2007 levels (Figure 11).

**Figure 11. Real Farm Worker Wages, 2005-18
(constant pesos, August 2016=100)**



Source: ENOE

One of the AMLO government’s priorities is to raise wages and incomes for low-wage workers. Raising the minimum wage so that a recipient can buy the basket of goods needed to satisfy essential needs, as was done in 2019, is a policy decision with consequences, including affecting the number of jobs covered by the minimum wage.





CHAPTER

7

WORKER SURVEY: 2019

We used a stratified random sample to interview 3,065 workers in six states who were employed on farms producing four commodities for US consumers: berries, bell peppers, cucumbers, and tomatoes. Data were collected in winter and spring 2019 on five topics: (1) the characteristics of workers and their families; (2) the way in which workers were recruited and any worker-paid costs to get their jobs; (3) worker employment patterns and earnings, work-related benefits, and working conditions; (4) for migrants, housing, food, and related living issues while employed away from home; and (5) plans for next season. The researchers were especially interested in migration patterns, including how workers were recruited, transported, and managed when away from their usual homes.

Farm wages and working conditions vary according to three interrelated factors: commodity, area, and size of farm. The survey divided growers of a particular commodity in each state into small, medium, and large categories and selected 5 to 10 growers in each size group for worker surveys. The goal was to interview

workers in proportion to each size stratum's share of production and employment.

This example from California fresh tomatoes illustrates the methodology. The most recent census reported 2,800 growers with a total of 40,000 acres, broken down as follows:

- 2,470 growers (90%) had less than five acres, and they collectively had 4% of tomato acreage, so 4% of the worker sample came from farms with less than five acres
- 290 growers (10%) had 5 to 100 acres, and they collectively had 10% of acreage, so 10% of the worker sample came from farms with 5 to 100 acres
- 40 growers (<1%) had 100 or more acres, and they collectively had 86% of acreage, so 86% of the worker sample came from these largest farms.

The concentration of production of most commodities on a relative handful of large farms poses a challenge when developing averages: is the interest in averages across production units or average workers in the commodity? Most production units are small and hire few workers, while the relative handful that account for most output hire most of the workers. Because of the study interest in workers, the sample obtained reliable data on typical workers in the commodity, which means most of the interviews were conducted with workers employed on large farms.

Mexico does not have an official farm worker survey comparable to the US National Agricultural Workers Survey (www.doleta.gov/naws/), and some government databases that include farm workers have not been updated. To obtain a representative survey of workers employed in export agriculture, the study researchers sampled workers in the major export commodities and states. Samples were derived from lists of growers from associations, and

researchers selected growers to sample and then randomly interviewed some of their workers. By stratifying the worker sample, more workers were interviewed on large than on small farms.

The researchers began with AHIFORES, the major association of Mexican farm exporters, and also contacted state-level and commodity-specific associations to obtain a list of growers, approximate acreage or production, and farm worker employment. They stratified growers by size, and randomly selected growers in each size strata for worker interviews. The associations helped locate producers and ensured that researchers could interview workers without interference. The director of largest association of avocado exporters (APEAM) agreed to participate, but he left the association before the survey began. Negotiations with the new leadership continued until the end of the picking season, and avocado workers are slated to be interviewed in 2020.

Workers employed in Guanajuato, Michoacán, Jalisco, Sinaloa, and Baja California were interviewed, along with 30 workers who live in Colima and work in Jalisco. Others interviewed included “free agent” or informal farm workers in San Luis Potosí, along the coast of Jalisco, and in northern Michoacán. The major commodities in Guanajuato are cucumbers, bell peppers and specialty tomatoes; in Jalisco, the main crop is berries, including raspberries, blackberries, and blueberries; in Michoacán strawberries; in Sinaloa tomatoes; and in Baja California berries.

Researchers interviewed 2,700 workers drawn from association lists of growers. The growers interviewed employed a total of 97,000 workers, meaning that the interviews covered almost 3 percent of all workers employed on these farms in spring 2019. The results are representative of the one million workers employed in Mexican export agriculture.

The survey firm based in Veracruz interviewed workers in top-

down fashion and in cooperation with the data analysis team, beginning in Jalisco and followed by interviews in Michoacán and Guanajuato. After coding the first set of interviews, workers were interviewed in Sinaloa and Baja California. A team of anthropologists from CIESAS-CIDIGLO used the same questionnaire to learn about wages and working conditions among workers employed by growers who were not members of associations, a bottom-up personal approach to complement the top-down statistical approach. The anthropologists knew where the mostly indigenous migrant farm workers lived, and used snowball sampling techniques to interview workers employed in tomatoes, berries, and vegetables.

The combination of top-down and bottom-up interviewing increases confidence in the study's major findings, which show that larger growers, who are members of associations who account for almost all produce exports, comply with labor laws, whereas nonassociation or informal growers may be only partially in compliance. The working and living conditions of workers vary by type of grower, with workers employed by informal growers receiving lower wages and fewer work-related benefits. Most Mexican workers, rural and urban, are employed by informal employers, who are usually defined as having five or fewer workers, do not register with tax authorities, and do not pay taxes for work-related benefits on behalf of their employees. Informal growers surveyed often were registered with tax authorities and paid taxes for some but not of their employees. The bottom-up part of the sample consists of 300 casual farm workers employed by informal growers in San Luis Potosí, Jalisco and Michoacán.

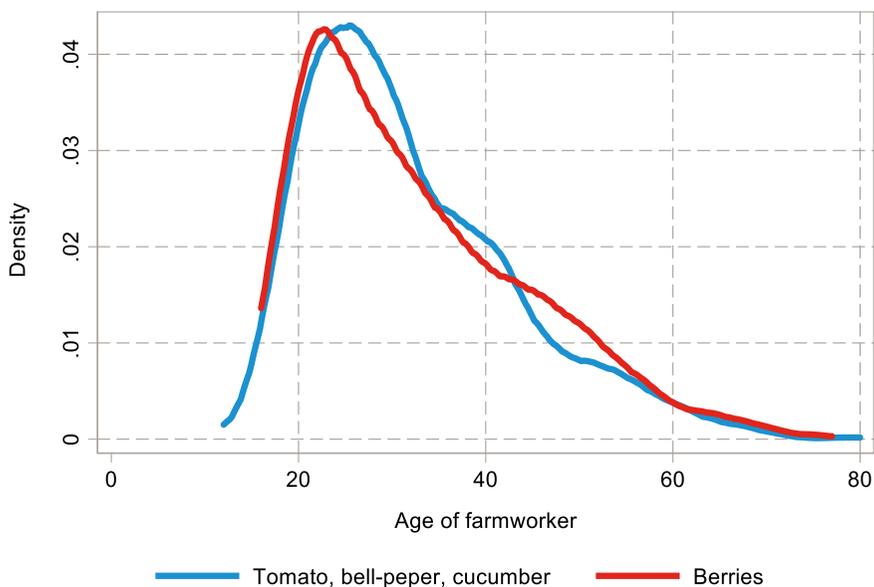
Migration and Demographics

Farm workers employed in Mexico's export agriculture were 54 percent male and 46 percent female (Figure 12). The chosen sample included 1,488 workers employed in berries, 538 in bell peppers, 522 in cucumbers, and 517 in tomatoes. Berries were the only male-dominant crop; 62 percent of workers were men.

More than half of the workers interviewed (56%) were born in the state where they were working. Since export agriculture is concentrated in western Mexico, the traditional source of more than half of Mexican-born migrants in the United States, the expansion of export agriculture likely reduced international out-migration from western Mexico. There were two other groups of workers: settled or permanent migrants who were born outside the state in which they are working but now living in the state (14%) and temporary migrant workers whose usual home was in another state (30%).

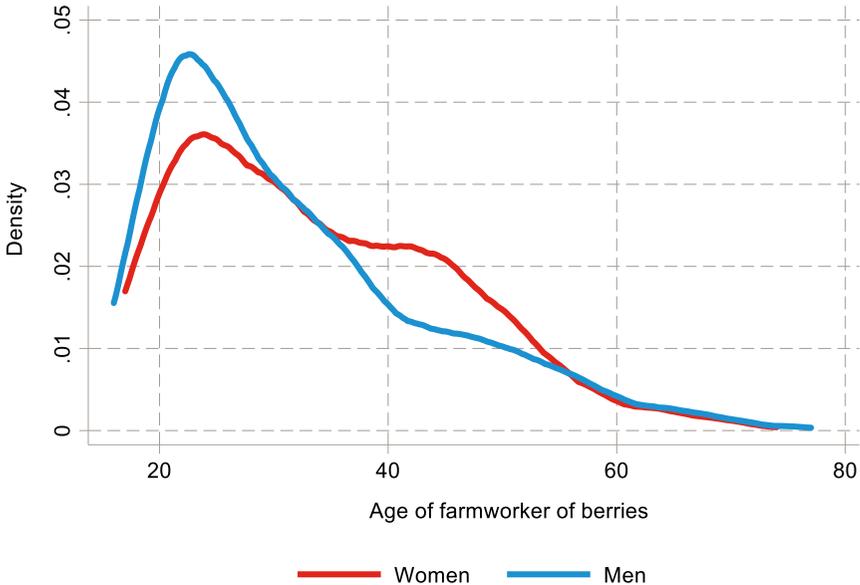
Each group is about evenly split between men and women except temporary migrants, who were 64 percent men. Temporary migrants were 54 percent of workers interviewed in Baja California, 48 percent in Sinaloa, and 35 percent in Jalisco. By contrast, more than 90 percent of workers in Guanajuato were born in the state, as were 80 percent of workers in Michoacán. Most workers are young: the average age of workers was 32, and they earned a median 6,734 pesos (\$354) a month. Ten percent of the workers were over age 50, and 3 percent were over 60, reflecting the fact that many older Mexicans do not receive pension benefits or receive only the minimum pension of \$100 dollars a month.

Figure 12. Workers Interviewed by Age and Commodity, 2019



Berries include more older workers and there are significant differences by sex (Figure 13). The largest groups of workers are young men, but what is significant is the jump in women over age 40 who appear to return to berries after childbearing, suggesting that employers could find more younger women with appropriate child care facilities.

Figure 13. Age and Sex of Berry Workers, 2019



Most workers had little schooling, including 10 percent of all workers and 18 percent of the indigenous who did not attend any school. Overall, average years of schooling were 7.2, with berry and tomato workers having slightly more years of schooling than bell pepper and cucumber workers (Table 11). Peak season harvesting wages can be 9,000 pesos (\$473) a month, which attracts some well-educated agronomists, lab technicians, certified nurses, and university students to pick berries. The job is widely seen as a means to quickly accumulate savings for more schooling or to buy land. Some of the better-educated workers have stayed in agriculture, taking technical jobs such as preparing and mixing chemicals and fertilizers to apply or serving as in-house nurses on the larger farms. The free-agent or casual workers employed by informal growers were 55 percent women.

Table 11. Worker Characteristics by Commodity, 2019

Crop	Age	% Male	Years of Schooling	% Speaks indigenous language	% under 18
Berries	32.8	62	7.6	26	1
Tomatoes	31.5	49	7.6	17	3
Bell Pepper	32.4	45	6.9	28	0
Cucumber	32.2	47	6.2	27	4
Total	32.4	54	7.24	25	2

The researchers found 50 workers under 18, less than 2 percent of the sample, largely because formal employers refuse to hire workers under 18. The legal working age in Mexico is 16, but jobs in agriculture have been categorized since 2014 as posing special risks to minors, so they can work only as unpaid family members in agriculture. Some workers used borrowed identification and birth certificates that indicated they were 18 or older, which some recruiters and human resources offices accept. There are reports, in our focus groups and case studies, of formal firms referring underage workers to informal firms that hire such workers.

Wages



Wages were highest in Baja California, where workers reported earning 10,260 pesos (\$540) a month, followed by Jalisco, where workers averaged 7,093 pesos (\$373), Guanajuato with 6,523 pesos (\$343), Sinaloa 6,417 pesos (\$337), and Michoacán 6,119 pesos (\$322). The casual workers or free agents in San Luis Potosí averaged 4,548 pesos (\$239). The only state where a significant portion of the workers earned less than the minimum wage was Baja California, where 9 percent of the women earned less than the minimum wage two months after the border-area minimum wage almost doubled. Indigenous workers earn less than nonindigenous, and those employed by informal growers earned the least. Indigenous workers averaged 4,943 pesos or \$255 dollars a month, but earned the same wages as other workers in berries (Table 12).

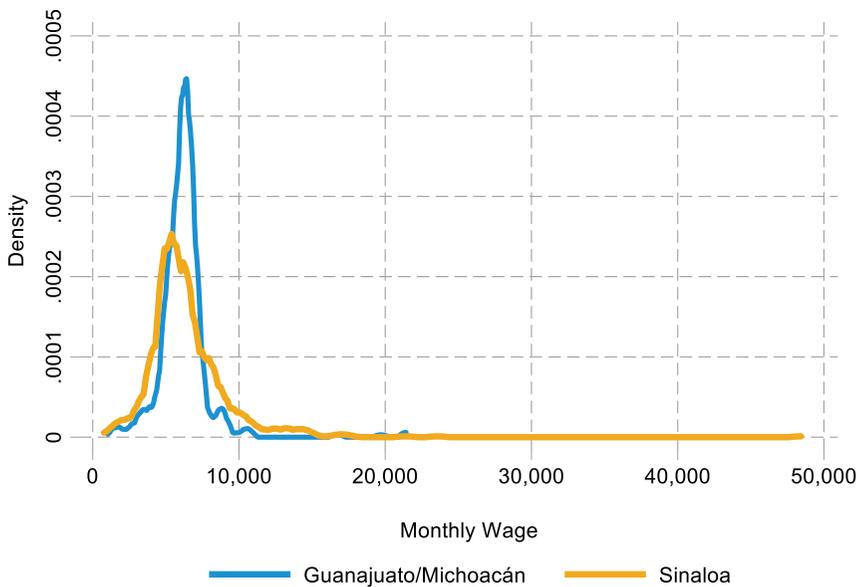
Table 12. Average Monthly Earnings by Commodity, 2019

Crop	Average Wage in pesos (Dollars in parentheses)	% earning less than minimum wage
Berries	7,317 (385)	3
Tomatoes	6,115 (322)	4
Bell Peppers	6,359 (334)	5
Cucumber	6,093 (320)	5
Total	6,734 (354)	4

Earnings are highest in berries and lowest in cucumbers, and vary by state, gender, ethnicity, and crop. The figure shows the distribution of monthly wages around the average, with the monthly estimate derived from each worker's previous weekly wage. Using one week's wages to estimate monthly earnings could underestimate wages for workers who did not work a full week during the

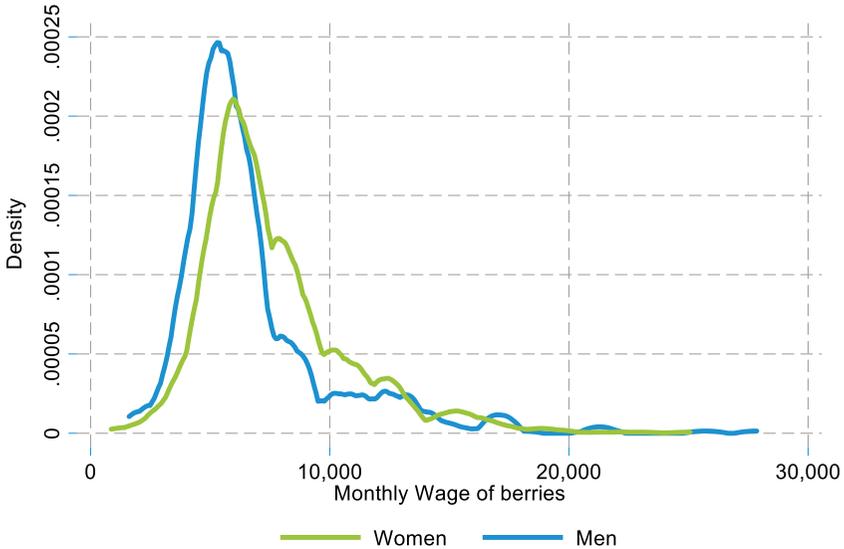
earnings window, and overestimate monthly wages if the earnings window was one in which worker earnings were high. Vegetable wages are mostly 6,000 pesos a month in Sinaloa, but a significant number of workers earn 8,000 pesos a month or more. Workers in Guanajuato and Michoacán average more than 6,000 pesos, but few earn more than 8,000 pesos (Figure 14).

Figure 14. Distribution of Vegetable Worker Monthly Wages, 2019



Berry workers are less concentrated around one monthly figure, there are more higher wage workers, and men dominate among the higher-wage workers (Figure 15).

Figure 15. Berry Worker Monthly Wages by Sex, 2019



Income and Poverty

The study researchers estimated household earnings by multiplying the farm worker's income by the total number of earners in the household and then dividing total earnings by the number of household members. They used adult equivalent tables to estimate the poverty level for children and the elderly, and used the urban poverty income line because farm workers cannot grow their own subsistence food while employed on export farms.



Workers had average household incomes that were 42 percent above the urban poverty line, ranging from 33 percent above

for local workers to 53 percent above for settled and temporary migrants. Since many indigenous workers are temporary migrants, their households where they work tend to have higher per capita incomes because many leave their children in the care of relatives in their hometowns. Households with two or more earners can send home remittances or accumulate savings (Table 13).

Table 13. Farm Worker Household Per Capita Income, 2019

Worker types	Adult Equivalent Income (average pesos per month)	Ratio to Urban Well-being Line
Informal growers	4,264	1.38
Formal growers	4,408	1.42
Women	4,198	1.36
Men	4,561	1.48
Local	4,124	1.33
Permanent immigrant	4,734	1.53
Temporary migrant	4,735	1.53
Nonindigenous	4,315	1.4
Indigenous	4,635	1.5
Survey average	4,395	1.42

The wages of farm workers employed on export farms have increased over the past two decades based on Mexico's two most reliable surveys of income and wages. However, these government surveys do not identify workers employed on export farms. Wages in agriculture are higher in states with larger export sectors, and the higher wages in export agriculture put upward pressure on the wages of workers employed on farms producing for the domestic market, such as sugar cane and other farm workers in Jalisco and Sinaloa.

There are several other considerations. For most workers with little education, working in export agriculture is the highest-wage formal

job available, offering two or three times the minimum wage. Indeed, workers in export-oriented agriculture are far less likely to earn less than the minimum wage, as only 4 percent did, than all workers, where 38 percent earn less than the minimum wage. With per capita household incomes above the urban well-being income line, workers on export farms earn about as much as factory workers during the low season and up to 50 percent more during the peak harvest season, according to some of the workers interviewed in a focus group.

Work-Related Benefits

Mexico's labor laws require employers to provide workers with social security, paid days off, a year-end bonus, and an annual profit-share payment. Employers must also contribute on their employee's behalf to Infonavit, which makes housing loans to workers who have sufficient contributions or allows workers to receive their contributions. Workers can be laid off only for cause.

The major work-related benefit programs are IMSS and Infonavit, programs that require contributions from employers and employees. IMSS benefits include health and child care services; paid sick leave and three months' paid maternity leave; and retirement, permanent disability, and widow(er) pensions. Workers accumulate benefits over time; employers and employees who contribute for decades receive maximum benefits. Since formal jobs in agriculture are a relatively recent development, most farm workers do not qualify for retirement pensions or housing mortgages. Instead, many workers try to maximize their earnings, changing employers frequently and thus limiting their access to work-related benefits. Job changers often wind up with lower wages because of unemployment between jobs.



Jobs in the Mexican economy in general and in agriculture in particular are rarely covered by IMSS. Moreover, since the 1980s, employment generally has moved away from secure, formal jobs and into precarious and often short-term service contracts. The International Monetary Fund reported that only 9 percent of farming jobs were covered by IMSS.

The *Los Angeles Times* articles in December 2014 served as a catalyst to increase compliance with labor laws and to improve wages and working conditions on export-oriented farms. Several of the export farms profiled with labor law violations were required to improve housing and other working conditions in order to export, and the government reminded farm employers of their obligation to provide migrant farm workers with free housing (though not cooking fuel), free transport to and from the fields, and at least one full meal a day.

One result is to create an incentive for farmers to hire local workers, including migrants who have settled near their farms. Migrants would seem to have incentives to remain migrants in order to obtain free housing and transportation, but some migrants complain that employers enforce strict rules in their housing, including banning children, closing the gates at a particular time, and enforcing quiet times. Employers, for that matter, favor solo or parent-only migrants, whereas migrants, once they have stable employment on an export farm, want their children to join them where they work, so they often seek off-farm housing. Normal family dynamics mean that migrants settling out increase rents for low-end housing, which puts upward pressure on all wages in the region. Some settled-out migrants believe that the quality of schools is better in areas with export farms, and that their children will have better access to health care. The quality of life is often higher in the richer states with export-oriented farms, so that most migrants settle out over time.

The second response to the *Los Angeles Times* articles was more audits of farms exporting commodities that induced more employers to comply with legal benefits, social security, and housing contributions. In spring 2019, many exporting farms noted that they risk audits from tax authorities because they are highly visible. The National Commission for Human Rights investigated at least three incidents in which farms were accused of trafficking workers, and issued legally binding “recommendations” to avoid trafficking. Throughout 2018 and 2019, the Commission was monitoring conditions in Colima, Baja California and San Luis Potosí, where significant improvements had taken place, according to the Sixth Visitor in charge of trafficking.

Finally, the *Los Angeles Times* articles encouraged US buyers to require that their Mexican suppliers certify that they comply with Mexican and ILO core labor rights and abide by environmental safeguards, with private audits to ensure compliance. Audits can occur any time, although evidence suggests that employers sometimes have advance notice of an upcoming audit.

Today, more than four years after the *Los Angeles Times* articles were published, most workers employed on export-oriented farms reported that their employers were in compliance with labor laws. Significantly, almost all workers (94%) reported coverage under IMSS, and 82 percent reported that they received the year-end bonus (*aguinaldo*) paid to workers employed for at least three months at a firm. Some 58 percent reported paid vacation benefits (Table 14).

Table 14. Work-related Benefits by Gender, 2019 (Percentage reporting benefit)

Sex	Year End Bonus	Paid Vacations	IMSS	Private Health	Housing Fund	IMSS Child Care	Subsidized Child Care
Women	0.84	0.56	0.94	0.02	0.36	0.12	0.01
Men	0.81	0.61	0.93	0.04	0.33	0.08	0.01
Total	0.82	0.58	0.94	0.03	0.34	0.10	0.01

Employers normally pay IMSS and Infonavit taxes together, so it is somewhat surprising that only a third of workers reported Infonavit coverage. It may be that employers and employees are making contributions but, since so few farm workers become eligible for benefits, workers do not know about these contributions. Women tend to stay in farm jobs longer and are slightly more likely to qualify for work-related benefits. The AMLO government closed subsidized day care centers operated by the Social Development Secretariat while the survey was being conducted between January and April 2019. In their absence, employer-funded charities operate schools, day care centers, and preventive health units in Sinaloa, but they benefit only a few workers..

A slightly different picture emerges when workers report on the benefits to which they have *effective access*. We asked workers if they had effective access to services, not whether the benefit is accessible, available, and of high quality (Table 15). For example, effective access to IMSS services, which most workers identified as health services, was 17 percentage points lower than formal eligibility for IMSS services. Moreover, many of the workers com-

plained about the quality of IMSS health services, turning instead to local doctors or pharmacies or herbal markets for minor illnesses and injuries. These workers sent to IMSS clinics only for serious health problems and childbirth.

Table 15. Effective Access to Work-related Benefits, 2019 (Percentage reporting access)

Kind of worker	Year-End Bonus	Paid Vacations	IMSS	Private Health	Housing Fund	IMSS Child Care	Subsidized Child Care
Local	0.72	0.49	0.80	0.02	0.15	0.03	0.01
Permanent immigrant	0.67	0.45	0.73	0.02	0.12	0.05	0.01
Temporary migrant	0.59	0.27	0.73	0.02	0.09	0.06	0.00
Total	0.68	0.42	0.77	0.02	0.13	0.04	0.00

The obstacles to workers accessing IMSS-provided health services include waits of up to four hours for services, often long-distance trips to the clinics, and waits of several months for treatment.

Likewise, accessing IMSS-provided child care services is nearly impossible, with workers reporting that IMSS facilities say they are full. The few workers who can place their children in IMSS facilities complain that IMSS day care centers close by 2 p.m., even though the usual farm work day lasts until 4 p.m. during the low season to as late as 7 p.m. during the harvest.

Effective access to Infonavit housing benefits is also low. In order to benefit from employer contributions, workers must have access to a local housing development supported by Infonavit. Workers must select a house in an Infonavit development and obtain a

refund of their savings and a mortgage to benefit from Infonavit. Workers should have access to Infonavit funds for “partial” and “used home” improvements, but there is significant red tape and lack of information also deters most workers from applying.

Workers employed by informal employers have much less access to work-related benefits (Table 16). Informal workers are at a double disadvantage, with lower earnings and fewer work-related benefits. Indigenous temporary workers are 40 percent of those working for informal growers, and many are women. Nonetheless, even informal workers have more access to work-related benefits than most Mexican workers.

Table 16. Work-related Benefits, Informal and Formal Workers, 2019 (Percentage reporting access)

Kind of grower	Year-End Bonus	Paid Vacations	IMSS	Private Health	Housing Fund	IMSS Child Care	Subsidized Child Care
Informal	0.15	0.03	0.15	0.00	0.00	0.00	0.01
Formal	0.74	0.47	0.84	0.02	0.14	0.05	0.00
Total	0.68	0.42	0.77	0.02	0.13	0.04	0.00

In sum, most workers employed by growers who are members of an association are covered by the major work-related benefit programs, including over 90 percent who are covered by IMSS. Effective worker access to IMSS benefits is significantly less than coverage. Most workers do not consider lack of effective access to IMSS health care a significant issue for minor issues when they are unwilling to drive long distances and wait for IMSS services, although they must cover the cost of local and pharmacy doctors.

The lack of IMSS-provided child care services is especially troublesome, since it reduces women's labor force participation and imposes costs on women who do work for alternative child care, often in informal, unregulated arrangements. One of the most frequent complaints of female farm workers was their lack of access to child care and the unsuitable hours of operation of child care centers. Providing effective access to child care would require both more centers and adjustments in how they operate to accommodate worker schedules.

The major challenges include converting coverage under IMSS into effective access to services for covered workers, maintaining employer contributions, and educating workers about their IMSS and other work-related benefits. Workers need to be educated about the benefits for which their employers have contributed, and program regulations for IMSS pensions and Infonavit housing may need to be changed so that low earners receive some benefits. Finally, special attention needs to be paid to indigenous Mexicans, many of whom are women, who tend to have lower earnings and less access to work-related benefits.

Recruitment and Ethnicity

We found no evidence of trafficking among the workers interviewed, and no evidence of trafficking in the case studies and focus groups, including in workers' current jobs or recent work histories. A few older workers reported that they were locked down in their barracks overnight and unable to leave jobs that they held decades ago.

Workers can be tied to a particular farm or employer with debt, as when migrants pay for transportation from their homes to their workplaces. However, fewer than 1 percent of the workers interviewed had transport charges deducted from their wages. Similarly, fewer than 1 percent of the workers paid a fee to be hired, often to an outside recruiter. Workers can arrive in debt if they receive cash advances when hired. Only 2 percent of formal workers, and 14 percent of casual or informal workers, reported receiving cash advances when hired. Fewer than 3 percent of workers with formal jobs, and 6 percent of informal workers, reported being in debt to their employers when interviewed.

The density of indigenous workers in agriculture is far higher than in the Mexican economy as a whole. Some 6.6 percent of Mexicans speak an indigenous language, but 24.8 percent of the workers in Mexico's farm export industry speak an indigenous language. With many farm employers reporting too few local workers, the share of indigenous workers in export agriculture is expected to increase. The major difference between indigenous language speakers and other farm workers is in work-related benefits. There are two dimensions to the lack of benefits for indigenous speakers. The first issue is to deal with informal growers who hire many of the indigenous workers and do not register their workers and pay taxes on their behalf. The other issue is educating indigenous

language speakers about the relevance of work-related benefits, and the need to stay with one employer longer to qualify for year-end bonuses, profit-share payments, paid vacations, housing fund savings and mortgages, and retirement benefits.

Housing

We found few significant differences between the housing conditions of locally born workers, settled migrants, and temporary migrants. Almost all workers reported that they had electricity, and almost all reported indoor plumbing, cement floors and roofs, and brick walls (Table 17).

Table 17. Housing by Migrant Status, 2019 (Percentage reporting)

Kind of worker	Indoor Plumbing	Cement Floors	Cement Roofs	Brick walls	Electricity	Sewage connection
Local	0.92	0.95	0.74	0.91	0.99	0.90
Permanent immigrant	0.90	0.96	0.73	0.91	0.98	0.91
Temporary migrant	0.90	0.93	0.80	0.88	0.99	0.88
Total	0.91	0.95	0.75	0.90	0.99	0.90

The housing facilities that we visited had large rooms with bunk beds for six to eight workers and one shared bathroom for temporary migrants. In some housing, each room has an adjacent room for cooking; in others, all workers share a larger kitchen. The rooms and kitchens were clean, and cleaning was performed by dedicated company workers. Workers employed by informal growers

who do not register their employees for work-related benefits offer migrant workers poorer housing (Table 18).

Table 18. Housing by Type of Grower, 2019
(Percentage reporting)

Kind of grower	Indoor Plumbing	Cement Floors	Cement Roofs	Brick walls	Electricity	Sewage connection
Informal	90	94	58	84	100	85
Formal	92	95	77	90	99	90
Total	91	95	75	90	99	90
	28	23	43	30	11	30

There were few differences in housing conditions for migrant workers by commodity (Table 19).

Table 19. Housing by Commodity, 2019
(Percentage reporting)

Kind of crop	Indoor Plumbing	Cement Floors	Cement Roofs	Brick walls	Electricity	Sewage connection
Berries	91	91	71	85	98	87
Tomato	91	0.98	0.75	0.94	100	91
Bell Pepper	93	0.97	0.84	0.96	99	94
Cucumber	92	0.98	0.79	0.92	99	0.93
Total	91	95	75	90	99	90
	28	23	43	30	11	30



A young man with a neutral expression is the central focus, wearing a blue long-sleeved button-down shirt and a dark grey cap. He is carrying three white plastic buckets filled with fresh raspberries, which are suspended from a wooden belt around his waist. The setting is an outdoor market with other people and stalls visible in the background. A yellow rectangular box in the upper right corner contains the chapter title.

CHAPTER

8

CASE STUDIES AND FOCUS GROUPS: 2019

We conducted case studies of particular workers and focus groups in areas with export agriculture. Many of the workers were poor and had little education, sometimes because their parents expected them to help to support the family after completing elementary school. Many of the workers had difficult family lives growing up or as adults, with abusive parents or partners that forced them to seek farm jobs to support themselves. Women with children frequently stayed with particular farms because of the health benefits offered for their children.

Field researchers focused on Southern Jalisco, visiting company housing, dining facilities, and areas with farm workers in nearby cities and towns. They interviewed human relations managers, social workers, field managers, sanitary inspection staff, and crew leaders to understand the context and dynamics of export farms, their recruitment and hiring practices, and the benefits they offered workers. We found a diverse workforce that included local residents and both settled and temporary migrants, workers speaking one of 23 indigenous languages, and workers from many backgrounds and educational levels that ranged from no schooling to university graduates. This diversity prompted us to develop work histories for selected workers, providing information on what they did before working in export agriculture.

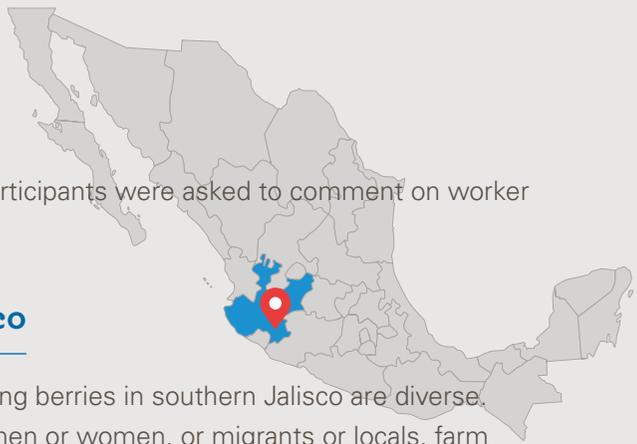
We interviewed workers at work and in their homes, and kept in contact with workers over time to remain aware of changes in their work and lives. Farm work played different roles for different workers. For some, farm work was a way to obtain savings for education, to buy a house, or to repay debt. For others, it was an opportunity to earn money after being laid off from urban jobs or, for older workers, after other employers will not hire them. Farm work offers jobs to women who otherwise would only find informal domestic work, or work they view as incompatible with their domestic responsibilities.

The team organized nine focus groups, in Guanajuato, Jalisco, Michoacán, San Luis Potosí. Each focus group centered on a specific kind of worker or other stakeholder. Anthropological teams worked independently of the survey team; there was only one overlap in Southern Jalisco. There were separate groups of male and female farm workers in Jalisco and Sinaloa; temporary migrant men in Jalisco; and a mixed group in Sinaloa. In Guanajuato, the focus groups included one with relatives of workers and another with Human Relations Managers. There was one focus group with five growers in Michoacán, one with growers' staff in Jalisco, and one with four NGOs in San Luis Potosí. The average group included nine participants, and all of the worker surveys except one were held in schools or other nonwork locations.

Focus group leaders began with conversation starters before turning to direct questions for participants to address, including on recruitment, hiring, work characteristics, housing, social, education and health services, child labor, and exposure to chemicals. Participants were contacted through networks to build trust and safety. There was an initial general presentation to put participants at ease, a session of questions and answers, and a final brainstorming session that allowed each participant offer proposals for improvement. The growers and NGOs focus groups were last, and

grower and NGOs participants were asked to comment on worker recommendations.

Southern Jalisco



The workers harvesting berries in southern Jalisco are diverse. In addition to being men or women, or migrants or locals, farm workers come from rural or urban areas, and many have done non-farm work in factories, government offices, or even as university graduates who studied communication, law, and computing. This diversity of backgrounds among farm workers suggests the need to ask how farm workers incorporate such labor into their life trajectories. Many farm workers see their work as a survival strategy, in the case of those who migrate from the poorest regions of the country; as a temporary job to save money for university studies, to buy or construct a home, to invest in subsistence crops, or to repay debts; or as an income-earning option in the face of unemployment, either chosen or imposed because they are 65 or older.

The characteristics of berry workers depend to some extent on who is seeking their labor; that is, whether they are sought by independent producers or companies engaged in production or marketing that have a social responsibility approach that translates fair wages, benefits, labor contracts, a commitment to avoiding child labor, decent housing for migrants as part of their compensation, clear policies regarding the payment of base salary and productivity bonuses, protection from hazardous substances, fair treatment of workers, and access to sports and cultural facilities. The social responsibility approach, such as the commitment to avoid child labor, helps to explain differences between workers employed by formal companies and workers employed by independent producers. The ages of formal company workers ranged from 18 to 81, while workers employed by independent producers were 14 to 50. Both companies and independents employ workers who are illiterate or have incomplete basic education, but workers

with a university degree are more common in companies. Migrant workers came from rural areas in Guerrero, Oaxaca, and Chiapas, and from rural and urban areas of Hidalgo, Veracruz, and Tlaxcala.

Local Workers

There are two types of local workers: those with experience in agricultural work and those with other work experience. Newly hired local workers with farm work experience are trained by field supervisors for up to a week. Men and women receive the same training, but local men are more reluctant to participate, since they consider harvesting to be mainly a job for women. It should be noted, however, that the work trajectory of a large number of local men includes experience cutting sugar cane—traditionally considered a job for men, although there are women cane cutters. Some local men combined sugar cane cutting with work in the berry fields, and some continued to do both jobs while others decided to work exclusively in the berry fields as permanent workers for the companies, especially men and women older than 40.

Local workers who were previously laborers, domestic workers, students and university graduates, and retirees and laid-off government workers are trained in similar fashion by field supervisors, but some have the option to move up to become crew leaders and field supervisors themselves. Women with nonagricultural work experience were mainly domestic workers and vendors, but some had worked as supermarket baggers. One attraction of export agriculture is social security health care benefits for themselves, their children, and their partners.

Male Migrant Workers

A focus group of 12 male migrant berry workers from Oaxaca took place in the Centro Universitario del Sur (CUSur) in Ciudad

Guzmán, Jalisco, on March 22, 2019. The participants ranged in age from 19 to 52. One had finished the fourth year of elementary school and two finished all six years, four finished junior high school, two studied in the *telesecundaria* (junior high school classes in rural areas via television), and three finished high school. Six were single, five married, and one in a *unión libre* (common-law marriage). Six had no children, two had one child, and the remaining three had two, three, and four children, respectively. Eleven harvested berries and one was a crew leader. Their time with the company ranged from two months to one year; two had worked there for a year, five for six months, one for five months, and four for two months.

The focus group began with workers reporting whether they liked their jobs. All workers responded that “the conditions are good,” citing employment contracts and the fact that they have work, which translates into their families being able to eat because of the remittances the workers provide. Negative factors were the distance from their places of origin, the short length of the harvest season, physical exhaustion, the lack of clean toilet facilities, having to get up early, the many conditions their employers put on them, and the final part of the harvest when “there isn’t as much fruit as before.” Some companies require them “to produce a lot” and threaten them with being fired if they do not. They also mentioned their dislike of the closing time in their housing: they are fined for arriving late, which is profitable for the contractors.

Migrant workers often change employers in search of higher daily wages; many have at least three employers each season. Men migrate alone or in groups, and women only in groups, living in shelters, houses rented by the companies, or in trailers near the fields. Some organize shared housing with others from the same area of origin, so that 8 to 12 migrants from one area may share housing. Women value formal contracts and social security bene-

fits, and they assign greater importance to housing conditions than male migrants, who tend to maximize cash earnings.

Many agricultural export firms and regional producers rent housing for their temporary migrant workers. This rental housing has basic services such as water, sewage, gas, and electricity, but it often is overcrowded, as when two-bedroom apartments house 11 people and two-story houses have 20 people. Women workers emphasize that having basic services and being located within an urban area are positives, giving them easier access to schools, medical services, transportation, and stores.

The group then proceeded to discuss the following topics: hiring, benefits and working conditions, workplace hazards and child labor, the status of the land in their places of origin, and exposure to agrochemicals. Participants explained that contractors for the companies issue a call for adult workers in their places of origin: "A contractor tells someone in the town and the word spreads that there is work." At the place of recruitment, workers are told of the company's rules and the duration of the contract: "They tell us what we cannot do in the company, but they do not tell us about the benefits they can offer us." The company provides them with transportation to the workplace and a place to sleep, but they are not given clear information about their benefits, and sometimes they do not even know exactly where they are going to work: "They told me they were taking me to Monterrey, and later I realized I was in Jalisco." Because of the number of people being hired, the process of signing contracts is done quickly, which prevents workers from reading them: "Since there are a lot of people who want to sign contracts, you don't have time to read it," one said, "and sometimes you don't know what you're signing."

Participants were asked about working conditions, and they mentioned the lack of hygiene in the company's portable toilets. They also said that although they have a canteen, there is no food

service for workers as was promised when they were hired. They said they were enrolled in social security, but were not told that they had to register at the clinic in order to be assigned a doctor; they also said there were no company staff or facilities to provide medical care or first aid. They added that the company provides loans, bonuses, and year-end bonuses, but that given their short period of employment, loans were not useful, and the other benefits were available only to those who had been at the company for a longer time.

The workers said that company housing limited their freedom, since they were not allowed to enter after 8 p.m. If they arrived after that hour, they were charged a fine of 200 pesos the first time, 400 pesos the second time, and 800 pesos the third time. The contractor collected the fine, deducting it from their wages. "We who come from other places, they rent us a house to live in, but if we go to the store to buy something and get back after 8, the door is locked and they don't let us in," said one worker. "We have to sleep in the street. That's how they punish us, and we also have the fine deducted from our wages."

Workers said that during the harvest season they could earn up to 2,000 pesos a week, but when the harvest tapered off they were no longer paid by the quantity harvested but by the day. They disliked the switch from piece rate to daily wages, since it cut their earnings: "It's like they say, first we earn money, and then we have to work for free and get the fruit wherever we can."

The workers mentioned that the most common hazards involved the condition of the fields. In the rainy season, the soil is slippery, the ditches are sometimes unstable, and people fall. Once an older woman fell and broke her leg; she was taken to the canteen but not to a clinic until the end of the workday. Workers said there were no personnel trained to deal with emergencies. They also complained that they lacked the necessary equipment to do their

job: “For safety, they give us only a hairnet.” Workers reported no signs in fumigated greenhouses about dangers or accident prevention, and that they entered greenhouses shortly after fumigation.

Workers were asked if they were working when spraying took place: “They tell us when they spray the fertilizers and they keep us away for a few days,” said one. Some said that, when they entered the greenhouses, they had reactions to the fumigation: dizziness, allergies, vomiting, stomach pains, and headaches: “Sometimes they apply it very close to where we are working and people have gotten dizzy or sick.” They did not mention whether there was someone in charge or if there was a protocol if someone inhaled chemicals: “When we feel bad, they just send us to the canteen. That’s the cure for everything: send us to the canteen.”

Children under 18 are not hired, but older workers are expected to keep up with younger workers: “They don’t hire minors,” one worker said, “and there are only two or three seniors—one they call the grandmother—but they demand the same work from them as they do from everyone.”

All of the workers said they owned houses in their area of origin, plus a plot of land where they grew corn and beans for their own consumption. These workers migrate once they have finished planting their own crops and return for the harvest. They said it was difficult to cultivate their land because there was no irrigation and they received no assistance from government programs for rural areas: “Our crops depend on the rain,” said one, “and we have to wait for something to grow, at least enough for us to eat.” To find an additional source of income, they had to emigrate: “Like most people, I have my own house, but because there isn’t any help for working our land we have to come here.”

When asked what would improve their jobs, workers said it would be better to eliminate production quotas if the fruit was not of sufficient quality; they were told to pick fruit of a certain size, but

when it was all small, they had to pick small fruit and were warned of poor quality work. Workers wanted freedom in employer-provided housing, more health and safety protections, and cleaner, better-supplied toilet facilities. Workers also would like to end reprimands and punishments for eating the fruit they are harvesting: “They tell us we’re not allowed to eat anything,” said one, “but sometimes my stomach tells me it wants something, and if I see a nice big piece of fruit, I think ‘Why should some *gringo* eat that instead of me?’ and down the hatch it goes! But without chewing, because if they catch you, they suspend you for up to three days.” Some young workers who finished high school said they would like the company to help them earn a college degree so that they could move up on the farm.

Female Migrant Workers

The focus group of women migrant workers in the tomato and cucumber fields in southern Jalisco was held in the classroom of the SEDESOL shelter for sugar cane workers in El Grullo on March 9, 2019. Since the 1970s, the area has grown vegetables such as tomatoes, and there are now 322 hectares in production in open fields and greenhouses. Cucumbers are next in terms of the area devoted to production, with 259 hectares planted in 2017. The combined area of 581 hectares is exceeded only by that devoted to sugar cane and corn. Sugar cane, tomatoes, and cucumbers require a large amount of labor, which is supplied by local and migrant workers. The Autlán valley receives migrants from Guerrero, mainly indigenous Náhuatl-speaking families who often travel back and forth between their homes and farm workplaces.

Both men and women work in the fields. In the vegetable fields, the women from Jalisco and Guerrero are hired to plant, care for the plants, and harvest and pack produce, but are rarely assigned tasks that involve operating machinery or applying pesticides; these jobs are reserved for men. Even though women do not ap-

ply the pesticides, they are exposed to them, given their constant physical contact with plants that have been sprayed.

Most migrant women are wives of the cane workers, but they work in the vegetable fields for a few months each season. Some of these women participated in a focus group conducted in a center operated by the Union of Cane Workers of the Autlán Valley that provides housing for migrants during the cane harvesting season from November to May. During the cane harvest, the daughters, wives, and mothers of some cane workers also do farm work to contribute to the family income, but they work in vegetables such as tomatoes, cucumbers, and chiles. After cane cutting ends, some migrants return to their areas of origin and some work in local vegetable fields.

The focus group included 13 migrant women ages 13 to 57. Two were 13 years old, four were between 14 and 19, two were between 20 and 29, two more were between 30 and 39, and three were between 50 and 59. Of the 13 women, 11 were from Guerrero, from communities such as San Agustín Ostotipan, San Juan Ozomatlán, San Juan Totolcintla, and Ahuetlixpa; the other two were from San Luis Potosí and Cocula, Jalisco. The highest level of education is the first year of junior high school; some are illiterate. The educational level is lower in the older women, where it is no more than the third grade; those younger than age 20 have finished primary school, and one has finished the first year of junior high. The minors are single, without children, while the rest are married; there is one widow. The number of children among married women averages three, with a maximum of seven.

The women lived in two types of housing: shelters and their own homes. Ten of them lived in the shelter and worked in the vegetable fields, while their fathers or husbands cut sugar cane; once the cane harvest is finished, they would return to their places of origin. The other three women have settled in the region and have

their own homes in the community of El Mentidero in Autlán and only return to their places of origin to visit family. They range in age from 50 to 59 years, whereas those who live in the shelter are 13 to 39 years of age.

All of the women work or have worked during the previous 12 months in the tomato and cucumber fields. Half were employed on other crops, like peppers, avocados, strawberries, and raspberries. They have worked in greenhouses; in open fields; and in packing, planting, caring for plants, harvesting, and selecting the product for packing.

Each worker introduced herself and described what she liked and did not like about her job. They liked working for wages, sometimes being able to leave work early, seeing faraway places, and having nice bosses. The things they did not like were the treatment they received from some bosses who yelled at them, pressured them, and berated them; the hot weather; and the difficulty of working in the mud on rainy days. They also spoke of the safety hazards arising from the lack of protective equipment: the chafing from the cord used to tie the plants, for example, or the pricking from the cucumber thorns.

The women from Guerrero began to work at the age of 9 to 14 years. The starting age for child labor, from 9 to 10 years, has not changed with time: Griselda, now 31, began at age 9; Reyna, now 53, began at 14; and Yadira, now 16, had her first job at 9. The women said that age does not matter for work in the fields, only that “you’re a little bigger.” They were sent to do this work by their close relatives: a brother, sister, or their parents. All earned less than the others because of their age and lack of ability, but with training from relatives they acquired the skills and in time their wages increased. In some cases, their parents collected their wages. For some, their first job was in the Autlán valley.

Unlike the women from Guerrero, those from San Luis Potosí and Jalisco did not begin to work as children; instead, they began after age 30. One began to do farm work after her husband died and the other after her husband was disabled. Martina, 57, began at the age of 37, when she moved from Cocula, Jalisco to Autlán de Navarro. Her job, which she got through a *comadre*, was to clear the furrows. Eliboria, 53, began at age 31, working for the largest firm in the region. Her sister brought her from San Luis Potosí, she got married, and when her husband died she went to work.

Recommendations from other workers are an important aspect of the hiring process. A boss interested in hiring more women approaches key workers or crew leaders who act as recruiters. The recruiters do not charge the workers for finding them a job; rather, they receive a commission or “tip” from the boss. The workers also are not charged for transportation to the job location; the boss pays this expense: “The one looking for people comes and tells me, and I talk to the people I know and invite them to come and work. . . . Some of them know that I’m looking for workers for them, and they give me 100 pesos for my trouble. Or if I want to work, I go talk to him directly and ask if there is work, and he says ‘no’ or ‘yes, come back tomorrow.’” The women say that trust is important to recruitment: “Sometimes people we don’t know come looking for girls to work and we tell them ‘No, there aren’t any here.’ When someone we know comes, we go with him.”

When women are hired to work in the fields, they are not asked for any documents and are not provided with contracts or payroll vouchers. The informality of this type of hiring is an advantage for some women, or for their parents, because it allows minors to work as long as they do not look too young. Yareli is 13 years old and small, so her height was a problem for her mother because the recruiters did not want to hire her: “They don’t want small girls,” her mother says. “She only began to work this year. She does not want to go to school, so she has to work; she wants me

to buy her clothes, so she has to work. We can't afford it; she has to earn a living."

The hiring processes for greenhouses and packing are different: greenhouses and packing require identification papers. "In the greenhouse they ask for all your papers, your identification, your CURP, your birth certificate, your social security number," says one worker. "If you don't have those papers, you can't work." This administrative process includes a prohibition on hiring minors. However, enforcement seems to be insufficient, because minors still find ways to get hired in greenhouses. Naydelin, 17, borrowed identification from someone else and was asked only for documents without photographs, like a CURP and social security number.

In spite of the effort Naydelin put into getting a job packing tomatoes, she decided to quit because her eight-hour shift ended at midnight: tomatoes are picked during the day and packed on the evening shift. For this reason, she preferred to work in the fields, from 7:30 a.m. to 2:30 p.m., not counting transportation time, plus overtime, for an extra 30 pesos an hour, until sundown, when there is pressure to complete the harvest.

There is an important difference in the wages paid for work in the fields and the greenhouses. Griselda, 31, says she is paid better in the fields, and the workday is shorter. The daily wage in the fields is 200 to 250 pesos for working from 7 a.m. to 3 p.m. In the greenhouses the pay is approximately 130 pesos, and the day ends at 5 p.m. The greenhouse bosses say the difference is because of social security: "In a lot of places, they pay 250 pesos, but the largest firm only pays 130 and you work until 5. Why do that if you're only going to be exhausted without earning much? They say it's because you get social security."

Most workers are uncertain about job security in both the greenhouses and in the fields. Most are hired for short periods, sometimes just for the day. "My in-laws work there [in the greenhouse].

They said: 'Let's go pick tomatoes,' and I went, but they never wanted me. What am I going to do there? If they don't want you that day, you've already gone there and paid your transportation; you've wasted the day. The next day is the same: if they want you, good, you're in, but if not, you've made another trip for nothing. It's uncertain."

According to Naydelin, 17, "we earn 200 pesos a day; they pay us on Saturday. We work six days a week, but now we are working seven days a week, because the job is for a month. . . . During the week, we work from 7:30 to 2:30 and Sundays until 1:00. They pay us the same every day. . . . Sometimes we work in the afternoon and they pay extra. It depends how many hours you work: if it's an hour, it's 30 pesos extra. Before, they paid 150 pesos (a day), then it went up to 170 pesos, and now they're paying 200 pesos."

Reyna is one of the women who settled in the Autlán valley, and she has sometimes recruited women workers. She has been working for 18 years in the same greenhouse. She seemed to have the best job benefits in the group: she had a permanent job for 18 years, although she was laid off for months without any pay, the bosses are nice to her, she was the only one with social security, which came from her job as a farm worker. She owned her own house, but did not buy her house with a mortgage from Infonavit or any assistance from her employer; she saved the money to buy it and also participated in *tandas*, a type of cooperative savings and loan scheme among coworkers where there is no interest. The three women in the group who own their own homes all bought them using their savings, without any type of government or employer assistance. "I lived in the shelters, but thank God I now have my house. I bought it with my work, because I always work, I grabbed the damned contract [for the *tanda*], we do the numbers, and we put the money in on Saturday. And we get the money together and give it out by the numbers. And I paid for my house. . . . I bought it the way I could."

The rest of the women, who lived in the shelter for sugar cane workers because their husbands worked on the cane harvest, considered it an advantage to be there instead of renting. In the shelter, they do not have to pay rent, water, or electricity: they just contribute to pay for cooking gas. This complementing of the women's labor in the vegetable fields with the housing benefits of men who harvest sugar cane highlights the lack of housing support to women workers from the bosses of the tomato and cucumber fields.

Housing is not the only area where the employment of women's fathers, husbands, or sons at the sugar plantation compensates for a lack of support from tomato and cucumber employers. Another example is health care: "We have health care when our husbands work at the sugar plantation." There is also health care for the women workers in the greenhouses, but only for the days or weeks in which they work there. "Here where I work [in the greenhouses], I always have had health care. We have to sign something, they give us a paper, and they tell you to go to the office." In the fields, however, health care benefits are not provided, so the workers go to private doctors, mostly those in *Farmacias Similares* drugstores: "In the (open) fields, they don't give you anything; they don't give your health care. The bosses don't want to give it to you. When there's an accident, the bosses leave you lying there; they don't know you." Neither in the greenhouses nor in the fields do the women receive benefits such as a year-end bonus, profit-sharing, or savings fund.

The women in the group said that among the main reasons they miss work or stop working altogether is illness or lack of someone to care for their children. The illnesses they mentioned most often were diarrhea and respiratory infections. They attribute the latter to being transported to work in the early morning in open trucks.

Daycare is another important missing service in the fields and in the greenhouses. There are private daycare centers, but these

charge more than the women consider affordable. The children must be picked up at 2 p.m., but the workers do not arrive home until 4 or 5 p.m., so the schedule is not compatible with their working hours. "You work here if you have someone [to take care of your small children]. For example, I have my daughter, who I leave with her brothers. When I go to work, I tell her, 'Here's the food, heat it up and give it to your brothers.' I've heard that there is a dormitory in San Luis Potosí with daycare, [so] you can go work. Here, no: if you want to work, you have to hire someone to take care of them. There are daycare centers here, but they are very expensive. You take them there at 8 and get them at 2."

Women workers are not the ones who apply pesticides, but they have direct contact with these chemicals due to the carelessness with which they are used: men do the spraying with little regard for the women working in the fields. Although none of the women in the group said they were poisoned, they know of the risk the chemicals through the experience of people close to them. "They pass back and forth to spray, and nothing happens to me. Sometimes the sprayers are in a hurry. There are some who yell 'out of the way, lady' and others who don't say anything. You're there picking cucumbers and they come by." None of the women have required medical attention, but they have shown symptoms of pesticide poisoning such as dizziness, stomach upset, and itching, especially when the men spray without taking any care to see that the women are far away. Alma, 13, said "Yes, I have had itching when they are spraying."

Besides the risk from exposure to pesticides, the women say they are also exposed to dizziness while working from heat and exhaustion, the lack of nurses or health personnel in the fields but not in greenhouses, and the risk of traffic accidents when workers are transported by overseers in open trucks. They spoke of the constant accidents that take place when the trucks crash or turn over. They especially remember an accident that took place two years

ago in which more than 10 children died: “We saw nothing, but little coffins go by.”

Older Workers and Children

Worker productivity in hand harvesting often declines after age 50. However, older workers are considered more responsible than younger ones, and some are very productive and earn high wages. Workers over 50 tend to be more careful and are looking for stability; many are local workers employed year-round in the fields. Workers in their 60s and 70s are different. If they cannot pick fast enough, older men may be assigned to clear the fields of debris that can attract pests, especially overripe fruit. Older women are often assigned to clean bathrooms and eating facilities. For such tasks, these workers are paid 200 to 250 pesos a day.

The companies with a social responsibility approach do not hire minors under age 18, but they must deal with the problem of forged identification documents (voter identification and CURP), mainly from migrant workers. Local workers have specifically asked them to hire their children at the age they complete junior high school, from 15 to 17, or to hire a minor child using the papers of an older child who works in the cane fields. The companies also are indirectly involved with child labor if they buy produce from independent producers who hire minor children without contracts or benefits. Such children are paid in cash and transported in pickup trucks.

Job Comparisons

Focus group workers compared the working conditions in the berry fields to other jobs, such as cutting sugar cane or working in factories. The comparison to sugar cane emphasizes the differences in the work itself: harvesting berries is much easier than the physically demanding task of cutting cane. The workers em-

phasized that berry growers, not sugar plantations, paid for social security and offered job security, and that the alcoholism and drug addiction common among cane workers is not tolerated by berry growers. Women who have worked in the cane fields say that there they were sexually harassed by male workers.

Wages are another point of comparison: berry workers agree that their wages, piece rate or daily, are higher than in their previous jobs, both in agriculture—for example, picking grapes, tomatoes, jicama, or chiles—and in nonfarm jobs. Wages are the main reason people move to berries. Cane cutters earn 3,000 to 8,000 pesos a week in the cutting season, similar to berry harvester wages of 2,000 to 8,000 pesos a week. However, in the cane fields, workers receive wages and social security benefits only during the cutting season, while berry workers continue to receive a minimum weekly salary of 1,500 pesos during the low season.

Some berry workers previously worked in factories and earned 1,300 pesos a week year-round, plus social security and transportation. The wages in the berry fields are the same or more during the low season, and at least twice as much during the six or seven months of the high season. Berry workers appreciate their better wages but, when the family is large, as when the household includes small children or older adults and has only one wage earner—berry wages not enough to cover all of the household expenses.

Workers with formal contracts also appreciate seniority. Formal contracts lessen the uncertainty and instability of employment, and also provide the right to vacation time, year-end bonuses, and (with sufficient seniority) retirement benefits. Despite formal contracts, workers are laid off during the low season, especially those who work only during the harvest season and then return to their homes to help with farming tasks there. There are also temporary contracts that are renewed every six months. Most berry workers have formal contracts, but informal arrangements between bosses

and workers can allow for part-time work, with wages credited to another worker or paid in cash the same day. Under such arrangements, workers lack any labor protections.

Social security is an important change for farm workers, since many berry workers held previous jobs where they were not covered by social security and the health care it provides. Women value health care services most, and some are able to cover their partners who work in construction and do not receive benefits. However, workers use IMSS health care services only in case of accidents, serious illness, or obstetrical services owing to the time required to receive services. Rather than lose a day's work, people prefer to pay for private medical services for nonemergency care. Migrant workers prefer to use the Seguro Popular, a noncontributory health service available to the general population, arguing that its clinics are closer to their housing. In the majority of cases, workers do not know about or value the other benefits they are entitled to by law, such as retirement, financial assistance for day-care, and housing credits.

Worker-Identified Problems

Human resource managers identify problems by type of worker. They agree that one of the main problems for women is child care. Although most women's primary child care resource is their family network, in some cases this network is limited, especially if mother or sisters also work, or because a woman leaves relatives behind in her hometowns. In such cases, women workers pay for child care, but this is complicated because of the long workdays; in many cases women leave their homes at 5 a.m. and return at 6 p.m.

Formal paid labor for women represents an important source of household income. However, given women's still-dominant role as the primary contributors of reproductive labor, their incorporation into wage work imposes a double burden, requiring women to devise

strategies to meet the daily demands of social reproduction and in doing so to reconfigure existing household structures and dynamics.

Women's labor trajectories are marked by the role they play in their households. In addition to the economic needs of the household, other factors define women's participation in the labor market, including gender ideology, marital status, the ages and number of children, the household structure, and the domestic cycle. The case of women workers in the southern Jalisco berry fields is a clear example of the intersection of factors that explains their entrance into the labor market and their stability or volatility in employment.

Both the women from southern Jalisco and the migrants from Guerrero, Guanajuato and Tabasco come from rural areas where their families planted mainly corn on their own lands. From a very early age, the majority helped to plant and harvest corn and beans on family lands, performing unpaid family labor. The women from Jalisco started receiving wages between ages 12 and 17—in one case, a woman administered her family's lands but received no payment until age 29. Those from Guerrero began paid work between 9 and 23 years of age. The women's work history includes a gap in wage work when they had children. The main difficulty in working outside the home is having small children. In this nonemployed interval, the gender roles that define the man as the principal provider of the household enter into play. This is clearly observed in the life histories of older local women, who say they had to leave work when they went to live with their partners because the men would no longer allow them to work.

Older local women returned to formal wage work when the older children were grown but there are still children in the household. One of the main arguments for returning to wage work is the lengthening of the educational trajectories of the children. As more children are studying longer, expenses increase for uniforms, school

supplies, transportation, and meals. The income of the male provider may be insufficient or nonexistent, as in cases where the couple has separated or because of economic violence, where the provider refuses to pay as a form of control over household members.

Women return to wage work because there is a greater demand for income when children continue to study and less need for in-home care of small children. In particular, the traditional role of older daughters means that they take on responsibilities for household labor at an early age: one of the strategies employed by local women to return to their employment trajectory and complement the household income is to delegate domestic responsibilities and care of the younger children to the older children. In other cases, women turn to relatives for help with household tasks and child care, especially to their mothers or sisters. This is particularly true for younger local workers who have young and dependent children. The extended family invests in child care, and is repaid with money and goods, as when young children are cared for by grandmothers and repaid with care when they are ill or have needs related to their age. The same strategy is used by migrant women who are forced to leave their children behind, partly because of the prohibition of child labor in the berry fields, but also because of the housing conditions, the lack of access to education, and the lack of family or social networks. Large export firms and producers do not allow minor children in worker housing, though small producers do. However, mothers say that the crowding and hygienic conditions in some of the houses make it difficult for their children to live there.

Although there are schools in the region, women say the distance from their homes to these schools, the incompatibility of their schedules with the school day, and the lack of support to take their children to school and pick them up are all significant obstacles to bringing children with them. For this reason, the majority of migrant farm workers leave their school-age children at home with a relative. Those who migrate with their children or become

mothers during their time in the region have created paid child care networks. Among the mothers who migrate from Guerrero to work in the berry fields, one might become the child care worker for the others, who each pay her from 200 to 300 pesos a week. Women do not consider using the IMSS-run daycare centers because of the incompatibility of schedules, the lack of openings, and the distance of these centers from their housing. They also lack knowledge of the procedures involved in registering a child at the centers. Of all the women studied here, only one referred to the existence of a daycare center in the fields, and only 6 percent of the farm workers in this report's national survey reported having effective access to the IMSS daycare centers.

Migrants have much weaker support networks than the local women, which makes it more difficult for them to enter and stay in the berry fields, even when their labor has been transformed into a highly important source of income for their households—a steady income that allows them to save, to build, or to invest in land. It is a resource that cannot be mobilized without a support structure to relieve them of the burden of domestic labor and child care that falls upon them as women.

Altering the paradigms that make women primarily responsible for reproductive labor requires profound changes on the social structural level. On the microsocial level, women's working conditions can be improved, and their access to employment facilitated, by providing daycare centers, school transportation, and subsidized eating facilities or meals in schools and daycare centers. The conflicts between formal wage labor and reproductive labor make it impossible for many women to enter gainful employment, reducing household incomes.

Another difficulty for women is to harmonize paid and domestic work with study. The way they combine work and study depends on the modality of study (if local colleges provide both full- and



part-time options), their role in the home and working conditions in the fields. Local women prefer to work on the fields during the summer or winter holidays and often part-time. Part-time work makes sense if the growers allow it and if the fields are nearby. Those working during the summers or holidays only use their pay to cover university expenses, supplemented by help from other members of the family in case their savings are insufficient. Options include the Tech at Tamazula, which provides flexible and weekend courses as well as some courses partially or wholly on-line. The women ask for permission to be absent on Saturdays.

The human resources directors say that older adults experience health problems: apart from the difficulty of the work itself, there is the fatigue from being away from home for more than 12 hours each day and not getting enough sleep. The case study of Beatriz presents an example of how certain gender and age issues can combine. Young workers, by contrast, move from field to field to maximize their earnings, and a company cannot rely on them to stay. In working in different fields, including those of independent producers, they also learn “bad practices” like theft and drinking too much. The mobility of young workers and migrants means that in some cases the labor force in a field is reduced, especially at the height of the harvest season.

Case Study Conclusions

Firms associated with export associations (“formal firms”) have developed a social responsibility approach to labor management that differs from the approach of independent or “informal” growers. Many focus group participants did not distinguish between formal and informal growers, instead classifying their jobs as “open field” and “protected farming” (in greenhouses or plastic tunnels). In their view, labor laws are enforced in protected farming but not in open field agriculture.

- Among formal firms, workers were between 18 and 81 years of age, while among independent growers the age range was 14 to 50. Formal growers contribute to IMSS and offer other benefits, but benefits are much less frequent among informal growers. Formal workers say their IMSS coverage is effective only two to three months after being hired. Some protected agriculture firms employ nurses on site for minor health problems or accidents.
- In both formal and informal firms, some workers did not attend school, or did not finish their primary education. Among formal firms, some of the workers attended or finished postsecondary education. Training is mostly worker-to-worker. Cooling, packing, and exporting companies, however, conduct specific training sessions.
- Working days are normally eight hours, with an hour break. During the harvest season, the workday can extend to 12 hours, offering higher total earnings through a combination of piece rates and additional hour incentives (each firm differs). Work in berries offers the highest wages and working conditions, even better than factory work in some cases.

- The case studies and focus groups reinforce survey findings that wages in Jalisco and Michoacán are higher than elsewhere, Sinaloa wages are above average, and Guanajuato and San Luis pay lower-than-average wages. Fruit picking is the best-paid activity. Soil preparation, planting, plant care, and maintenance work are lower paid but less strenuous, and may be available year round. Most focus group participants earned 150 to 300 pesos per day, as they were employed by companies that paid a fixed base wage and then added incentives based on punctuality and productivity. Some complained that wages have not improved significantly.
- Workers were asked to compare working conditions today versus a decade ago, and all stressed the disappearance of child labor and more scrutiny of new hires. Child labor exists in “open field” tomato and cucumber agriculture, but focus group participants said there was no child labor in protected agriculture, except for a few women reporting they entered protected tomato agriculture with another person’s identification.

Underage workers sometimes forge or borrow identity documents that make them appear older. Personnel managers can be restrictive, demanding photo identification and rejecting all documents that are not exact matches, or they can treat all worker-presented documents as authentic. Local workers sometimes ask their employer to allow their children to work, usually after *secundaria* or ninth grade. Social security health benefits cover the worker’s spouse and their minor offspring. Parents may ask an underage child to pose as an older brother who is already working elsewhere but without social security coverage. Thus, an adult child working in sugar cane (without social security) can gain the protection of IMSS.

According to employers and managers, temporary migrant workers are the least stable because they choose where to work based on the net wage offered in each field. These workers often work for three or more firms during one season, including formal and informal growers, and pay little attention to job benefits and social security. In San Luis, some temporary migrant workers complained that they are not paid in full every week, but instead receive the balance of their wages at the end of the season. Employers argue this allows them to return home with savings, but it encourages workers to stay with one company for the entire harvest season.

Workers over age 50 were once rare, but older workers have become more common; workers use the verb “to fifty” to signal an age after which farm workers are different. Workers over 50 are considered to be mature, disciplined, and trustworthy. At certain tasks, they can also be more productive, and thus earn a higher wage. A worker over 50 can make 600 pesos a day during the peak season, or twice as much as an inexperienced young worker. Older workers are prized because they are reliable, and are often employed year-round. Workers over 60, however, are carefully screened before they are hired. If they are very fit, they can do farm work similar to younger workers. If they are not fit, they are assigned cleaning jobs or kitchen and bathroom jobs. However, long work days plus transport to and from the workplace can make older workers very tired. Compared with older workers, younger workers (18–30) change jobs frequently, acquiring bad habits such as sneaking out or eating fruit, stealing tools, or drinking and fighting. Some human resources managers prefer to hire young workers without field experience to avoid hiring workers with “bad habits.”

Women are almost half the workforce in Mexico’s agricultural export industry, and many appreciate that export agriculture offers good jobs for them. However, child rearing limits their ability to engage full time in farm work. Women must pursue specific strategies to do farm work, strategies that vary depending on migrant

status and social networks. Local women farm workers rely on family networks to help them to do domestic work and care for the sick, children, and the elderly. It is mostly women's mothers and eldest daughters that take over these responsibilities, thus lessening their chances of earning wages.

Most temporary migrant women leave their children in the care of relatives in their hometowns. Official child care is not available because there are no openings for migrant children and the opening and closing times of child care centers do not match their working day. Many migrants do not trust IMSS care centers. Women instead look to each other for child care, paying another woman in cash to care for the children of several women workers. However, women value the subsidized meals provided by some farm firms, since this allows them to sleep longer in the morning and provides them with balanced meals. Women berry workers noted that berry firms do not tolerate sexual harassment.

- Some workers in protected or formal agriculture report that they and their employers contribute to Infonavit, the government housing fund, but none has used Infonavit for a housing mortgage or other assistance. Some temporary migrants are lodged in company housing. Most focus group workers were assigned housing by their recruiters or contractors. Some employers pay the cost of housing, while others deduct housing costs from worker pay. The quality of company housing varies, but it is generally better than the housing provided by recruiters or contractors.
- Some workers, especially women, complained they had symptoms after entering fields after they had been treated with pesticides. The most common symptoms were headaches, nausea, skin and eye irritation, and vomiting.



CHAPTER

9

CONCLUSIONS

This benchmark study of Mexico's export agriculture found that almost all farms producing fresh fruits and vegetables to export to the United States are in compliance with Mexican labor, tax, and similar laws. Most farm workers earn two or three times Mexico's minimum wage, most export-oriented farms do not hire workers under age 18, and more than 80 percent of workers who were interviewed plan to return next year to fill seasonal jobs in export-oriented agriculture.

Labor issues were most common among migrants recruited to work far from their usual homes. It is not clear whether the gaps between the verbal promises made to workers and workplace realities were deliberate or caused by misunderstandings, but it is easy to imagine that recruiters with incentives to attract workers to board buses would make promises that stretch the truth. As the share of migrants in the export-oriented labor force grows, more regulation of contractors and joint liability between farms and the contractors who recruit for them may be necessary. Worker experience may also help to minimize abuses, since workers should soon learn which contractors and farms are reliable and which are not, and spread that knowledge through their social networks.

This was a collaborative project, conducted with the advice and support of industry, government agencies, NGOs, and other interested stakeholders. These groups had various definitions of worker exploitation and abuse, but all agreed that a win-win strategy to maintain and improve worker protections and access to export markets for Mexican fresh produce would be beneficial to workers, growers, and the Mexican economy. One goal of the project was to aid other actors to minimize trafficking and other abuses of workers on Mexican farms exporting produce to the United States. The 3P strategy to counter human trafficking involves prevention, prosecution, and protection. The best prevention is the power to say no to dubious job offers that involve migration, uncertain wages, and inferior housing. The most powerful defense against exploitation for all workers at all times is having good alternatives.

The number of rural Mexicans willing to migrate to work in agriculture is shrinking. Younger rural residents are obtaining more and better-quality schooling, which shrinks the pool of workers vulnerable to trafficking. Conditional cash transfer programs known as Prospera (previously Oportunidades and Progresa) provided cash to 6.4 million households with a total of 26 million people in 2016. Prospera provided cash payments to mothers who keep their children in school and to ensure they have regular health checkups, making their families less vulnerable in the short term and more inclined to seek alternatives to seasonal farm work in the long term. Prospera reduced migration by requiring recipients to remain in one place to receive full benefits. In 2019, the AMLO government eliminated Prospera, but launched three new similar programs whose migration incentives are unclear.

With fewer Mexicans migrating to fill seasonal jobs on export farms, Central Americans may begin to fill the void. US farm wages are about 10 times Mexican farm wages, and Mexican farm wages are about 5 times Central American farm wages. About 300,000 Central Americans moved into Mexico in the past several

years, most aiming to apply for asylum in the United States. As the United States pressures Mexico to make it more difficult for Central Americans to enter and travel north to the US border, and requires Central Americans who apply for asylum in the United States to wait in Mexico, Central Americans may begin to replace Mexicans in the fields. Some Central Americans are applying for asylum in Mexico.

Central Americans would represent a third wave of migrants in Mexican export agriculture, after local workers and internal migrants. California's agricultural history demonstrates that waves of newcomers with few other job options arrive, fill seasonal farm labor jobs for a decade or two, and then move on to better nonfarm jobs. One universal pattern is that children who are educated in the areas where their parents do seasonal farm work rarely follow their parents into the fields. Changing the farm labor market to convert jobs into careers for hired workers has proved to be a wicked problem that no society has dealt with successfully (Martin 2017b).

Migrants are the most vulnerable workers because their lack of options at home is a driving force behind their decision to migrate. The US Senate Subcommittee on Migratory Labor observed in 1960 that most of those who migrate do so by necessity rather than choice until they have better options, concluding, "No large group of migrants has ever remained permanently migratory . . . [so] people are not migrants by choice." (1960, p. 7). The policy question is how to protect workers until the pool of workers willing to be migrants falls enough and market forces put upward pressure on wages and working conditions. Until migrant workers have local choices, farmers should take more responsibility for recruitment. Farmers with significant investments in facilities to produce export commodities would take more responsibility for the hired workers on their farms if they were liable for *all* labor law violations committed on their farms, including violations committed by contractors who bring workers to farms. Governments often regulate

contractors by requiring persons who recruit, transport, house, and supervise workers to pay a registration fee and sometimes to undergo background checks and pass tests on farm labor laws before receiving licenses. Ultimately, buyers of Mexican produce must insist that adherence to labor laws on their supplier farms is as important as adherence to food safety protocols. If buyers purchase only from farms that comply with labor laws that protect farm workers, market forces and joint liability should reduce the roles of potentially exploitative contractors in Mexican agriculture.

Mexico's export-oriented agriculture is changing for three major reasons. First, the AMLO government is committed to reducing extreme poverty, which is concentrated in rural areas. Minimum wages have increased significantly in real terms over the past three years, for a sharp break from stable minimum wages for more than two decades. The government recognizes the need to improve training for youth joining the labor force, and may extend the existing apprenticeship program "Youths Building the Future" to agriculture. Stagnant or falling real wages were a significant factor contributing to making Mexico the most unequal economy, in terms of income distribution, among the 35 OECD member countries. The benefits of economic growth have accrued largely to the already wealthy and better-educated workers. Improving wages may reduce income inequality, but minimum wage laws must be enforced in agriculture and throughout the Mexican economy to raise wages and incomes.

Second, in summer 2018 major agricultural organizations released an ethical charter (www.ethicalcharter.com) to encourage growers to adopt and enforce responsible labor practices. Produce buyers are expected to enforce the ethical charter by refusing to buy from noncompliant growers, just as failure to follow food safety guidelines leads to loss of sales. The renegotiated NAFTA, known as the United States–Mexico–Canada Agreement, does not change the underlying economic logic of integrating the North American

produce industry, but may put upward pressure on wages in Mexico and spur more US growers to accuse Mexican producers of dumping fruits and vegetables in the United States.

Third, Mexican agriculture has embraced protected culture, which means producing fruits and vegetables in greenhouses and under plastic-covered hoops. Protected culture production raises yields and lengthens seasons, justifying the higher capital costs for growers and creating longer season jobs for workers.

More data is needed to understand wages and working conditions in Mexico's changing export-oriented agriculture. The farm labor picture could change suddenly if recession reduced grower prices, if Central Americans added to the supply of farm workers, or if buyers relaxed requirements and the Mexican government reduced the enforcement of labor laws. Our 2019 snapshot finds that export agriculture provides good jobs for workers with little education, but in a labor market that could change.

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APPENDIX: WORKER PROFILES

Alejandro

Alejandro is 26 years old, comes from Sayula, Jalisco, and works as a nurse in a raspberry field. His parents are from Tapalpa, Jalisco. His father is an *ejidatario*, a farmer on commonly held land, and his mother has never attended school. When they had their first two children, they got a plot of land in Sayula and went to live there. According to Alejandro, his father treated his mother very badly, beating her at times, but she was very much in love with him. In time they had another child, and then Alejandro and his fraternal twin. Sometime later the family realized that his father, who traveled regularly to Tapalpa because he had land there, also had another family there, a woman with whom he had 10 additional children. His father “showed more consideration to them”: he left them his lands but left nothing to the family in Sayula. Alejandro says this is just as well, that he wants nothing from his father since he has caused the family many problems.



Given these circumstances, Alejandro’s mother had different jobs, even though she had not studied “even kindergarten”: she ironed, cleaned, and did housework; sold Avon and Jafra cosmetics; and took occasional work in the fields. She worked to provide for her children and help them as much as she could. Alejandro says that although he and his siblings went through periods of rebellion and made her angry, and her husband treated her badly, she continued doing her best. One of the regrets he expressed during his interview was having acted badly with his mother at the same time that his father acted badly with her. She helped them to continue

studying, so much so that the two youngest “even wanted to go to the university.” She felt that the latter would not be possible, but they managed to do so anyway, even though their father objected.

Alejandro’s mother continues to work. “She still doesn’t rest,” he says, although all of her children appear to have sufficient income. He has told her she should stop working, but she continues. He does not insist because he thinks that if she was no longer busy she could become depressed, something he has seen in other families. The older children live in Tijuana and have their own families to support, but the three youngest support her and help to take care of her, since they live nearby.

Alejandro’s work history began when he was a child, and he has worked in the cultivation of corn, broccoli, string beans, cucumbers, avocados, tomatoes, and berries. At the age of 10, his father sent him, his twin brother, and their younger brother to work. They got up at five or six in the morning, mostly to avoid the heat of the sun on their way to work. They traveled about four hours, and they made the trip alone because the fields where they worked were between Sayula and Tapalpa: they left from Sayula and their father from Tapalpa. There were dangerous animals along the route, including jaguarundis, which had killed livestock near where they passed, though fortunately they never saw one. They might also have encountered rattlesnakes, coral snakes, and bobcats. For their parents, it was nothing unusual, since they had grown up in the country, but for the children it was unsettling.

On the land, they worked with their father planting corn. Alejandro and his brothers were in elementary school, so they worked on weekends and during vacation periods. A couple of times they stayed in the field to protect the crop; although their mother stayed with them, they could not sleep because their dogs barked

at the wild animals that approached. For Alejandro, it was a frightening experience.

Alejandro also tells how some time later, he and his brothers discovered their father's plan to have his sons plant on the periphery of the plot. The deer, wild boar, and badgers from the mountains would eat or destroy those plants, leaving intact their father's share, which he could then take to his other family. After four years, when he and his brothers were in junior high school, they decided to tell their father they no longer wanted to work with him. He reacted badly, telling them that they were lazy, that they were old enough to work, and that they had to help their mother. They decided to look for work in the fields, partly to help their mother and partly to be able to buy things for themselves.

They began to work for the company where their mother worked, which grew broccoli, string beans, and cucumbers. The company hired minors, and they could work on weekends and during school vacations. They picked string beans and were paid by the container. For Alejandro, it was hard work: the plant is small, and they had to stoop all the time. After the string bean harvest came the broccoli season, but their mother did not work then because it was even more difficult than picking string beans. According to Alejandro, broccoli grows in the cold and must be wet all the time, so it is always damp, cold, and muddy. The broccoli is harvested with knives, without gloves, and there is always a risk of being cut—if you are cut you can no longer work, and you are not paid. On the same farm, Alejandro also worked in the cucumber fields. There, too, there was no protection, and when the guide was removed you could hurt your hands on the spines.

With this company, the wages depended on how much you harvested, so they were highly variable. Alejandro estimates that each worker earned about 100 pesos a day, and thus about 800 to

1,000 pesos a week, depending on their productivity. They were paid by the week for string beans and 120 pesos a day for broccoli and cucumbers. He worked with this company for three or four years, and then moved to Campo Bonanza, where he worked in an avocado grove. That company also hired minors for weekends and school vacations. He and his brothers dug holes to transplant avocado trees: they had to plant 200 trees a day, and were paid 120 to 150 pesos. He says this was also very difficult work, but luckily they were soon transferred to working with tomato cuttings. Their job was to keep track of the flats that went out and retrieve them. He says he never liked working in the avocado grove, but this job, in the cool, enclosed greenhouses, was more comfortable. They worked there until one day a Chilean engineer arrived and fired all of the students. Alejandro is angry as he recalls that event: he says the engineer was foul-mouthed and unpleasant.

Next he went to work for Novasem, which he says grew corn. There the dynamic was different: they were assigned to fill three or four trucks, and when they finished they could go home. Sometimes they finished at noon, whereas in almost all his other jobs the end of the day was at 4 p.m. They were paid 15 to 20 pesos an hour for overtime; he says that companies now pay overtime at about 50 pesos an hour. At this company they also planted, removed the flowers, and did experiments on small plots with hybrids. There he saw around 10 varieties of corn. He says he liked the work, that it was interesting. The pay was more than 1,000 pesos, sometimes 1,200 to 1,500 pesos a week.

When he started high school at the CBTA (Centro de Bachillerato Tecnológica Agropecuaria), an agricultural technical school, Alejandro also started working in the berry fields, alternating with his work in the corn fields according to the season: the warm and rainy season with corn and the winter with berries. He says that the berry season gradually expanded to include the entire year. He decided to take on seasonal work in the berry fields because he

realized it paid better: some workers earned 6,000 to 8,000 pesos a week during the harvest. He did this work for 8 to 10 years, beginning at age 16 with a company called Hurst that grew raspberries. His mother and brother went with him to work there, but they laid off his mother when production declined. He and his brother stayed with the company; he picked the berries and his brother packed them. That is where he realized that work in the berry fields was not as difficult and that the wage depended on the amount of berries a worker picked. Later on, he went to work at other raspberry fields

He also worked with cranberries, in this case not picking but packing them; in this work he learned to identify quality cranberries. He worked with his brother at Driscoll's, and later with two varieties of the fruit at Rancho La Frontera, a producer for Driscoll's. He also helped his mother with strawberries, but only on weekends, so he did not learn much about them. He had only known how to harvest what his father had taught him; along his work trajectory with these different companies his coworkers taught him the techniques for various crops.

While Alejandro was working for Novasem, there were times when it was his job to explain to the other workers what they had to do and why. It was here that he discovered that he wanted to teach. For that reason, he decided to continue past high school and go to college. At first his mother was unable to help him pay, so he paid the cost himself. He wanted to be a teacher or study something related to health. He and his twin brother both applied to the Normal Teachers' College, but neither one was accepted. He was discouraged because some of his acquaintances were accepted, including some he considered "lazy."

Instead of waiting a year to reapply, he and his brother applied six months later to the Centro Universitario del Sur (CUSur) of the University of Guadalajara. Only Alejandro was accepted. He

continued working during vacation periods to save the money to pay for his studies. The first semester went well, but the second was more complicated because students had to buy uniforms and equipment, and the money he had saved was not enough. That semester his mother helped him. That was the only time he asked for help: the rest of the semesters he stopped contributing to household expenses, but he did not ask for money.

Alejandro says that it was not difficult to finish his degree because he organized his life to study and work. When he finished his nursing degree, he applied for work at the IMSS, the government health service, but they told him they gave priority to the relatives of people who already worked there, so he would have little chance. He wanted to work for a government institution because he believed it would pay better than a private hospital. He looked for work in Ciudad Guzmán, but the pay was 1,200 pesos a week, which did not seem a fair wage to him. Some of his classmates accepted jobs where the pay was not very good because they did not want to lose practice, but that did not matter to him because he believed he had acquired the necessary knowledge through study.

Alejandro has the idea that even with a specialization in a particular area, it is not necessary to work at it exclusively—that it is a valid option to study more than one thing. For that reason, while he is working as a nurse in the raspberry field, he is considering studying agronomy in order to work in the fields, but in a different type of job, one giving orders and not doing the work of the harvest. He considers himself a good leader and boss; he says that in these kinds of jobs it is necessary to know how to treat people, something he knows well. He says that in his many jobs, he has encountered people at higher levels who not only do not know how to treat people, but also seem to work at treating them badly.

When he worked in the fields, he had the opportunity to be squad leader, but he says that it was a lot of responsibility because he

had to keep track of other people. It also paid less than working on the harvest. He currently works as a nurse for a raspberry field, where he worked as a farm laborer and earned the money to pay for his studies. His salary is 2,000 pesos a week, and he is in charge of occupational safety: he walks through the fields and calls workers' attention to the performance of their tasks.

It was Alejandro who took us on our first tour of the raspberry field at a large berry-growing company, employing more than 5,000 workers. During the tour, a dog appeared among the raspberry bushes and vomited. Unlike the company's other fields that we had toured, this one had no one in charge of food safety. Alejandro caught the dog and asked one of the workers to remove him from the field. In his interview, he mentioned the situation and said:

Since I am from occupational safety, I also take charge of this type of situation. It's really the job of food safety, but this animal is not allowed on the farm, and as occupational safety . . . if the animal were aggressive it could also hurt a worker, so I have to take charge of these situations and yes, to give the instructions to [get rid of it]. Since it vomited, that can't be here, because what the dog vomited could contaminate the soil and the plant might absorb it. It could contaminate the fruit and that isn't healthy.

It was not the first time such a thing happened, and the other times he also was the one who got in touch with the person in charge of food safety.

As a nurse, Alejandro tries to organize his time in order not to have too many patients to see in a short time. Unlike a hospital, he says, "it is not the most difficult work. There are times when they all come at once, but I try to organize myself to get it done." During the interview, he saw a farm worker, more than 50 years old, originally from Sayula, the father of the young woman who works in the field office. As the person responsible for occupational safety,

he walks the fields, identifying areas of risk to avoid accidents. If he finds problems, he asks the section heads to resolve them, or he can order immediate action. In addition to his work as a nurse, he also has a business at home: a small grocery store he and a friend invested in. Every day after work, he goes to the gym, and then takes his turn at the store.

Mario

Mario is around 50 years of age: “Maybe I’m 49 or something like that.” He is from Tala, and lives with his second wife and his father, who is over 80. Mario is a supervisor in the Las Hormigas field of a large company.



His father and mother are from San Pedro Apulco, close to Nochistlán, Zacatecas, and came to Tala to work. “Hunger brought them here,” he says. When they arrived, his mother was pregnant with his older brother. “They got here and had to rent a place and live wherever they could, because when they got here, there were no houses in Tala.”

When they arrived, Mario’s father began work on the sugar plantation; at that time, “they didn’t burn the cane, they cut it raw. . . . It was harder work then, not like it is now . . . when they set fire to it all and then cut it.” Mario’s mother worked in the sugar cane with her husband while she was pregnant with her first child; after her first child and subsequent pregnancies, she could no longer work.

Mario cannot remember the exact age at which he started to work in the cane with his father. Rather than mention a specific age, he says: “Since I could hold a machete or whatever they gave us to cut [he moves his hands as if he were cutting sugar cane], alright. That’s the age I started at.” Guessing, he says, “maybe I was there

helping in the cane at six or seven, because the older ones didn't want to help anymore, so now it was the younger ones." His father's only work was in the cane in Tala, and "my father worked his whole life for one boss. There he got his pension, there he retired. But ever since I can remember, he started . . . to hang around the bosses, and of course he always wanted us to work there with the same bosses he had." Mario remembers that his father was paid very little; he realized this because his father's pay was only enough to buy the house where they live now, but not enough to buy food, or for him and his brothers to go to school. "I said no—how could I work where my father worked? To follow him and be the same? I won't even be able to afford to eat, because I saw at home that we couldn't afford to eat." They ate beans and tortillas every day. "When my father had money, he bought a little piece of meat, and it was rare that we ate it. We just had a little of the grease that dripped off, yes, to get the flavor of the meat." For 15 years, they lived on a ranch belonging to his father's boss on the outskirts of Tala.

Growing up, Mario began doing errands for neighbors when he was not "helping" his father in the cane fields, in order to save some money to buy shoes and a knapsack for school. "Beginning with school, there were battles with my parents because there wasn't any money even for a knapsack or shoes. I went barefoot to school. I was more ashamed of my shoes with holes than going barefoot. It was better to go barefoot. My knapsacks were these [he grabs the plastic bag containing his lunch]." Mario organized his days into working on the sugar plantation, doing errands, and school. He woke up at 5 a.m. to go work with his father in the cane fields. At 11 a.m., he returned home with his father to run errands before going to school: "to the store, to buy tortillas, to the mill . . . wherever, to earn a few centavos. And that's what I did growing up."

Mario's father did not learn how to cut sugar cane until he came

to Tala, because in Zacatecas he had grown corn and chiles. His father taught him to work the fields: to clear the ground with a hoe, with a machete, or by hand, and to irrigate. "That's how he taught all of us brothers, working in the fields. He always brought us there, even if we didn't like it, sometimes hitting us, 'Come on!' . . . Sometimes we didn't want to go with him anymore, and [he'd say] 'What do you mean? Come on, you have to get up.' You had to go." Since he started working with his father, Mario has helped him cut the cane. "He said to us, 'You know what? You have to do this furrow and you have to keep up with me.' And you had to hurry, because if you didn't, my father was like, 'You're not listening to me?' . . . and boom, you got whacked with a piece of cane."

Mario always thought he would work, not study: "I wanted to work, earn some money, because I saw what it was like at home. I said 'No, I don't want to be here studying.' He was expelled from the third grade for throwing rocks at the teacher. He lost a year; he was not allowed to return until the beginning of the following school year. "I said to my mom, 'Don't send me back. I don't want to study; I want . . . to work.'" The year he did not go to school, Mario worked with his father in the sugar cane, and his father received his wages. "They paid him. . . . Actually, that's why I was thinking a lot about working for myself. Because I saw my brothers, who were already earning their own money working in the cane." He was expelled again from the sixth grade for not paying attention. "I just spent my time thinking about work. And for that, just two or three years more. . . . I was 10 or 11, and I wanted to work because my brother-in-law makes fireworks." First, his older brothers went to make fireworks with his brother-in-law, and then he followed. "Before, they were underground; they worked at home. Before, there were no permits like there are now, where they work away from populated places." Mario's mother asked him just to finish elementary school, and then he could go work wherever he wanted. "I worked hard to finish that year. Then they kissed me goodbye and it was over. I left for the gunpowder." At

first, he made the cardboard molds for fireworks and filled tubes with clay. "So that was my job when I started, but when I saw that and saw what the others were being paid, I wanted to do what they were doing in order to make more money." He combined the work with cutting sugar cane: the cane in the morning and the fireworks in the afternoons or evenings.

When he was 13, Mario started cutting cane by himself. They paid him by the week and he gave all his wages to his mother. "I didn't tell her, 'Take this.' I said, 'Look what I earned. Now you give me what you think is mine.' She wasn't like my father. If I had said that to my father, he would have taken it all, but my mother no. She said, 'Look, you earned a lot, take some to buy clothes, buy what you need.'"

Mario's father has never approved of his work making fireworks. He is 90 years old and still does not like that Mario, his sister, and his nephew do this work; he would rather they work in the fields or in a factory. Mario was earning money both from cutting sugar cane and from making fireworks. This meant he was earning more than his father, which made his father furious. Their arguments began when Mario turned 15 and shortly thereafter started to drink. "My friends said, 'Have a beer,' or 'Have a cigarette, you've earned them.' But my father gave me nothing but beatings when I started to do that. They were beatings that . . . my mother had to treat the wounds on my back." His father beat him with a rope or with the fan belt from a truck or a tractor.

Because Mario drank so much, they sent him to a rehabilitation center for a year, during which time he did not work. "They had us do stuff there, anything . . . go out with a cup and ask for money, things like that." He stopped drinking and has not had a drink for 20 years now.

Mario returned to his parents' home on his mother's birthday, a day before she went to the hospital for uterine cervical cancer. No one in her family knew she was sick until the cancer had spread;

she got no treatment from the time she was diagnosed until just before she died. She was the only one who knew she was sick; although she had social security and health care, they never had medication, and she did not want to ask her husband for money. “Maybe she was afraid to ask my father for money. . . . He was really difficult with money. She told him what she spent almost every day.” After a month in the hospital, his mother died, at the age of 51.

Mario continued to live in the house with his father, including after he married his first wife. He continued to combine the paid jobs of cutting cane and making fireworks, and complemented them with activities for his own consumption: hunting, fishing, and growing corn. During one of the breaks in the sugar cane season, Mario and one of his friends saw an advertisement from this company for workers to clear fields and construct a cranberry greenhouse. Because it was the off season for sugar cane, they arrived to find a long line of people looking for work. They were given picks and shovels and began clearing brush.

Mario has been at the company’s Las Hormigas field for four years, since it began production. Octavio, the field supervisor, trained him. Mario likes the work with cranberries, especially for the wages he gets for the harvest. He became Octavio’s right-hand man, so that when Octavio was transferred to a much larger field in Cuxpala, he recommended Mario to the bosses to take his place. Mario has had a contract for two years now as field supervisor at Las Hormigas. He earns 8,000 pesos a month, “4,000 less than a harvester,” and much less than what he sometimes earned cutting sugar cane. But he stays at the job because of the confidence Octavio and the owners showed in him, putting him in charge of Las Hormigas. He does not rule out returning to the sugar cane, where he says it is possible to earn up to 8,000 pesos a week, “although the work is harder—but if you like to work it doesn’t seem like much.”

Felicitas



Felicitas Acoltzi is 47 years old. According to her grandparents, the name Acoltzi is Náhuatl, but she does not speak that language. She is originally from Cuichapa, Veracruz, but she has lived for the last four years in Sayula, Jalisco.

In Cuichapa, she and her family worked on the San Nicolás sugar plantation, but, she says, “there is no life there. Yes, there’s work, but they pay very little. For a whole day they pay you 100 pesos, 120 pesos.” Her father has a plot of land where he grows Iberia coffee, but production is inconsistent: not every year brings a harvest, so it does not provide the family with a dependable income. “He has a little piece of land where he grows coffee,” she explains, “but you don’t get much from it. He says one year there’s coffee, the next year nothing. This year he got nothing, not a single coffee bean.”

Felicitas got married in Cuichapa and had her first child at age 17. One year and eight months later, she had another. There were times when her husband did not return from his work growing chiles: sometimes months went by without seeing him. “My husband worked in the chile fields and was gone for months, he didn’t come home,” she says. When he was not at home, she had to support her children: “I went east, like from here to Sayula. I went there and worked with people . . . to wash dishes, to do cleaning and stuff, and that’s how I made some money to buy something for my children, because there were two, I mean, there are two.”

When her children were approximately six and seven years old, Felicitas decided to take her children away from her town: “I left my town very soon because I didn’t want my children to suffer the same as I had, that’s why.” She believed that if she waited for her husband, he would only give her more children to support: “I got mad at him and said, ‘Oh, why should I wait around for him to . . .

then I'll have another kid, and another, no, no, no.' I said no, and I came to . . . Sinaloa." The farm where she worked, cultivating string beans, chiles, tomatoes, onions, eggplant, and tomatillos, had a daycare center for her children and also health insurance, but the company no longer exists.

From Sinaloa, Felicitas went with her children to La Paz, Baja California, where she worked in the fields cultivating tomatillos and chiles. Her children were now older, and they went to the CON-AFE [Comisión Nacional para el Fomento a la Educación; National Commission for the Promotion of Education] school located in the fields. One of her children learned to read, but the other did not. There they had medical insurance and lived in a dormitory in the fields. Later, she returned to Sinaloa, but it was not as "nice" as before, so she went to Ensenada to work in the cilantro, tomatillo, radish, strawberry, and vegetable fields. From there, she again went to Sinaloa, and then to Sayula, Jalisco. In Sayula, she went to work in the tomato fields, but she did not like working there because the bosses were strict and did not pay well. A woman who worked at the berry fields suggested that she apply there, and she has now been working in the raspberry fields for four years.

During her migrations, Felicitas met a man from Palomares, Oaxaca, and the two started a relationship. "I found someone," she says, "and yes, we talked and everything, and I was alone and so was he. And there I was, we went out, and eventually decided to get together. And now I have another child." They had problems registering the child and getting his birth certificate because when her partner worked in the vineyards in Hermosillo, there was a fire in the dormitory and he lost his documents, including his own birth certificate. Without a birth certificate for their son, he could not be enrolled in school, and he was left behind. They could not get the birth certificate until her partner could travel to Oaxaca to get a new copy of his own. By that time, their son was ten years old. He had gone to classes in the fields, but he was not formally

enrolled and could not receive a diploma. He is currently studying in the "open school," where they give him books, he studies at home, and eventually he will take an exam. Felicitas sees in him the ability to study computers and drawing; she hopes to send him to classes to develop his "potential."

Felicitas and her partner have now been together for 15 years. He has read books on veterinary medicine and learned about animal care; he now takes care of roosters and gives them vitamins. When he was working in Sonora, he had an accident: he tripped on a rope getting onto a horse trailer and fell, injuring two vertebrae. He can walk but not bend over, and he is sometimes in pain.

Felicitas says her current job in the raspberry fields in Sayula is better than her previous jobs. She gets along well with her bosses, the pay is good, and it increases when there is a lot of fruit: she can make more than 3,000 pesos a week at harvest time, but less than 2,000 pesos at other times. She has social security, but has registered only her son because she and her partner are not legally married; he goes to the Seguro Popular clinic, especially when he is in pain. She is not sure whether she has Infonavit home loan assistance, but she hopes one day to buy a small plot of land in Sayula. Her jobs in Tijuana, Ensenada, and Sinaloa paid much less and the rent was expensive; she also believes that those jobs would no longer hire her because of her age. "At my age they wouldn't take me," she says, "because I'm 47 now, and they want workers younger than 45. When you're older than 45, they don't want you anymore. No, because my brother-in-law, my partner's brother, is a contractor, and when he's going to take people to Oaxaca, to Veracruz, and to Chiapas, they tell him not to bring older people."

Felicitas lives in Sayula, behind the Coppel store, with her partner and their children in a rented house. She says they have no problems with the neighbors because they hardly ever see them; she spends almost all her time working. When she gets home after

work, everything is clean and sometimes there is even a meal ready: her son or her partner takes care of that—her partner when he is well, because sometimes his back pain is worse. She also does some housework when she is at home, but with the help from her family it is less than it would otherwise be.

Recently, last March, her father, mother, brother, and sister-in-law came to live with them. Her father and brother work with her in the raspberry fields. Her mother cannot work because her knees are bad, and her sister-in-law must stay out of the sun because of a health problem, so for the moment they stay at home. Her father and brother previously worked on the sugar plantation in Cuichapa, but they were paid badly in the last harvest, and so they came to Sayula to work for the same company as Felicitas. This is the first time they have come to work there; their older children also work in the same place, and all of them have contracts.

Felicitas says her brother compares the jobs he has had by saying that he goes to the berry fields clean and comes home clean, but he used to go to the sugar cane fields clean and came back “all black.” She says her father is very hard-working, committed, and thoughtful, that he likes to work all the hours he is supposed to, without getting distracted; he is an example to her of how older adults should continue working. “The bosses are crazy,” she says, “because older men work more than a kid—a kid doesn’t care, he sits around, but an adult works a full day. I’ve seen older men here and that’s how they are, they don’t stop all day, they work and work, and my father is one of them.” She has arrived at this conclusion not only because of her father, but also because of other men she has worked with.

Beatriz



Beatriz was born in Pénjamo, Guanajuato, and is 53 years old, one of 18 brothers and sisters. Her father was a fisherman and had a plot of land where he grew beans; her mother raised pigs and laying hens. She says she eats better now than when she was little: “At least now I eat well, because I work. My mother gave us an egg and nothing but oatmeal and cornstarch in water, and we didn’t eat the way you should.” They also had some fish: “She opened them up and put lime juice on them, and then left them to dry. And she gave it to us to eat, just like that.”

Beatriz never went to school, and until she ran away with her husband at the age of 14, she worked at different jobs. She helped her neighbor Elena: “So when I helped Elena wash clothes or ‘Do this for me, Beatriz’ or ‘Take out the trash for me,’ she gave me a kilo of scraps . . . and my mother made it with chile for everyone. Or ‘I’m going to help Elena to see what I can help her with,’ and she gave me a handful of pork rinds and then we ate. Yes, we suffered a lot back then.” Beatriz also helped care for the baby of the woman who would become her sister-in-law, who she now calls “Sister.” “I was little, and I helped Sister because I have always liked to work. I helped her with a baby and I washed clothes for the babies.”

She met her husband at a dance in their town; she says she was shy, but she sneaked out to go to the dance, and the 17-year-old boy promised that he would come get her in a few days. The moment came, and Beatriz ran away with him. “I came with him, with nothing more than pants and socks, I left with him. . . . What was it? One o’clock in the morning.” They headed to Estación Mazatepec. When they got there, Beatriz had second thoughts and wanted to go back. “I remember they were cutting a lot of sugar cane, and I said to him, ‘Why is this cane burnt?’ I said, ‘Go get

one for me.” She said it to distract him while she escaped back to Pénjamo with her parents. “He went off, and I hid; I wanted to go back.”

After a time, she became pregnant. Her future husband’s grandmother told her they would get her a pass so that when it came time to have her baby they could take her to a clinic, but “a lot of people told me no, they’ll take all your money.” She decided to endure the pain so no one would realize that her daughter would soon be born. “When the labor pains started, I didn’t say anything, I just writhed in pain. My father wasn’t there that day, who knows where he went, maybe to the sweet potatoes, and I grabbed the door, and since it was wood, I closed it, I bolted it, I couldn’t take the pain, and there I did it myself, I had only a quilt.” She had her second child and the rest in a clinic. She had a total of seven children, and now she has 22 grandchildren and three great-grandchildren. Her youngest child is 17 and her oldest grandchild is 18.

It was her husband who taught her to work. “He was very hard-working . . . in fact, he showed me how to work because I went with him: to harvest, to scavenge, to put away a lot of corn.” She followed him wherever he worked in order to help him. She recognizes that her husband allowed her to work, “because that doesn’t always happen.” She says that her father did not let her mother work: “My mother really liked working on the hill, she carried firewood with him, and he told her ‘no, no, you can’t come here because you’re not a man.’ And she responded ‘Ay, old man, I’m helping you,’ and she left him with the beans she cleaned, and I said, ‘Oh, dad, let her help you.’”

Beatriz’s husband not only let Beatriz come with him, but he also explained and “taught me to do things.” Beatriz learned how to weed the fields, how to make bricks, how to dig sweet potatoes, and “everything there is to do in the country.” She says that since her husband was “taken” from her, she has lived in Estación

Mazatepec. "It's nice, well, when I first came her with my old man, I liked it, because it's a hill and we were really happy there." Although her husband died four years ago, she is thankful that at least he left her a house to live in, because "lots of times people rent and that's really difficult."

There in her house near Estación Mazatepec, Beatriz lives with her younger son and his wife, and one of her daughters and her two children, aged 6 and 10. Beatriz and her son are the only ones who work: Beatriz in the Las Hormigas field, on the property of a berry company, and her son cutting sugar cane. "My son is like my husband. He's also a hard worker: he cuts and burns sugar cane. He doesn't make much money, but he tells me 'Mom, with this we have something to eat.'" She says that work in the sugar cane sometimes pays well and sometimes not. "It depends how things go. Sometimes he gets 1,700 or 1,200 [pesos per week], and then they give him some groceries because he works and more because he does the burning."

They save her son's wages and spend hers on everyday expenses: "at least to feed my children [grandchildren], buy them shoes or pants or something like that." There are weeks when they have money left over and they save "a little bit." Her son saves money in what she calls the *rifa* (raffle), meaning the system of *tandas*, where they make a list of people, assign each a number, and then each one contributes 500 pesos. Depending on their number, they receive the total during the week. Sometimes her son has to work Sundays cutting sugar cane, but if not, he goes to the hill to dig up sweet potatoes, and Beatriz's grandson goes out to sell them.

Beatriz says her daughter has a "bad habit," but she does not know exactly what it is. "I think everything at once because she is really skinny, she's skin and bones, and she had a nice body. It's the only thing not working right now." Her daughter goes out all night and sometimes does not come back for three days. Beatriz

says this did not happen before, that it began when Beatriz's husband died on the railroad tracks. "She didn't use to be this way. . . . She was damn good at working in the fields."

Beatriz's husband was killed four years ago when he was run over by the train that passed by their house. Sometime before, her son-in-law was also killed by the train, and her husband used to go cry near the tracks. "My husband went to cry there. He really loved him, he would say 'My Checo, my Checo, my son-in-law.' Checo also really loved him, they hung around together, and that's why, I don't know, he used to sit down on the curve." She says that one day, her husband drank two *pajaretas* (milk with alcohol) and went to sit on the tracks. That night, he did not return home. A woman from San Antonio arrived and asked her to come with her. She says it seemed strange because that woman did not usually come to see her. She went with her, and just before they got to the tracks the woman said "Ay, Beatriz! I didn't want to tell you. I think your husband's dead." That was four years ago, "but it seems like yesterday. . . . When will I forget him? Never, because we worked together no matter where."

After the turning point of her husband's death, Beatriz started to work where they "invited" her. First, she worked for "a company over by La Sauceda." There she worked in the cranberry fields with her sister, who also knows agricultural work and is also a widow. They were paid 1,400 pesos a week, and they were told they would receive social security, but "they didn't give it to us. In fact, they have my sister there, too, and it's almost a year now, and they haven't given her social security either." When they were hired, they were not asked for any documents and they did not sign a contract. Beatriz believes that to get social security with this company, workers have to have communication skills. "The majority there don't have social security. I'll tell you, yes, they give it to some who are more, well—how can I explain?—who know how to talk. Because there is one woman, Anabel, and 'No, no, no, they're

going to give it to me because I came to work for a company.' It's that they know how to talk and we don't; that's why they don't give it to us."

She says that in the field "by La Saucedá" they dig the furrows and "*meter el covi*." This was hard work: "I felt so bad, and I have a blister here, another here, one more here, you know, you grab the hoe and it's pure *tepetate* [hard clay]." She worked hard, but the boss "laid her off." She does not understand why, because the boss even told her, "Beatriz, you're number one at pruning." She had worked there almost a year when they told her she should take four weeks off and then come back. The day she returned, they fired her, "and do you believe it, you won't believe it, that I was almost crying all the way home. I said, 'And you told me you wanted me here the first of December.'" Beatriz thought the four weeks' leave were because "maybe I was getting old, but to me, old is . . . but me working, like they say, who cares, what's important is working." This made her sad, because she was used to working and waited for them to call, but when she returned, they just gave her severance pay.

Beatriz then went to work in a field belonging to the company Puerto Valencia. They were going to plant figs, but Beatriz had problems with the bosses. She says the boss's wife was jealous because "there were really pretty girls," and the boss said "No, no, you, I'm going to use you." So the boss chose "the pretty girls"; his wife was left with "the older women"; and he told her, "No, no, no, you go over there with your people, and I'll take my women." His wife started getting rid of the women her husband had chosen. One of Beatriz's coworkers got tired of this situation and said she wanted to quit, but Beatriz asked her, "Where are we going to work?" At their age, it would be hard to find another job. After a while, "the boss's wife said should would keep only me and Katita, that she was firing the rest, and I said, 'But the others told me about this job. How can I do that to them? How can I stay

here and work when they don't, when they are the ones who told me about the job? That's not right.' So it's better that we go." And Beatriz quit.

Beatriz is now working in the Las Hormigas field, where she went after her friend Esmeralda told her, "Go ahead, go apply there." Because of her age, Beatriz doubted they would hire her. They did, she signed a contract, and her first week they paid her "six hundred something" and her second week 2,450 pesos. She has social security and has registered with a clinic.

Her routine starts with getting up at 5 a.m., because she starts work at 7:30. When she gets off work at 4:30 p.m., she goes "to swim in the pool." She gets home, goes to sleep, and then "keeps getting up and goes off to do the same." When Beatriz talks about what work has meant to her, she says she really likes to work. "No, I said, I would have preferred to be a man. I like the country. Wherever it is, I work. I always see myself working." She says this because on Saturdays she goes to wash clothes instead of working at Las Hormigas or, depending on the season, picks *guamuchil*, nuts, corn, *nopal*, and sweet potato. "Yes, *nopales* from the hill; we bring back two buckets of *nopal*, we go and sell them, everyone comes to buy them. In the *guamuchil* season, we also sell those; we also sell a lot of those *guamuchiles* that are called *guamaras*. And in walnut season, we go over here, next to El Retoño, like say by Tlajomulco. There's an exit and there are some walnut groves, just walnuts, and when they've gathered them all they let us scavenge, and I fill up my bags with walnuts, really good ones, really soft."

On Sundays, the day off at Las Hormigas, she does her household chores: "I prepare the *nixtamal*, I make a sandwich for the children or I leave them some tortillas already made that they just have to heat up." But sometimes she also goes fishing at the Valencia dam: "We catch a lot of fish, we lay a net, because one of my

granddaughters got together with a guy from Valencia, from the Valencia dam, that they call Puerto de Valencia—there, any time you want to get fish, they're there, they pull out some big buckets of fish." She says her life is and has been work because "it's nice to work, it's nice, look, because . . . you have lots of problems here, but talking, working, for the moment you don't remember them, but when you're alone, oh, it's hard!"

Edith

Edith is 37 years old and lives in the Nuevo Poblado part of Tuxpan. She is the third of six children of a two-parent, male-headed household. Her parents were farmers: they had land on which they planted corn, peanuts, beans, jicama, and squash. The whole family helped with the agricultural tasks. At the age of 12, Edith had her first paid job: seasonal work harvesting tomatoes and jicama. Since then, her income has become a fundamental part of the household economy. Her earnings went to planting corn and buying shoes and clothes for her siblings. Edith finished junior high school in Tuxpan; she walked an hour every day to school. Although she wanted to continue her studies, the lack of resources and the fact that she was female precluded that goal. She continued doing seasonal work, and at the age of 18 she entered the CONAFE program, where she received 1,900 pesos a month to teach classes. She says it was not much money, but it was a secure income. Later, she went to work in a plywood factory, where she was paid 700 pesos a week. Every day, on her way from Nuevo Poblado to the factory, she saw the recently constructed berry greenhouses, which belonged to a large export firm. One Easter vacation, she decided to try her luck there. That first week, she earned 1,800



pesos, more than twice what she was paid at the factory. This was the main reason she stayed to work in the greenhouses.

She has now been working at the same job for 10 years. Besides the wages, which are 1,200 pesos a week working by the day and 2,000 to 4,000 pesos a week working for the harvest, Edith has stayed there in order to receive social security for her family. After one year at the job, Edith began her reproductive trajectory. When her partner refused to take responsibility for the child, Edith assumed the entire cost and burden of caring for him. Edith's work schedule, from 7 a.m. to 5 p.m., leaves her little time for household tasks or child care, so her mother has taken over raising him. In return, Edith gives her mother food and money. Six years ago, Edith met her current partner. He works in construction as a temporary laborer because he has a bad knee. When they got together, he asked her to stop working. However, Edith's wages are the only secure income, and her job is the source of social security for her partner, her child, and her mother. Edith's work in the greenhouses has provided her with a stable income, better than in other jobs, as well as health care and autonomy at home.

Sandy

Sandy is 26, and grew up with her grandparents and four paternal aunts in El Platanar, Tuxpan. Her parents worked in the fields, but it was her aunts who supported and raised her. Only three of her aunts work; the other does the housework and takes care of Sandy's grandparents. The main source of income comes from one of the aunts, who is an elementary school teacher. Two other aunts are farm workers, one in the cherry tomato fields and the other in the same berry greenhouse where Sandy works. When she was little, Sandy went to school; she never worked outside the home. She helped her aunt with the housework, chores, and cooking. Sandy left high school after the third semester; her aunts want-

ed her to continue, but she decided to drop out because she did not like studying. At the age of 16, she went to work in the berry greenhouse on the Nuevo Poblado road in Tuxpan, which is owned by a large export firm. After six months, she was given an indefinite contract, and she has been working there now for 11 years.

Sandy is a single mother with two children, a six-year-old boy and a girl of 18 months. One of her aunts takes care of the children and the housework; in exchange, Sandy contributes money for food and when possible buys shoes, clothing, and other necessities. Since her second child was born, it has been difficult for her to cover the children's expenses and contribute to the household. At the moment, she is earning 1,100 pesos a week, because the work she is doing is paid by the day and not by the amount of work done. She would like to be working on the harvest, where she says the workers can earn up to 4,000 pesos a week. Given the economic pressure she feels, she has considered going to work in another field, but she hesitates to do so because of the benefits she gets with her current employer. She considers seniority and social security to be advantages that are not available in the tomato, cucumber, or jicama fields. She values having social security, especially because it provides her children with health care, but she does not consider her other benefits, such as Infonavit or retirement. Her current household expenses are the strongest economic pressure she feels.

Ernestina

Ernestina is 30 years old, and was born in Agua Zarca, in Ahuacotzingo, Guerrero. She is the third child in a family of four children. Her parents worked in the tomato fields of Sinaloa and had land on which they planted corn, beans, squash, and peanuts for the family's own consumption. Ernestina began helping to plant the corn when she was a girl. She left school after the sixth grade, and

shortly thereafter she went with an aunt to work in the vineyards of Sonora. She was in the north for two years, earning 80 pesos a day in the off-season. She sent some of the money she earned to her parents to help with household expenses. She met her partner in the vineyards when she had just turned 15. They moved to Pantitlán, where he is from. From that moment, Ernestina stopped working, and she has since devoted herself to caring for her four children. The family survived on the income of her husband, who “rented” himself out as a farmhand in the town’s tomato fields. With this income, they were also able to buy a small plot of land where Ernestina, her sister-in-law, and their children could grow corn, though they grew only enough to feed their families. The scant rain in the previous year caused them to lose a large part of the harvest.

Because of the bad harvest, Ernestina and her partner decided to go work in the berry fields of southern Jalisco. They both work for a small producer in Ciudad Guzmán who pays them 1,200 pesos a week. In order to work during the season, she left three of her children with her sister in exchange for the little corn they had harvested. Ernestina also sends them money every week. She brought her youngest child with her, and during the day she leaves him with a young woman who takes care of workers’ children for 300 pesos a week. The harvest ends this week, and she will return to Guerrero, but her husband will continue working in Jalisco, since the money he earns is the household’s main source of income. His work in the berry fields will allow them to eat until the next corn harvest; it will pay for planting and sending their children to school. Ernestina would like to return next season, but she would have to leave her children again. She says that she would like to take them with her, but it is complicated because of the housing conditions where they stay.

Esmeralda

Esmeralda is a young woman, 21 years of age, from Chilapa de Álvarez, Guerrero. Her father's and mother's families have land on which they plant corn, beans, limes, tomatillos, and cilantro. When Esmeralda was four years old, her parents migrated to the United States, and she and her younger brother stayed behind with their paternal grandparents. After a year, the children joined their parents. Her father worked in kitchens and her mother did domestic work. When Esmeralda was eight years old, her parents separated because of her father's physical abuse of her mother. Her mother then became the family breadwinner. Economic difficulties caused the mother and children to return to Mexico, and the mother began seasonal work packing tomatoes, cucumbers, and chiles in Sinaloa. During this time, the children stayed with their maternal grandmother, supported by money sent by their mother.

At the age of 18, after a conflict with her mother, Esmeralda ran away with her boyfriend, dropping out of high school in her second year. After a few months, the couple migrated to southern Jalisco to work in the berry fields. They supported themselves and saved money to build their house in Pantitlán. While they were in Jalisco, Esmeralda had her first child. Since then, she has not been able to work consistently, and the family has had problems saving money. She has no support for child care. In one of her jobs, there was daycare, but Esmeralda and her partner decided to change employers to one that paid better and had better housing conditions. To continue working, Esmeralda had to pay a woman to care for her child. The woman, also from Guerrero, was in a similar situation, and began to do child care for the other women working in the berry fields. After having her second child, it was Esmeralda who stayed at home to care for her own children as well as those of other berry workers. She is still doing so, although this is a temporary job, because the families return home at the end of the har-

vest. She sometimes goes with her partner to work in the harvest in a small field in Ciudad Guzmán that sells its berries to a large export firm, but she has no contract or benefits. It is an informal arrangement between the bosses and her partner: what Esmeralda harvests is credited to him. Her partner earns 200 pesos a day when he works by the day; during the harvest he is paid 15 pesos per box.

The beginning of her reproductive trajectory has meant an interruption in Esmeralda's employment trajectory. She said she would like to return to work, but as long as they have no child care options she cannot do so on a regular basis. Her work is an important part of the household income; since the birth of their second child, the family has been unable to save and has some debts. Esmeralda's case is a clear example of the tensions between child care and work outside the home, particularly for migrant women who have no solid networks of support.

GOVERNMENT AGENCIES

A focus group was held on April 9, 2019, at the CIESAS Occidente (Av. Alemania) in Guadalajara, Jalisco. The participants represented the Secretary of Substantive Equality Between Men and Women (Secretaría de Igualdad Sustantiva entre Hombres y Mujeres, SISEMH), the National Commission for the Promotion of Education (Comisión Nacional para el Fomento a la Educación, CONAFE), the State Indigenous Commission (Comisión Estatal Indígena, CEI), the State Human Rights Commission of Jalisco (Comisión Estatal de Derechos Humanos de Jalisco, CEDHJ), the Jalisco Comprehensive Family Development System (Sistema de Desarrollo Integral Familiar de Jalisco, DIF), the Government Secretary (Secretaría de Gobernación, SEGOB), and the Jalisco Secretary of Health (Secretaría de Salud Jalisco, SSJ). The age of the participants ranged from 28 to 62 years; most were between 28 and 35. There were six women and three men; six had bachelor's degrees and three had master's degrees.

Diagnostic Evaluation

After the introductions, participants were asked to respond to a diagnostic evaluation, which consisted of answering the question: "In your work, what are the main needs and challenges in serving the population of agricultural workers in Jalisco?" The responses were as follows.

National Commission for the Promotion of Education (CONAFE)

1. "There are still children who do not go to school because they go to work with their parents or they stay at home to take care of their younger siblings."

2. “There is a large population that receives no education because they prefer to rent housing and do not go the shelters [where classes are held]. They say they receive more economic support not staying in the shelters, and that the shelters do not provide good health care.”
3. “Another problem with education is that some parents see the economic support their children can provide as a priority, so they prefer to take them to work to earn more money rather than send them to school.”
4. “Their constant movement makes it a little difficult to provide the documents for school certificates, and we have cases of children who are not registered because they do not have their documents.”

State Indigenous Commission (CEI)

1. “An updated and focused policy framework [is needed] to guarantee the rights of indigenous agricultural workers, both migrant and local.”
2. “Establishment of public policy for state and municipal services for agricultural workers.”
3. “Comprehensive programs and inter-institutional intervention with state departments and agencies.”
4. “Municipal coordination to guarantee appropriate dialogue with members of indigenous communities according to their individual characteristics.”
5. “A specialized department in the CEI for indigenous agricultural workers.”
6. “Updating of the register of indigenous communities and localities in Section III.”

Jalisco Secretary of Health (SSJ)

1. “Legally speaking, health care for the agricultural worker population should be provided by the IMSS. If this requirement is not met, the Jalisco Secretary of Health has the obligation to provide services if people come to the health centers, and also carry out activities of prevention, health promotion, and health education in the places where people are found (rooming houses, homes, and shelters).”
2. “The main challenge is the location of the migrant worker population. Their mobility and transience make it difficult to provide health services to this population.”
3. “Another challenge is the participation of municipal authorities, the acceptance of their responsibility for services to the population.”
4. “The lack of financing for health care on the federal, state, and municipal level reduces the possibility of providing services.”

Jalisco Comprehensive Family Development System (DIF)

1. “Currently, part of my main role is community development in two regions of the state (Costa Sur and Sierra de Amula), working in communities with high and very high degrees of marginalization, where the families are made up of local agricultural and fruit workers. Part of the mandate of the Institution for Social Assistance [Institución sobre Asistencia Social] is to seek, support, and succeed in enabling every person in a vulnerable situation to stay afloat through preventive action, accompaniment, and direct support, so that they are not always subjects of handouts [*asistencialismo*].”

2. "Seek important points of improvements in employment, skills, survival strategies, and local food production. Stop being aid recipients. Reduce indices and do not maintain support statistics."
3. "Since 2013, the agency has stopped providing services to the entire migrant population in order to focus on childhood." "There is currently no program or strategy in the area of community development and municipal support."

Secretary of Substantive Equality Between Men and Women (SISEMH)

1. "To begin with, we need to get to know them, to know qualitatively what their challenges are, their needs and characteristics, in order to recognize them."
2. "To create synergy with other institutions in order to create opportunities, starting with generating a level playing field, that is, at least cover basic needs."
3. "To promote the vision that we are all equal under the law and thus to work for decent economic and working conditions, health, and education."
4. "Conditions will improve no matter what, for workers as well as families. Providing comprehensive services."
5. "We are a new department in the state of Jalisco. One of the main challenges of the agency is to work with agencies that organize activities with agricultural workers on topics of discrimination."
6. "For now, we are thinking about these plans and implementing them with a team of social anthropologists in the field."

Government Secretariat (SEGOB)

1. "Social/public policy to protect agricultural workers' human rights and integrity at work."
2. "With respect to human rights, protect and ensure the minimum necessary conditions so you can do your work with dignity."
3. "With respect to labor rights, protect and care for [workers], and support [them] at the same time, with a rigorous minimum income and a workday in accordance with their age, and provide them with dignified housing conditions for their development."
4. "With respect to child labor, ensure a workday of only a few hours, with education prioritized as necessary, presenting them as participants in a combined effort and not working for subsistence."
5. "We hope the federal government announces the new program to replace PAJA as soon as possible."

State Human Rights Commission of Jalisco (CEDHJ)

1. "The challenge is that agricultural workers [need to] have access to social programs and development programs."
2. "Eliminate discrimination against the indigenous migrant agricultural worker."
3. "Evaluate educational opportunities for girls, boys, and teenagers."
4. "Decent housing situation, support to obtain a home."
5. "The right to a job, with the benefits required by law, health care for their families."

6. "Security. If a migrant population belongs to a community like an indigenous community and speaks an indigenous language, provide support and legal security."

Recruitment Process

- Although both regular and irregular recruitment processes are known, the Secretary of Labor and Social Welfare has not been able to maintain control of the parties. This has created problems, because irregular recruitment encourages human trafficking, bad working conditions, the absence of authorities, and other issues.
- Small and medium-sized producers, as well as areas of seasonal crops, encourage the irregular hiring that causes a large part of the problems facing agricultural workers.
- Government departments find themselves operationally overwhelmed by the dimensions of the problems and by the limitations of their scope of work.
- New migratory flows create constant change: an inter-agency effort is required, one that is able to address the dimensions of the problem.
- There are insufficient laws and government policies. There are no official positions on strategies for helping agricultural workers that bridge the constant changes in local administration and allow agency efforts to be carried out in a continuous way.
- Agricultural workers, as a vulnerable group, require constant monitoring and institutional assistance, in every aspect of their situation.
- Few government social programs focus on assisting

the agricultural worker, at least to the knowledge of the government officials.

- There is a limit to the intervention by some departments, as they do not have the mandate to act directly, or can only do so based on requests from producers or complaints from workers, which also restricts their strategies.
- As there is no control over recruitment, hiring announcements do not pass through the Labor Department and cannot be reviewed. It is not known how they are distributed or to whom they are directed. The problems begin here, because of the informality and lack of regulation of contracts.

Human Trafficking

- Small and medium-sized producers justify the working conditions based on their lack of resources as compared with the exporting firms.
- There is no discussion of a clear strategy to prevent human trafficking or clarification of how departments deal with this type of case. Although the Human Rights Commission investigates human trafficking, the official who attended the focus group could not explain what is being done.
- The human rights and labor rights of the majority of agricultural workers, especially indigenous migrants, are being violated. There is also a failure to guarantee respect for cultural perspectives, which results in a complicated situation. As the workers come from far away, local people are not familiar with many aspects of their cultures. Even government agencies do not defend their rights.

Discrimination

- In the towns that receive indigenous agricultural workers, there has been disapproval and feelings of invasion caused by the displacement of people. It may be the result of racism, cultural differences, or the appropriation of public spaces.
- The workers perform labor that is not valued by some people.
- Some towns give the migrant workers a better reception, as they are interested in learning about and respecting cultural and traditional differences through public policy. This generates different types of social interaction that reduce rejection.
- There is no state or federal level public policy that protects interstate migrants, maintains a register or control of these groups, or maintains channels of communication between the states that send migrants and those that receive them.
- Working groups, as a public policy, have been able to resolve some problems at the local level, but it is still necessary to implement strategies at other levels of administration and organize agencies to require them to address the issues.

Child Labor

- There has been an attempt from the institutional perspective to understand the cultural dimensions of legal adulthood. This provides institutions with a different way of understanding the situation, as with children's apprenticeship and learning.

- There is an attempt to justify child labor using various rationales, including the cultural perspective, child marriage, the productive unit that children represent, and children's obligations to their families.
- In some cases, minors may work and generate income, but do not work a full adult day; these may be useful where they are seeking to learn a trade, but not as a priority.
- There was discussion about the problem of child labor, with mention of child marriage. However, it did not include strategies for the prevention of these marriages. Existing state and national laws addressing child marriage are not respected.
- Child labor frequently causes children to drop out of school.

Violent Spaces

- Rural areas are contexts where agricultural workers are exposed to multiple factors. Poverty, lack of education, marginalization, idleness, drug trafficking, and the "narco culture" make the countryside a violent space where children are especially vulnerable, which is one reason why their parents prefer that they work.

Strategies to Eradicate Child Labor

- Government agencies have no strategies to eradicate child labor other than the usual superficial ones. These strategies are necessary only as part of the labor certifications that are necessary for the export process, and are not required or promoted in a way that has a real impact.

Employment Benefits

- In general, agencies are unfamiliar with the agreements between bosses and workers that establish workers' services and benefits.
- There is no guarantee of access to services either from the employer or the agencies. There is no knowledge of the policies or mechanisms that require or facilitate workers' access to the employment benefits required by law.
- Employers have no interest in negotiating agreements or participating in working groups, so the agencies cannot take action.
- The workers who receive better benefits, such as health care, housing, education, and transportation assistance, generally are those who work for export firms. These producers show greater adherence to the legal requirements that facilitate the sale of their products outside the country.
- Wages depend to a large extent on the type of recruitment process: whether workers sign a formal contract or are hired by recruiters.
- Housing assistance is usually in the form of shelters, although not all companies provide them. Workers who do not receive this form of assistance may be forced to live in crowded conditions or in the fields. The agencies do not have much information about workers who do not live in shelters: about how they are recruited, where they come from, whether there is child labor, or if there are employment benefits. In general, they have no data

or statistics about those who find work through irregular channels.

- It is difficult for agencies to enforce the requirement to provide employment benefits because of the constant flow of migrants.
- Child care facilities are another benefit that is not available to all workers. Although these did function at one time and protected the rights of children, they were a social benefit that disappeared. Some businesses have taken up the model of the DIF, with the costs borne by the producers.
- There are several strategies to promote access to education for children who live in rural areas. But the task is once again limited by a bureaucracy that responds only to requests. The strategies do not require either employers or workers to ensure that children receive an education, a violation of the rights of the child.
- The problems with respect to education are related to the circumstances of migration and cultural factors. The strategies seek to adapt to these circumstances in order to provide classes for children. However, followup policies that appeared to work, and to be coordinated in spite of the mobility of families and children, have disappeared.
- Companies are required to enroll their employees in Seguro Social to receive health care, but the majority do not do so. Workers register with Seguro Popular to fill the gap and receive health services. In some agricultural areas, there is no quick access to a Seguro Social clinic, and employers meet the requirement to provide the benefit by paying the cost of private doctors when necessary.

- There are no administrative records of the reasons why workers see doctors or the illnesses they suffer. There are also no individual medical records or individual data such as their age or origin.
- The Department of Health provides health promotion services at the request of the employers.

Exposure to Agrochemicals

- To prevent exposure to chemicals, workers are required to use the necessary equipment. However, for various reasons they prefer not to do so, which creates a risk.
- The Commission for Protection Against Health Risks provides trainings for shelter staff and workshops on preventing pesticide poisoning for workers. This is done at the request of the companies; they are not required by law.
- Another strategy has been to offer certification to shelters as Health Promoters, but as there is no requirement for this certification, the strategy has not had significant results.
- There is no knowledge about the use of pesticides. In recent years, workers have learned more about the dangers, but there are still risks.
- Chemical poisoning can cause both acute and chronic illnesses. The chemicals have been found in workers' blood, but apparently there is no real control of their exposure.

Comparison with Working Conditions Ten Years Ago

- Agencies have no knowledge of land use in workers' places of origin.
- Because of the movement of migrants, it is difficult to perform accurate assessments of their population. In addition, the agencies do not have the capacity to reach the workers who do not live in the shelters.
- Hiring policies are being modified to adapt them to the new international flows of migrants; it is hoped that some of them will work in the fields.
- Health regulations concerning pesticides have undergone changes in the past decade in order to meet the requirements of product certification, especially for the export firms.
- There are no censuses of the worker population, meaning that the exact number working in the fields is unknown. There have been no surveys or statistics to find out more about them. Existing information comes from the shelter registers kept by some agencies.
- The implementation of working groups helps to coordinate inter-institutional interventions in order to guarantee that the strategies work.



One Woodrow Wilson Plaza
1300 Pennsylvania Avenue, N.W.
Washington, DC 20004-3027

 www.wilsoncenter.org/mexico

 mexico@wilsoncenter.org

 facebook.com/MexicoInstitute

 [@MexicoInstitute](https://twitter.com/MexicoInstitute)

 202.691.4325