

The Farmworker Health Landscape: Barriers to improving health and safety in U.S. agriculture

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Abstract

Farm labor is one of the most grueling jobs in the United States with high fatality rates and poor health outcomes for workers. Through the development of a conceptual framework titled the Farmworker Health Landscape and a survey with 132 farmers and dairy producers in the Northeast United States, this thesis presents a theoretical and empirical explanation of the barriers to improving health and safety for farmworkers. Certain political, sociocultural and economic factors act as structural barriers through the way that they shape the determinants of health for this largely immigrant farmworker population. Determinants of health are broadly classified as working conditions, access to health care and housing conditions. The structural barriers discussed include limited labor protections and standards for farmworkers, racism and discrimination, and financial pressures felt by farmers and workers alike.

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List of Abbreviations

ACS American community survey

NAWS National Agricultural Workers Survey

USDA United States Department of Agriculture

ERS Economic Research Service

EPA Environmental Protection Agency

WPS Worker Protection Standard

OSHA Occupational Safety and Health Administration

DoL Department of Labor

NOFA Northeast Organic Farming Association

NODPA Northeast Organic Dairy Producers Alliance

Chapter 1: Farm labor in the United States

Chapter 1 introduces the topic of agricultural labor in the United States and provides a brief historical context to frame the research discussed in the follow four chapters. The second half of Chapter 1 introduces the Thesis questions being investigated and provides an overview of the remaining chapters.

Conditions in U.S. agriculture

Who works on farms in the United States?

In the United States the farm labor workforce is made up of self-employed farm operators, family members and hired workers (USDA ERS 2018). As average farm size and mechanization have increased over the past century, the total number of people who work on farms in all three categories has declined with the number of hired workers shrinking more slowly than operators and family. In 2016, hired workers performed roughly 41% of total agricultural labor compared to just 25% in 2003 (USDA ERS 2018).

Depending on the method of measurement, current estimates of total hired farm labor range between 1.13 million full-time equivalent positions (USDA ERS 2018) and 2.4 million individual workers (Martin 2013). Agricultural labor economist Philip Martin calculates that there are at least two workers hired for each full-time equivalent farm labor job reported by the United States Department of Agriculture (USDA) (Martin 2013). Regardless of the exact number, hired farmworkers plant, produce and harvest the food consumed in and exported from the United States every day. The majority of these workers are immigrants from Mexico and Central America hired by American farmers or labor contractors to

work across the country in almost every state (NAWS 2014; Menger, Pezzutti, et al. 2016). Despite the recent news media attention to immigration policy and farm labor shortages (Marcus 2018; Block and Penaloza 2017), most American citizens have a limited understanding of the daily living and working conditions this population endures. Agricultural labor and farmworkers specifically are also absent from much of the academic and policy discourse related to both conventional and sustainable food systems. As a result, this population is largely invisible to the public eye, and current, comprehensive information for the interested citizen or scholar is limited.

The most comprehensive data source on hired farmworkers in the United States (U.S.) is the National Agricultural Workers Survey (NAWS 2014). There is reason to believe that NAWS captures the widest range of the labor force through in-person surveys with crop workers, versus farm employers, multiple times throughout the year to capture variation in seasonal employment. The results capture a unique snapshot of the farm labor population including foreign-born and undocumented workers. Though the survey excludes workers in livestock and was most recently completed in 2014, it is widely cited by academic scholars and farmworker organizations. The American Community Survey (ACS) from the United States Census Bureau provides more up to date, but less comprehensive farm labor demographics on workers in the crop, livestock, and agricultural support industries. The ACS likely has more conservative estimates regarding citizenship and educational attainment due to its paper survey format. Using these

and additional data sources, one snapshot of farmworkers in the United States follows.

Roughly 80% of crop farmworkers are Hispanic, 69% of Mexican origins and only 27% U.S.-born (NAWS 2014). The American Community Survey (ACS) estimates that a slightly higher proportion (36%) of crop workers and a much larger 69% of livestock workers are U.S.-born (USDA ERS 2018). Only 31% report speaking English well and another 31% of respondents, not at all. Despite the fact that 74% of crop workers have been working in agriculture in the United States for between 6 and 15+ years, only 31% are citizens (NAWS 2014). The NAW Survey estimates that 47% percent of crop workers lack official authorization to work in this country. These data are not collected for livestock workers. However, estimates vary widely, likely a result of a reluctance to report, the difficulty of tracking a migratory population, and true variation by sector and region (Martin 2013). The ambiguity is exacerbated by the increasing portion of labor hired by less regulated farm labor contractors versus directly by farm owners. The NAWS estimate for undocumented workers has remained relatively constant over the past two decades, despite the continual political efforts to deport immigrants and tighten border control as discussed by David Bacon (2008), among other authors.

ACS and NAWS both estimate that roughly 75% of farmworkers are male and 50% are between the ages of 25-44 years. While level of education is rising, 60% of workers still report lower than high school education. Notably, 57% of workers have children (NAWS 2014), and the Pew Research Center estimates that

more than half of mixed-status families –where some individuals have legal authorization to live and work in the United States and others do not – have one adult without authorization (Taylor et al. 2011).

History of agricultural labor

The work performed by immigrants in the United States is just as vital to domestic food production today as it was fundamental to the development of high production agriculture. In fact, the U.S. government has facilitated the flow of migrants from Mexico to the United States specifically to work in agriculture since the 1800s (Fisher 1951). Since then, numerous political and economic migration drivers that have served to push and pull immigrants to and from work in United States agriculture.

In the mid-19th Century, California agricultural interests became a major driver of increased immigration from Mexico. Though technically California was established as a free state, those who saw the potential for financial gain through large-scale farm production took a pro-slavery stance during the state convention. The expressed need for “a cheap and docile labor supply” (Fisher 1951) was met with successive waves of Chinese, Japanese, Filipino and later Mexican immigrants who worked under terms many have compared to slavery (Fisher 1951; Luna 1998). Farms were able to increase in size and specialization, particularly in labor-intensive fruit and vegetable crops (Fisher 1951), effectively promoting an increased flow of immigrant workers into the country. However, in the 1930’s with agricultural labor demands met and the Great Depression threatening the American economy, Mexican workers were portrayed as a burden

to the labor market. The federal government responded with “a massive repatriation campaign” to deport immigrants back to Mexico (Paret 2014).

Over the course of the 20th century, politicians continued to build a framework that prioritized the expressed needs of farmers at the expense of a largely non-citizen labor force (Robinson 2010). The most consistently documented legal agreement that established the formalized exploitation of agricultural workers is the Bracero Program, a 1942 treaty between the Mexican and American governments (Tropman and Nicklett 2012). The American public was ready to benefit from an immigrant labor force once more and strongly supported this treaty as a result of the domestic labor shortage and “production boom” spurred by World War II (Paret 2014). The Bracero Program facilitated the flow of millions of Mexican workers (estimates range from 2–5 million) to the United States between 1942 to 1964 (Mize 2011). Under contract, these farmworkers were bound to their employers, and the wages and terms they provided, rendering them a cheap and vulnerable working class with limited mobility or agency (Paret 2014). The H-2A temporary work visa is the modern equivalent that allows immigrants to enter the country to work in agriculture. However, today only 2-5% of the farmworker population is hired through this program (Guild, Richards, and Ruiz 2016).

Since the Bracero Program, revisions to immigration policy and varying degrees of enforcement have also increased immigration flows. For example, the Immigration and Nationality Act (INA) of 1965 established immigration quotas for Mexico and Central American countries, enabling thousands of individuals to

enter the country legally. Despite this established path for entry, many Mexicans continued entering without documentation because the quota, which was equal for countries of all sizes, was smaller than the number of Mexican citizens seeking work (Paret 2014). During the Bracero Program undocumented workers aiming to avoid program fees, bureaucracy and eligibility limitations also entered without official permission (Paret 2014). The Immigration Reform and Control Act of 1986 provided amnesty to roughly 2.1 million Mexicans residing in the United States. In this effort to reduce the number of undocumented immigrants within U.S. borders, the policy ironically did just the opposite as it strengthened the pull for additional individuals from Mexico to join their families (Paret 2014).

There are also been additional factors that have pushed immigrants from their home countries to the United States. In 1964 in the face of Mexico's economic crisis, their government allowed foreign corporations to build manufacturing plants within Mexican borders. By 1988 these factories employed 360,000 workers and as of 2008, more than 2 million (Bacon 2008). The government established policy to attract foreign investors such as allowing low wages, establishing formal unions to control workers, and updating land ownership law to allow for foreign ownership – all ultimately at the expense of Mexican citizens and workers. While low wages attracted foreign companies to Mexico, these same wages reduced income for Mexican workers and increased the wage differential between the United States and Mexico (Bacon 2008), making employment in the U.S. even more appealing.

The North American Free Trade Agreement (NAFTA) of 1994 was another significant migration driver as it generated unemployment in an already-weak Mexican economy (Luna 1998). Economic reform in the decades leading up to and as a result of NAFTA, such as trade liberalization and international investment policy, displaced Mexican workers and farmers across the country (Bacon 2008). Trade liberalization across North America notably expanded U.S.-grown corn exports to Mexico, out-competing Mexican farmers' prices and reducing demand for local corn. Meanwhile urban food prices in Mexico also increased as large retailers began to monopolize the market. Ultimately, between 1994 and 2007, more than 6 million Mexicans largely without visas or paperwork migrated to the United States in search of economic opportunity (Bacon 2008). Many authors also attribute low wage immigration from Mexico to the North American Free Trade Agreement (Grzywacz et al. 2013; Liebman and Augustave 2010), and as Seth Holmes explains, "inequalities in the global market make up the primary driving force of labor migration patterns" (Holmes 2006) by reducing the ability of already-marginalized people to survive in their home countries.

Labor conditions for farmworkers

For both citizen and non-citizen farmworkers in the United States, agricultural labor is one of the most dangerous occupations with a fatality rate of 25 deaths per 100,000 full-time equivalent workers in 2016. This fatality rate is the highest of all sectors including construction and extraction with 15 deaths per 100,000 workers (US Bureau of Labor Statistics 2016). The United States Department of Labor reports that every day 243 agricultural workers suffer a

serious injury, 5% of which results in permanent impairment (OSHA 2011). Furthermore, there is reason to believe that government estimates undercount nonfatal injuries by as much as 77.6% based on a study that accounts for workers on small farms, self-employed workers and willful and negligent underreporting by employers and employees, otherwise omitted in government reports (Leigh, Du, and McCurdy 2014). Occupational risks include sprains, lacerations and other musculoskeletal injuries, working with heavy machinery and livestock, and pesticide and chemical handling that can result in nausea, headaches and hospitalization for workers (Liebman and Augustave 2010) further discussed in Chapter 2.

The risks described here reflect the innate demands of agriculture, and a certain level of risk may be considered inevitable. However, many other factors contribute to the poor state of health and safety experienced by farmworkers. Studies consistently find that workers lack proper training (Menger, Rosecrance, et al. 2016) and personal protective wear and take minimal breaks for basic needs (NCFH 2018). Additionally, physical and verbal abuse by managers, low wages and poor housing conditions contribute to an insecure living and working environment (Menger, Pezzutti, et al. 2016). These challenges combined with low rates of social service and health care use, cultural isolation and a tenuous immigration status, contribute to the gamut of poor health indicators documented in the farmworker population such as malnutrition and dental needs (Finlayson et al. 2010), drug and alcohol abuse (Arcury et al. 2016) and poor mental health (Baker and Chappelle 2012). One study of workers in Georgia found that 63% of

workers did not have enough to eat (Hill et al. 2011) and another that 70% of children of migrant farm workers in Ohio lived in food insecure households (Kilanowski and Moore 2010). The Center for Disease Control also finds that adults of Mexican descent in the United States have substantially higher rates of obesity and diabetes than non-Hispanic whites (MMWR 2011).

Finally, despite the fact that many Mexican-born farmworkers came to the United States in search of higher wages, annual income for agricultural workers is low. The median income for crop workers and livestock workers is \$23,380 and \$24,470, respectively. This number falls just under the federal poverty threshold for a family of four, meaning roughly half of agricultural workers earn poverty wages (US Census Bureau 2017). Farmworker wages are more than \$10,000 below the average median annual income of \$37,690 across all other occupations in the American economy. Furthermore, only the highest 10% of farmworkers' income is above \$36,000, while the lowest 10% falls below \$20,400 (US Department of Labor 2018).

Although the average hourly rate for hired crop and animal workers in 2017 was \$12.47 (NASS 2018), the annual wage is a more accurate indicator of financial well-being because it conveys the temporary and seasonal work available in agriculture. These Bureau of Labor Statistics' estimations are higher than the data from the National Agricultural Workers Survey, which finds that almost half of the workers surveyed report earning less than \$20,000 annual income (NAWS 2014).

Why do conditions persist?

The ways in which the work environment, living conditions and access to health care directly impact farmworker health outcomes are well documented (Liebman et al. 2016; Pulgar et al. 2016; Luo and Escalante 2017). However, despite the fact that these relationships are understood, disproportionate health outcomes and undignified work conditions still persist. Why is the agricultural labor environment so overlooked? Occupational risks and regulations so neglected? And historic economic relationships explicitly founded on exploitation of foreign workers still permissible? These questions are particularly pressing when asked about the agricultural sector from which the American identity has been built.

Chapter 3 presents one response to these questions by outlining the structural political, sociocultural and economic structural factors that shape health outcomes for farmworkers. One of the major factors that enables these conditions to persist today is a political regulatory environment built on “farmworker exceptionalism,” or the exclusion of farmworkers from legislation that otherwise protects non-agricultural employees. The concept is referenced widely and consistently throughout the past century in the literature on farm labor (Liebman et al. 2013; Luna 1998; Linder 1987) and is explained further in Chapter 2.

While farmers are the intended beneficiaries of these political exemptions, economic conditions for the large majority of farm owners are also bleak. For example, 48 percent have a farm income of lower than \$10,000. Just 3.2% of farms have an annual gross cash farm income of more than \$1 million and their

aggregate income accounts for half of the total value generated by agricultural production in the U.S. (MacDonald, Hoppe, and Newton 2018). This means the other half of value is split between the remaining 96.8% of farms. In vegetable and fruit production, on average 39 percent of farm costs are spent on labor (MacDonald, Hoppe, and Newton 2018). As farmers struggle to make ends meet in the context of increased industry consolidation, competition and low prices, reducing wages and other resources associated with labor may be one of the few viable options to cut costs.

Thesis outline

In the context of a weak regulatory environment and consistently bad health and safety outcomes for workers in agriculture in the United States for more than a century, this thesis explores the forces working to keep these conditions in place and the barriers to making improvements. Therefore the questions that guide this thesis include: **What are the barriers to improving health and safety for farmworkers in the United States? And, how do farm owners and employers experience these barriers?** The first half of this thesis constructs a nuanced picture of the political, sociocultural and economic factors that interact to create health and safety barriers for workers, and the second will supplement these findings with results from a survey of farmers in the Northeast United States.

Chapter 2 is a literature review on the political, social and economic determinants of health and safety conditions for farmworkers in the United States.

This chapter summarizes the myriad ways working conditions and living conditions results in certain health outcomes.

Chapter 3 describes a conceptual framework, called the Farmworker Health Landscape, which is informed by the findings in Chapter 2. The framework defines the relationships and distinctions between political, sociocultural and economic structural factors, the determinants of health including living conditions, working conditions and access to health care, and individual health outcomes. This chapter explains the web of barriers to improving health and safety for farmworkers.

Chapter 4 explains the methods and results of a farmer survey conducted with the Northeast Organic Farming Association and the Northeast Organic Dairy Producers Alliance on barriers perceived by participants to improving health and safety for workers. The findings are contextualized within the Farmworker Health Landscape framework established in Chapter 3 and compared to the existing literature on farmworker health and safety.

Chapter 5 summarizes and concludes the arguments made throughout the previous chapters, makes recommendations for future research, and discusses lessons learned from the process of researching and writing this thesis.

Methods

The methods for this thesis include review and synthesis of the literature on farmworker health and safety. Due to data limitations on farmworker demographics in the United States, certain statistics reported in Chapter 1 refer to workers in the livestock industry. However, literature cited throughout the rest of

this thesis, specifically related to health and safety conditions, is limited to the produce and dairy sectors. Literature on meat production, the seafood industry, forestry and child labor was excluded from analysis.

The most common themes addressed in the literature were categorized and included in the Farmworker Health Landscape conceptual framework. This thesis discusses a number of the most significant explanatory factors of farmworker health, but is not able to include all factors that may have a direct or indirect impact. Literature with a specific focus on the structural determinants of health informed the relationships outlined in the framework. The body of literature referenced is largely comprised of studies conducted with farmworkers by farm labor scholars or advocates. This is due to the lack of studies and data in the literature that include the farmers' perspective on worker health and safety.

The farmer survey was developed with a partner organization to ensure the questions were appropriate, useful and relevant. Approval to conduct research with human subjects was granted from the Social, Behavioral & Educational Research Institutional Review Board at Tufts University. The survey was distributed online and results were analyzed using mostly descriptive statistics and some regression analysis. The results were compared to the body of literature on farmworker health and safety and situated with the Farmworker Health Landscape. Methods are further described in Chapter 4.

Chapter 2: Determinants of health and safety

Chapter 2 presents the results of a literature review on the determinants of health and safety conditions for farmworkers in the United States in addition to supplementary research conducted over the course of writing this thesis. The findings in this chapter inform a conceptual framework called the Farmworker Health Landscape, which is explained in Chapter 3 and used throughout the rest of this thesis as a lens for analysis.

Methodology

The initial literature review used three databases and a number of key words to identify the policy determinants of health and safety for farmworkers in the United States. The databases were: Web of Science, Proquest Agricola and Nexi Uni. The key words used include the following terms: ("U.S." OR "United States" OR America*) AND (labor OR worker* OR farmworker*) AND (agricultur* OR farm*) AND (policy OR law OR legislation).

After reviewing over 100 abstracts, 50 articles were selected that discussed determinants of living and working conditions for farmworkers in the United States. Fourteen of the 19 articles that specifically discussed the factors that shape health and safety conditions were selected for review. The selection criteria prioritized recent articles within the past 10 years that describe health and safety conditions for workers in the produce and dairy industries. Articles on meat production, the seafood industry, forestry workers and child labor were excluded from analysis. Studies included in this review discuss diverse geographic regions and crops throughout the country because of limited disaggregated data on

workers across sectors. Additionally, the health and safety risks in all agricultural sectors and the structural forces that shape them are similar and overlapping. The articles reviewed and referenced in this literature review used interviews and focus groups, ethnographic studies, analysis of the National Agricultural Workers Survey and various other methods.

The major political, social and economic determinants of health and safety conditions for farmworkers in agriculture in the United States are described below. This chapter has been supplemented with findings from additional studies on farmworker health and safety since the initial literature review was conducted.

Political determinants

The most significant political determinants of health and safety for farmworkers include a concept called farmworker exceptionalism, immigration status of workers, and gaps in health care policy.

Farmworker exceptionalism

Farmworker exceptionalism is a concept widely discussed in the literature that refers to a set of policies and standards, which exclude agricultural workers from many federal labor laws and protections (Liebman et al. 2013; Arcury et al. 2013). For example, farmworkers are exempt from the main piece of federal legislation for employee protection called the National Labor Relations Act and lack the right for collective bargaining as a result. In the 1970s the Fair Labor Standards Act, which sets minimum wages and allowable maximum hours for employees, extended coverage to farmworkers, but only if employed on “large farms” with more than 10 full-time workers. This effectively excludes an

estimated 85% of migrant and seasonal farmworkers, who work on small farms (Snipes, Cooper, and Shipp 2017). Farmworkers are also not entitled to mandatory breaks for rest or meals, workers compensation or unemployment insurance under the FLSA (Strochlic and Rittenhouse 2013).¹ The Social Security Act and many state workers' compensation laws also specifically exclude agricultural laborers (Liebman et al. 2013).

Another example is the Environmental Protection Agency's (EPA) Worker Protection Standard (WPS), which dictates required trainings and safety precautions for pesticide handlers and applicators (US EPA 2014), but establishes a weak baseline that is poorly enforced. For example, there are too few regulators, small or nonexistent fines for non-compliance, and farmworkers have limited ability to file a violation complaint due to a fear of retaliation (Economos 2017) and language barriers: language services in relevant state agencies is optional based on budgetary constraints (US EPA 2017, pg 52). Furthermore, while the Occupational Safety and Health Administration (OSHA) requires most industries to conduct medical monitoring of workers exposed to harmful substances, neither OSHA nor the EPA has equivalent national requirements for medical monitoring of pesticide exposure (McLaughlin and Weiler 2017).

The regulatory environment just described is politically and culturally pervasive in that it shapes employee-employer relationships, the pace of work and compensation, and physical exposure to occupational hazards, among other things. Farmworker exceptionalism is matched by "agrarian exceptionalism," or

¹ Few states, such as California, Oregon and Washington, have now established state-level protections for farm labor.

² Perea (2011) explains the legislation was "race-neutral" by excluding employment sectors

the belief that farmers are inherently trustworthy. This cultural belief serves as a “powerful justification [to allow] employers to act with voluntary discretion, rather than through formal accountability structures” (McLaughlin and Weiler 2017). Chapter 3 provides additional examples of the health and safety implications of farmworker exceptionalism for the agricultural work force.

Immigration status

The second political determinant at least mentioned by every article in the review is tenuous immigration status. Baker and Chappelle (2012) found that “fear of immigration law enforcement was the primary barrier to care” and even outweighed the burden of cost, in a study with workers on Vermont dairy farms. Other authors also find that a fear of encountering immigration enforcement deters workers from seeking medical attention in the event of an injury (Guild, Richards, and Ruiz 2016; Hoerster et al. 2011). In fact, Snipes et al. (2017) share one estimate that “between 42% and 50% of Latino farmworkers do not seek medical treatment for their workplace injuries despite prolonged pain,” and Guild et al. (2016) report that 41% of farmworkers did not use U.S. health care services at all in the last two years, compared to 16.8% of the general population. Additional studies find a correlation between citizenship and health care use with unauthorized farmworkers being less likely to receive care than workers with authorization (Hoerster et al. 2011; Luo and Escalante 2017).

Tenuous immigration status also shapes occupational health and safety in that undocumented workers, in particular, are less likely to report safety violations, hazards and injuries. In a series of focus groups with dairy workers,

Liebman et al. (2016) find that the substantial majority avoids reporting for fear of losing their job or being deported. As mentioned in Chapter 1, an estimated 77% of occupational illnesses and injuries in agriculture go unreported (Leigh, Du, and McCurdy 2014) reducing the likelihood for regulatory action and safety improvements.

The fear of immigration enforcement is well founded in workers' experiences with U.S. Customs and Border Protection agents who are allowed to stop and search vehicles without reason and are often seen circling the border of farm properties in plain view for immigrants to see (Sexsmith 2017). Though only about half of farmworkers lack authorization (NAWS 2014), multiple authors describe an "internalized sense of deportability" even among workers with legal documentation to work in the United States, due to poor treatment and the lack of labor rights (Sexsmith 2017). In addition to limiting treatment for injuries, the consistent fear and stress of deportation contributes to high rates of mental illness and depression in farmworkers (Baker and Chappelle 2012).

Health care resources

In addition to immigration status, the health care needs specific to this population are not accounted for in federal health care policy or in the provision of resources. Sexsmith (2017), Guild et al. (2016) and other authors thoroughly demonstrate how the network of eligible health care providers and facilities is either lacking or too expensive. First, the majority of farmworkers are ineligible for Medicaid as they travel between states and also cannot purchase health care plans on the Affordable Care Act Marketplace, even at full price (Guild, Richards,

and Ruiz 2016). Many farmworkers, specifically undocumented individuals, are then only covered for emergency care (Sexsmith 2017). Due to this restricted access, farmworkers must depend on charitable organizations or the migrant health care system for non emergencies, which only holds capacity to serve fewer than 20% of the nation’s farmworkers (Strochlic and Rittenhouse 2013). Guild et al. (2016) estimate that only one third of farmworkers have any form of insurance.

The findings illustrate how farmworker exceptionalism, tenuous immigration status of many workers, and limited health care access determine certain aspects of worker health and safety through limiting labor rights, creating a fear of reporting occupational hazards and injuries, and reducing rates of health care usage.

Social determinants

The most significant sociocultural factors that shape farmworker health and safety include ethnic discrimination and social isolation.

Ethnic discrimination

Seth Holmes (2006) provides the most intimate understanding of the daily discrimination farmworkers may face through his ethnographic research with undocumented, indigenous Mexican migrant laborers in the western United States. Holmes describes an ethnicity-immigration-labor hierarchy to show how health disparities in farmworkers are dependent on “ethnicity, citizenship, and social class.” The pervasive, implicit belief of inherent ethnic differences related to biological capabilities was used to justify why those lowest in the hierarchy (indigenous, undocumented Mexican workers) occupy the hardest, most

dangerous jobs and have the worst health (Holmes 2006). This racism shows up in the fields among crew leaders, but also in health care providers, social workers, and farmworkers themselves. Internalized racism in workers emerged in the expressed beliefs that certain groups were more adept to climb the highest ladders, crouch in the fields for longer hours, or better withstand pesticide exposure (Holmes 2006). In the event of an incident, perceptions of discrimination and condescending treatment on the part of clinic staff are an additional deterrent to seeking care for many farmworkers (Strochlic and Rittenhouse 2013).

In other studies, foreign-born workers maintain the worst positions and the personal agency. For example, 60% of immigrant dairy workers in one study worked as milkers, which is a risky, repetitive position, with limited decision-making, while only 16% of American workers reported this as their primary task (Liebman et al. 2016). Additionally, Snipes et al. (2017) found that U.S.-born individuals were more likely to receive time off after an injury than foreign-born workers.

Isolation

Geographic and cultural isolation also shape both mental and physical health for farmworkers. This isolation results from a variety of overlapping factors including rural, on-farm living, being in a new culture, and language barriers that all intersect in resulting health outcomes (Padilla, Scott, and Lopez 2014; Hoerster et al. 2011). In one study with 120 dairy farmworkers in Vermont, employees reported that isolation was the most challenging aspect of their work,

only leaving the farm an average 1.4 times per month (Baker and Chappelle 2012). Sexsmith (2017) explains one consequence is that farmworkers have weak social ties with the external community. This is problematic for health care access because farmworkers often depend on a “highly informal [health care] resource environment” and the ability to access services “is only as strong as their social network” (Sexsmith 2017). Geographic isolation also presents an additional barrier to accessing health care facilities because of increased travel time and a lack of transportation to reach a facility (Guild, Richards, and Ruiz 2016).

The migratory lifestyle contributes to isolation by creating geographic barriers to coherent and consistent health care (Grzywacz et al. 2013). As most thoroughly described by Guild et al. (2016), the main issue is the “non-portability of health insurance.” Since provider networks for a particular plan rarely extend across state lines, farmworkers lose access as they travel across a region or the country, following the harvest. New enrollment could require internet or phone access, paperwork, and the time to travel to a new clinic or navigate differences in state plans (Guild, Richards, and Ruiz 2016). Migration also results in a lack of continuity in treatments that may require a follow up appointment or multiple visits over time (Grzywacz et al. 2013). Additionally, a 90-day waiting period between hiring and coverage may effectively bar many seasonal workers from health care coverage in the first place (Kissam 2013).

Finally, farmworkers are impacted by cultural isolation due to separation from their families and countries of origin and associated language barriers. Baker and Chappelle (2012) and Holmes (2006) describe negative health outcomes such

as mental stress and grievance in workers who have left their families in their home countries. Grzywacz et al. (2013) adds that risks are likely exacerbated for these workers who want to maximize the financial benefit of that separation and therefore become more tolerant of abusive or dangerous conditions if it may increase financial gain. Meanwhile limited Spanish language ability by farm owners and health care staff also make it difficult for workers to get proper safety training and to express their health care needs (Hoerster et al. 2011; Sexsmith 2017). Baker and Chappelle (2012) emphasize that the quality and availability of translator services within health clinics are a significant barrier to receiving appropriate treatment by a doctor.

Economic determinants

Economic determinants of health and safety conditions include work organization, worker dependence on employers, and downward pressure on farm gate prices.

Work organization

As mentioned previously, there is evidence that workers are organized and assigned tasks along ethnic and citizenship lines. Grzywacz et al. (2013) contribute to this analysis in their review article on work organization among immigrant farmworkers in the Southeast United States. The authors describe work organization as “a constellation of geopolitical, socio-structural, organizational, and interpersonal factors that operate at multiple levels to affect worker health” (Grzywacz et al. 2013). Elements of work organization include part-time, contingent work and piece rate compensation instead of hourly wages. When

workers are paid piece rate they are compensated by the weight or volume they harvest instead of hourly. This arrangement increases the risk of injury due to the observed pressure to work more quickly and to skip breaks in order to harvest or produce as much as possible in a single day (Grzywacz et al. 2013). This pay structure also incentivizes excessive hours and dangerous conditions (Sexsmith 2017) and disincentivizes injury and hazard reporting (Snipes, Cooper, and Shipp 2017). Contingent work arrangements act as a determinant of health in that they offer less job stability, lower wages and fewer benefits, all of which lead to reduced health care access and increased stress and psychological demand. Contingent workers also generally receive less trainings and higher exposure to occupational hazards (Grzywacz et al. 2013).

The Occupational Safety and Health Administration supports these findings by clearly stating on their “Protecting Temporary Workers” website page that they have concerns “that temporary workers are more vulnerable to workplace safety and health hazards and retaliation than workers in traditional employment relationships” and “that temporary workers are often not given adequate safety and health training or explanations of their duties by either the temporary staffing agency or the host employer” (OSHA 2018c). Based on these conclusions, part time work and piece rate compensation are two economic factors that in general exacerbate health and safety conditions for workers.

Dependence on employer

In the event of an injury or illness, workers are highly dependent on their employers for the necessary resources to seek health care. McLaughlin and Weiler

(2017) most concretely explain how the economic relationship between immigrant workers and American employers acts as a determinant of health through their discussion of the terms “flexiprofit” and “flexicurity.” Flexiprofit describes the capitalist employer’s (the farmer, in this case) ability to gain from a powerless workforce by transferring costs and externalities to workers. Flexicurity then describes the situation where economically insecure workers with weak negotiating power are likely to endure risky or poor working conditions in order “to realize a fleeting shred of [economic] security” (2017). Though they are dependent on one another, farmers maintain ultimate power in a political framework that prioritizes their security over that of their employees. Financial dependence on the part of the workers matched with weak labor rights strengthens employers’ leverage to benefit from a “hyper-exploitable workforce.” The outcome is that workers accept lower wages and are unable to advocate for improved conditions for fear of retaliation (McLaughlin and Weiler 2017).

The article by McLaughlin and Weiler is a comparative analysis of four books that illuminates how state institutions around the world actively oppress farmworkers to sustain a cheap, exploitable labor force. The narrative that our food production system is dependent on this form of labor works to legitimize these actions. While other articles in this literature review describe “flexicurity” and “flexiprofit” in their own words, McLaughlin and Weiler differ in their explicit argument that these conditions are systemic and nothing short of intentional. The power dynamics that play out as a result of economic insecurity have very direct effects on worker health and safety in that workers depend on

their employers for almost all of their basic needs as described by Holmes (2013), Sexsmith (2017), Baker and Chappelle (2012) and Grzywacz et al. (2013).

In addition to income and housing, workers often rely on employers for all health care related information, communication and transportation (Holmes 2013; Baker and Chappelle 2012). Liebman et al. (2016) explains how this resource dependence gives employers freedom to define how and if workers treat occupational injuries. For example, employers may refuse to grant time off for an appointment or recovery, requiring employees to work through injuries and return to their job immediately (Snipes, Cooper, and Shipp 2017). If workers do receive treatment, some employers refuse to pay medical bills, while others will provide transportation and even pay medical costs, but refuse to file a worker's compensation claim (Liebman et al. 2016). In this case, treatment for long-term health consequences from the incident is not covered. The dependence on a single source for all workers' needs drastically limits their personal agency and ability to make the best choices for their own health.

One explanation for the work arrangements just described is that farmers face pressure to reduce their production costs as a result of corporate and supply chain consolidation and downward pressure on farm gate prices (Asbed and Hitov 2017; MacDonald, Hoppe, and Newton 2018). While it is easy to attribute poor employee treatment to a moral failing of the employer, Asbed and Hitov (2017) describe worker exploitation as an "economic crime," or in other words a desperate response to the economic pressure felt from buyers up the supply chain, such as grocery stores or fast food companies. This pressure is then transferred to

workers. Due to dairy sector consolidation, farm size has grown along with associated heightened demands on the speed, hours and productivity for workers (Sexsmith 2017). The weak economic leverage to move jobs and precarious socioeconomic status of farmworkers often results in a pressure and willingness to accept the wages, job tasks and position they are offered (Holmes 2013), despite negative health implications which may or may not be obvious.

In conclusion, there is a wide range of factors that determine the health and safety conditions for farmworkers in the United States. Politically, farmworkers are excluded from numerous regulatory protections, threatened by tenuous immigration status, and left with limited and difficult-to-navigate health care services. Socially, farmworkers face implicit and explicit ethnic discrimination on the job and in the health care system. They also experience geographic and cultural isolation, which can lead to further vulnerability and reduced access to health care. Economically, tight financial pressure faced by farm employers is transferred to workers in the form of contingent work arrangement and imbalanced power dynamics associated with poor health and safety outcomes. The various determinants interact with one another and underline every aspect of farmworkers lives on the job, at home and in their attempts to utilize health care.

Chapter 3: Farmworker Health Landscape conceptual framework

Farmworker Health Landscape

The literature review in Chapter 2 describes the numerous and diverse determinants of farmworker health and safety in the United States including gaps in health care policy, geographic and cultural isolation, and elements of work organization such as part-time, piece rate wages. Chapter 3 further organizes and synthesizes the findings in Chapter 2 in a conceptual framework called the Farmworker Health Landscape (Figure 3.1). Most notably, the Farmworker Health Landscape re-categorizes the topics broadly referred to as determinants of health and safety in Chapter 2 as either “Structural factors” or “Determinants of health.” An understanding of this distinction and the different mechanisms that produce farmworker health outcomes provides one response to the thesis question: What are the barriers to improving health and safety for farmworkers in the United States?

The Farmworker Health Landscape illuminates how political, sociocultural and economic structural factors act in both obvious and subtle ways to create barriers to improving health and safety conditions for farmworkers in the United States. The structural factors included in the framework create disproportionately poor health outcomes for farmworkers by shaping working conditions, living conditions and access to health care, collectively referred to as determinants of health (Figure 3.1). The determinants of health have a direct influence on health outcomes.

There are many other frameworks or causation models that similarly explain how structural factors influence health along a “socio-economic gradient” (Stronks et al. 1996), how macro-level determinants like social, demographic, and economic risk factors shape self reported health via their influence on micro-level determinants (Prus 2011), and how policy shapes psychosocial risk factors to produce health inequities (House 2002). The distinction between the influence of distal and proximal factors on mental health outcomes described by Hawkley et al. (2008) and other authors informed the relationships and flows of influence conveyed in the Farmworker Health Landscape.

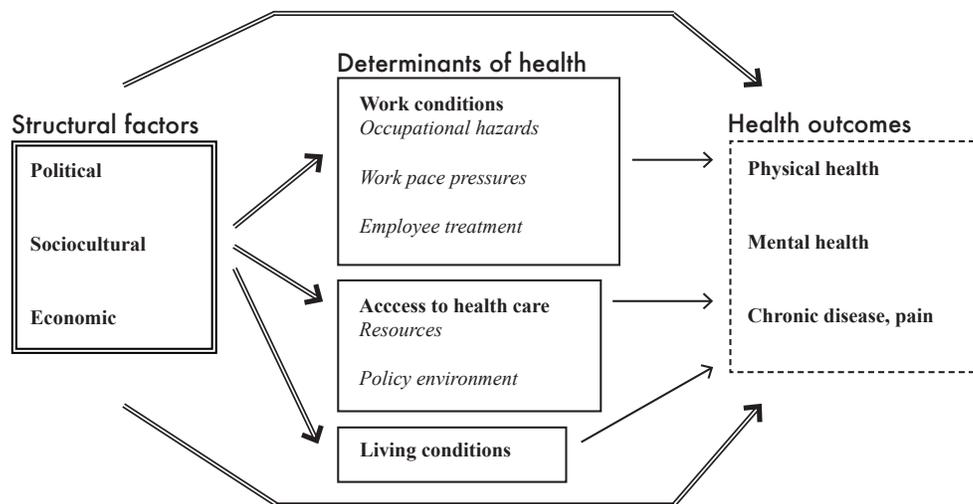


Figure 3.1: Farmworker Health Landscape conceptual framework

To illustrate how the components of the Farmworker Health Landscape interact, this chapter calls on an analogy described by Camara Jones in her “Allegories on race and racism” TEDx talk (Jones 2014). Jones describes why one flower box with nutrient rich soil grows tall, healthy flowers while a second flower box with the same number and type of seeds, but with nutrient deplete soil produces fewer, shorter plants. In her analogy the first flower box describes the

privileged class, largely white people in the United States, who grow from an environment with opportunities for education, employment and wealth. The second flower box represents the environment for people of color in the United States who have less access to opportunities on average based on history, policy and cultural norms. The point of her analogy and its connection to the Farmworker Health Landscape is that like nutrients in the soil, the environmental or structural factors in society exert an inescapable influence on individual outcomes.

In the Farmworker Health Landscape, the political, sociocultural and economic structural factors make up the soil of society, which has the power to nourish or deplete all other elements of the farmworker's experience. The determinants of health represent the roots and stems of a plant and, depending on their quality and strength, may produce positive or negative health outcomes. Individual health outcomes represent the nutritional density of the harvest. The current landscape is rooted in nutrient-deplete soil that can only result in nutrient-deplete outcomes for farmworkers. However, neither plant health nor human health outcomes are fixed because soil can be amended and structural factors may be improved. By pairing Jones' analogy with an in-depth understanding of the components of the conceptual framework, we might reimagine the Farmworker Health Landscape from one where poor health outcomes seem inevitable to one where they are intolerable.

The rest of Chapter 3 explains the Farmworker Health Landscape in detail and the specific mechanisms that act as barriers to improving health and safety for farmworkers in the United States.

Details of the Landscape

The three components of the framework include structural factors, determinants of health, and individual health outcomes. Each component of the framework includes a number of categories indicated in bold. Work conditions and Access to health care listed under Determinants of health are organized further by different themes indicated in italics. Figure 3.2 includes numbered examples under each category and theme, many of which are discussed in Chapter 2.

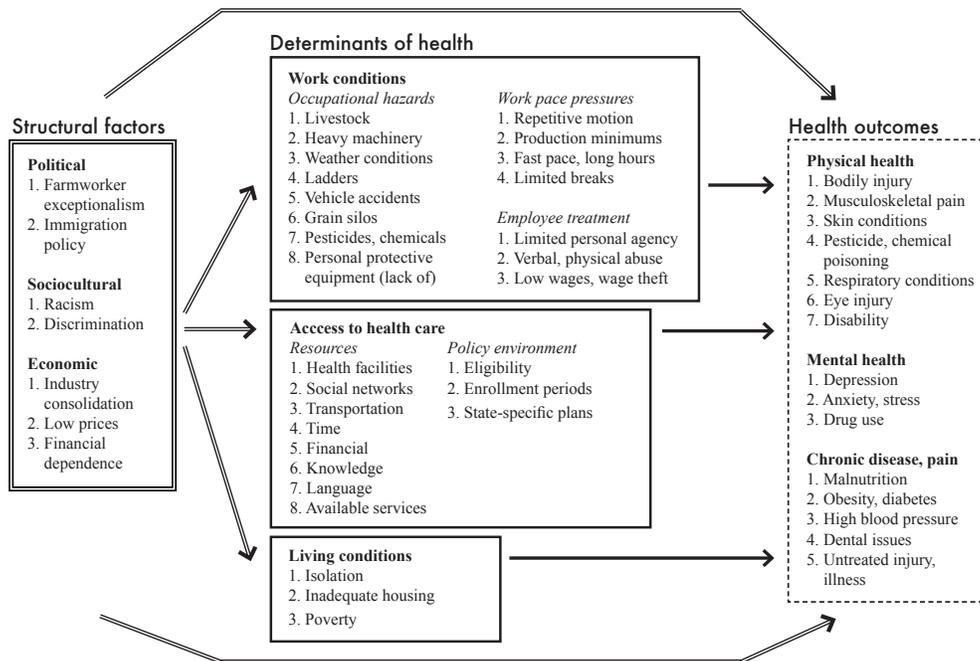


Figure 3.2: Farmworker Health Landscape with examples

The structural factors are political, sociocultural and economic forces specific – yet not necessarily unique – to American society. These factors underpin all aspects of life in society and shape who has access to which resources and opportunities. Structural factors are often taken for granted, used to support normative arguments, or overlooked altogether because their manifestation in daily life can be abstract and difficult to identify. Because of their pervasive influence, these factors are difficult to change through intervention and represent deeply rooted barriers to improving health and safety for farmworkers. In the Farmworker Health Landscape, structural factors directly produce certain health outcomes in some cases, but more often shape health outcomes indirectly via their influence on the determinants of health. In other words, the structural factors largely define the nature and quality of working conditions, living conditions and access to health care specific to the farmworker population.

The second component of the framework is titled determinants of health, which includes working conditions, access to health care and living conditions. The determinants of health are tangibly felt and experienced in the daily lives of farmworkers and directly create, exacerbate, and reinforce individual health outcomes in myriad ways. (See Figure 3.2 in reference to the following examples.) For example, occupational hazards and fast-paced, repetitive work can increase the risk of injury and illness (Liebman et al. 2016). Poor treatment at work and difficult living conditions like inadequate housing and low wages can lead to poor mental health outcomes (NCFH 2018). Variable access to resources

like health care facilities, time and knowledge can reduce the rate of seeking out and receiving health care in the event of an injury (Hoerster et al. 2011). Lower rates of health care may increase the likelihood of chronic disease and pain. Health and safety interventions focused on these determinants of health, such as safety trainings to reduce occupational hazards (Menger, Rosecrance, et al. 2016), are common perhaps because the problems and solutions are easier to identify and implement than structural challenges.

Ultimately the complex and overlapping interactions between the structural factors and the determinants of health together act as barriers to improving the disproportionately poor health outcomes currently experienced among farmworkers. Through structural analysis, these barriers may be more thoroughly understood and addressed.

Structural analysis of farmworker health

Structural factors deserve to be analyzed and scrutinized given their pervasive influence that simmers below the surface, presenting the ability – or inability – to achieve a high quality of life in a given society. The structural factors that constitute the foundation of the Farmworker Health Landscape are a mix of political, social and economic forces: the political structural factors are “farmworker exceptionalism” and immigration policy; the sociocultural factors include racism and discrimination, which both stem from and exacerbate the outcomes of farmworker exceptionalism; and the economic forces include industry consolidation, low prices and a permeating financial dependence on employers by farmworkers. Each type of structural factor and how it impacts

farmworker health is explained below. For a more comprehensive explanation of the examples listed under Determinants of Health and Health Outcomes in Figure 3.2 see Appendix 1.

Political factors

Farmworker exceptionalism is a political and cultural standard that offers regulatory exemptions for farmers and limited labor rights for workers. The standard was institutionalized in the New Deal Era when agricultural and domestic workers were excluded from the slew of new federal wage and labor legislation as a “race-neutral proxy for excluding blacks”² from benefits and protections (Perea 2011). Despite these racist origins, and as a direct result, today agricultural workers are still excluded from many labor standards and protections (See Chapter 2 for examples.) The most relevant example in the context of worker health and safety is the Occupational Safety and Health Administration’s (OSHA) small farm exemption, which eliminates tracking and reporting requirements for occupational illness and injury for farms with fewer than 11 employees (OSHA 2018a). The agency is fiscally prohibited from inspections on these farms, unless the incident is fatal.

Without the legal requirement to track and report incidents, the incentive and capacity for farms to resolve occupational hazards in a systematic way is limited. This exemption is a welcome reduction in regulatory burden for small-scale farms and regulatory budget for OSHA. However, the resulting work environment is one that shifts the responsibility to create safe working conditions

² Perea (2011) explains the legislation was “race-neutral” by excluding employment sectors dominated by black people instead of explicit exclusion by skin color.

from the farm employer to the employees, who have less personal agency to make positive change (Wadsworth, Courville, and Schenker 2018). Occupational hazards directly lead to an assortment of health outcomes from acute physical injuries such as fractures, amputations, and lacerations to long term or permanent consequences such as chronic pain, eye injuries or blindness, and disability (Liebman et al. 2016).

The culture of farmworker exceptionalism also shapes additional determinants of health depicted in the Farmworker Health Landscape including wage standards, workers compensation, housing conditions, the provision of health care facilities and eligibility for services, as discussed in Chapter 2. The continuation of these politics and exemptions, which were explicitly established to withhold economic and legal power from a majority-black farmworker population (Perea 2011), perpetuates structural racism today by disproportionately impacting Hispanic workers, who now make up an estimated 80% of the agricultural labor force (NAWS 2014). In this way, the political environment that created and is reinforced by farmworker exceptionalism is the underpinning for the sociocultural structural factors outlined in the Farmworker Health Landscape.

Sociocultural factors

Sociocultural structural factors that interfere with farmworker health include racism and discrimination. Racism is defined as a set of beliefs or institutional conditions used to justify unequal treatment of certain groups in society (Williams 1999; Bobo 2003), usually based on ethnicity, citizenship or socio-economic status. Discrimination is the manifestation of those beliefs or

conditions in actions that either directly or indirectly limit opportunity for that group (Bobo 2003). Both are made possible by the dehumanization of farmworkers, or the devaluation of human life and seeing another person or group as “other” (Oxfam America 2004).

Specific examples of racism and discrimination can be found across the political and cultural landscape for farmworkers in the United States. Examples include limited enforcement of on-farm training and safety standards (US EPA 2013), insufficient health care resources accessible to farmworkers (Sexsmith 2017), a lack of required translation services in government agencies responsible for conducting inspections and receiving employee grievances (US EPA 2017), and policies that established shared employee liability between farm owners and farm labor contractors (Cartier 2009). Whether intentional or unintentional, these institutional policies and practices result in unequal protection, support and opportunities for farmworkers to achieve health and safety on the job and in their daily lives.

While many of the examples just mentioned could be considered a result of neglect or weak regulation, another key example of how discrimination creates barrier to farmworker health is through the way immigration policy is enforced. Sabo et al. (2014) document the physical, verbal, and emotional abuse and mistreatment experienced by permanent residents or U.S.-born and naturalized citizens of Mexican descent, in a 20-year collaborative study and survey with 299 individuals living along the Mexico-U.S. border (in Arizona). Study participants, who were mostly farmworkers, describe unannounced vehicle and home

inspections where immigration officials broke doors or fences and damaged personal property. Random inspections also occurred in private farmworker transportation buses and on the job where workers reported verbal harassment and intimidation. Study participants also reported human trafficking accusations, arbitrary detention and physical violence such as beatings or being tackled, particularly at security check points and border crossings. These actions instill fear in the community and limit mobility by creating a distrust of and the desire to avoid public institutions (Sabo et al. 2014), which contributes to limited incident reporting and health care usage by farmworkers as previously discussed.

Paret et al. (2014) contextualize the ethno-racial profiling and abuse just described in their study on the three phases of immigration enforcement over the past century. Since the Immigration Reform and Control Act (IRCA) of 1986, when it became illegal for employers to hire undocumented workers, the politicized undocumented status of many farmworkers has been used as justification for racial profiling and inspections (Paret 2014). Since employer penalties have rarely been enforced, and workers are usually fired, but not deported, the primary result of this component of the IRCA is to undermine the power of undocumented workers. The authors claim the purpose of silent raids is to remind migrant workers of their vulnerability (Paret 2014). These daily experiences that stem from racism in policy and discrimination in practice become “internalized or normalized” the more often they occur and increase risk of stress and poor mental health by up to 2.3 times the normal rate (Sabo et al. 2014). This state of political vulnerability further perpetuates and enables

dangerous working conditions, labor violations and low pay for farmworkers (Paret 2014).

Economic factors

The third component of the structural environment considered in the Farmworker Health Landscape includes economic factors such as industry consolidation in the food system, competition and poverty wages for workers. Consolidation across the agricultural supply chain is seen in the production and sales of seeds and other inputs, in food retailers such as fast food chains and grocery stores (Weiler, Otero, and Wittman 2016), and in actual farm size and ownership (MacDonald, Hoppe, and Newton 2018), to name a few. As the marketplace consolidates, companies can command higher prices from farmers for inputs and can offer lower prices for the goods they purchase, effectively shrinking margins for farmers. Economies of scale advantage only a few large-scale farms and create downward pressure on prices for the others trying to compete. One of the more convincing theories on the impacts on workers is outlined by Asbed and Hitov (2017) who attribute the root cause of human rights violations and poor working conditions to the immense, unchallenged purchasing power of corporate food buyers (CIW Home Page 2018). These entities take such a high share of profits that growers are forced to transfer the losses to workers in order to maintain their bottom line. In this context, the farmers' economic dependence on the corporation to sell their product is parallel to the workers' dependence on their farmer employers for financial security (Asbed and Hitov 2017).

Meanwhile, farmers compete with one another for a shrinking labor supply, which increases wages and exerts additional pressure on farm input costs. These financial burdens felt by employers are transferred to workers in the form of low pay, pressure to work faster, and physical or verbal abuse that employers may perceive as necessary or inescapable (Holmes 2006). Farmworkers' economic dependence on employers and political vulnerability in their daily lives reduces the tendency to report abusive behavior, request improved working conditions or seek alternative employment (McLaughlin and Weiler 2017). As addressed in Chapter 1, while the average wage for documented farmworkers has increased in recent years and is above official minimum wage (NASS 2018), most farmworkers are not employed in agriculture year round and do not earn a livable wage, with only 10% of farmworkers' income above \$36,000 annually (US Department of Labor 2018). These low wages for workers contribute to poor living conditions and require workers to make tradeoffs between lost pay, lost time, self-care and health care (Wadsworth, Courville, and Schenker 2018).

These examples describe the mechanisms through which structural factors in the United States manifest in the lives of farmworkers by directly shaping determinants of health and indirectly producing health outcomes. A final key distinction to make about the determinants of health is the extent to which each one is created by structural factors. While some determinants of health such as heavy machinery and weather are inherent aspects of farm work, other determinants listed in the framework are entirely unnecessary aspects of the

current Farmworker Health Landscape, such as verbal abuse and state-specific health care policy.

The purpose of making this distinction clear is to note that not all aspects of the health landscape fundamentally or necessarily lead to poor health outcomes. For example, weather conditions are an inevitable factor of farm labor given that most of the work takes place outdoors. However, it is the way the structural environment shapes the response to extreme cold or heat – whether a worker has access to shade, breaks for water, proper gear for extreme cold – that determines the extent to which various determinants lead to poor or good health. Time and transportation will always be necessary for workers to utilize health care and the structural factors that create barriers or opportunities for these resources will determine the associated health outcomes. The purpose of shedding light on intrinsic factors in the health landscape is not to eliminate them – indeed we cannot stop seasons nor ignore the fact that it takes time to visit a medical provider. The purpose is instead to understand how structural factors render these otherwise noxious intrinsic determinants of health harmful to worker outcomes so that they may be changed.

Other determinants of health included in the framework are not inherent to agricultural production or health care systems such as verbal abuse and state specific insurance plans. These determinants are a direct result of structural factors and constitute barriers to health and safety that may be eliminated from the current framework altogether. Through a more critical, intentional approach to updating political, social and economic structures, these nonessential elements of

the Farmworker Health Landscape and their negative health impacts can be minimized.

While the scope of this chapter is limited to describing few specific paths of influence between structural factors, determinants of health and health outcomes, the Farmworker Health Landscape provides a framework to facilitate the consideration of many additional pathways. The structural factors shape each and every determinant of health in subtle and obvious ways. By using the framework to guide analysis, dozens of connections between structural factors and health may be examined and addressed in the future.

Chapter 4: Farmer perspectives on barriers to worker health and safety

Chapter 4 explains the methods and results of a survey conducted with members of the Northeast Organic Farming Association and the Northeast Organic Dairy Producers Alliance. The survey asked questions about barriers perceived by participants to improving health and safety conditions for workers.

Introduction and rationale

In order to understand a problem comprehensively, diverse perspectives must be considered. In the literature on farmworker health and safety, many surveys and ethnographic studies provide deep insight into the farmworkers' experience. Health and safety risks include occupational hazards, social and physical stress and poor living conditions (Bail et al. 2012; Sexsmith 2017; Holmes 2006). There are also numerous barriers to health care such as legal exclusions, discrimination, fear of deportation, language, and resource constraints (Hacker et al. 2015).

While it is clear that health and safety conditions are poor for the large majority of farmworkers, little is known about how these conditions vary across the country by conventional versus organic status, by geographic location and from the farmers' perspective. It is clear that workers on organic farms are exposed to fewer chemicals and pesticides, but other indicators of health and safety like quality and quantity of safety trainings, occupational hazards, and wages have not been studied comprehensively. Overall, there is an inconclusive

body of literature that distinguishes between work conditions on conventional and organic farms.

There are also limited data specific to health and safety for workers on farms in the Northeast region of the United States (Berkey and Schusler 2016), particularly from the farmer's perspective. There are a number of recent and current efforts that aim to understand labor challenges for farmers in the Northeast, but none are specific to health and safety for workers on these farms. For example, in 2013, researcher Becca Berkey conducted a survey with the seven state chapters of the Northeast Organic Farming Association about labor and justice issues for organic farmers. Other surveys have addressed labor recruitment and retention in Vermont and New Hampshire (Roy 2016), labor management and decision-making among farmers in Vermont and New Hampshire (Peabody 2017) and labor management practices in New York (McCarthy 2018). Work has been published on health and safety for dairy workers specifically in New York and Vermont, but does not include the farmer perspective (Liebman et al. 2016; Baker and Chappelle 2012).

The present survey, referred to as the Health and Safety Survey from here forward, takes a unique angle by asking farmers and producers about their perceptions of health and safety for workers. The results are intended to supplement the lessons learned from the Farmworker Health Landscape and to contribute to a deeper understanding of labor practices and challenges of farmers in the Northeast. The survey examines the following questions: 1) What are the current employer practices related to health and safety for workers? 2) What are

the barriers perceived by farmers to improving these conditions for workers? 3)
How do organic farmers' perceptions in the Northeast compare to the barriers conveyed in the literature?

The Health and Safety Survey (H&S Survey) was conducted through a mutually beneficial research partnership with the New York State Chapter of the Northeast Organic Farming Association (NOFA-NY) and the Northeast Organic Dairy Producers Alliance (NODPA). NOFA-NY is an organization made up of farmers and consumers working together to create a sustainable, regional food system through organic certification, land stewardship and education (NOFA-NY 2018). NODPA is an organization of dairy producers from the 11 Northeastern states of Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. NODPA's mission is to facilitate discussion among organic dairy family farmers about critical issues in their industry (NODPA 2018).

Methods

The H&S Survey asked respondents questions about the number and type of workers on their farm, certain labor practices, and the barriers they experience related to these practices. The questions were co-created by researcher Tessa Salzman and NOFA Interstate Council representative and Board Member Elizabeth Henderson. The questions reflect findings from a literature review on the determinants of health and safety for farmworkers, in addition to NOFA's interests and knowledge of their members. A number of questions were also informed by lessons learned from a 2013 NOFA survey conducted with farmers in

the seven state chapters. Specifically, the present survey includes information on farm size and major crops produced, which was a noted limitation of the 2013 study (B. Berkey and Schusler 2016). The content and number of questions reflect a balance between NOFA-NY's interests, the research goals of this thesis, a desirable and realistic survey length, and the sensitive nature of farm labor as a survey topic. Elizabeth Henderson tested the survey for content and length at the NOFA Winter Conference to ensure the questions were straightforward and neutral. Once the survey for NOFA-NY farmers was finalized, it was sent to NOFA-NY's Executive Director, Andrianna Natsoulas, for approval.

Once the survey for NOFA-NY farmers was finalized, it was sent to NODPA's Executive Director for approval. The survey was slightly modified to ask dairy producers about the size of their herd, instead of their farm size (acres), and which state they worked in instead of main crop grown, which was assumed to be dairy. In retrospect, the NODPA survey could have asked about additional crops, given that most NOFA respondents reported more than one main crop.

Farmers were asked 17 multiple choice questions and one open response question about their labor practices related to pay rates, on-farm safety, health care and hiring. Each multiple-choice question also had an "Other" response option for respondents to fill in an answer that was not provided. See Appendix 2a for the full survey questionnaire for NOFA members and Appendix 2b for the NODPA version.

Response rate

The survey was distributed using the online survey tool Qualtrics and was sent to the NOFA-NY list serve on February 7, 2018. Over the course of the survey period, NOFA-NY sent the link three times to their full membership email list and received 101 responses. Elizabeth Henderson collected 12 additional paper surveys from NOFA members through the NOFA-NY Dairy and Field Crop Conference on March 6, 2018, and the survey period closed the next day. No respondents chose to print and mail in the survey. NOFA-NY's full membership email list includes 1,100 people with an estimated 70% farmers, which means approximately 770 farmers received the link. A total of 113 NOFA survey responses indicate an estimated 14.7% response rate. NODPA sent the link to their member list serve once on February 5, 2018 and received 19 responses for a total of 132 survey respondents.

Participation in the survey was voluntary and anonymous and no incentives were provided. Although participants were recruited through the NOFA-NY and NODPA email lists, the results are only representative of the farmers and producers who chose to fill out the survey and not necessarily all members of the organizations or farmers in the Northeast.

Data analysis

The dataset was downloaded from Qualtrics and was analyzed using Microsoft Excel for Mac (2011 Version 14.5.2) and Stata Statistical Software (Release 15). Data analysis was largely descriptive and included various tests for correlations between certain responses. Each multiple-choice question included

an “Other” option where respondents could write in an alternative answer. These free responses were analyzed for meaning and categorized in one of three ways: 1) responses were grouped with one of the existing multiple choice options if parallel in meaning, 2) responses were grouped with other free responses to create a new category, or 3) responses were left in the “Other” category if there were fewer than three with the same meaning. Of the 132 individuals who responded to the survey, 95 reported hiring at least one worker. The other 37 respondents did not report any hired labor. Responses about labor practices and challenges from these 37 respondents were omitted from analysis. While NOFA and NODPA are separate entities, the members are overlapping in terms of geographic location and associated constraints, organic status, and relative scale. Some members also belong to both organizations. Therefore, results are reported for the full sample unless otherwise noted.

Results

Respondents and their farms

The target population for the H&S Survey was organic farmers and producers in the Northeast who are affiliated with NOFA-NY or NODPA. Of the total 132 survey respondents, 113 were affiliated with NOFA-NY and 19 were affiliated with NODPA. Ten of the NODPA respondents were from a state other than New York: 1 from Connecticut, 1 Maine, 1 Pennsylvania, and 6 Vermont. All NOFA and NODPA respondents were asked about official membership with their affiliated organization, whether or not farming was their primary occupation and organic status, as indicated in Table 4.1.

Table 4.1 Farm demographics (N=132)

	Yes	n =
Are you a member?	89.6%	115
Is farming your primary occupation?	78.9%	128
Is your farm organic?	88.2%	127

The 113 NOFA-affiliated farms in the sample account for approximately 10% of the total 1,059 certified organic farms in the State of New York. The combined acreage for farmers in the survey sample (28,204.25 acres) also constitutes roughly 10% of total certified organic acreage in the state (264,385 acres), according to the USDA’s 2016 state surveys on organic production (USDA 2016). These calculations exclude NODPA producers because the version of the survey sent to NODPA asked about number of cattle instead of acres.

Table 4.2 Farm size (N=132)

	Average	Smallest	Largest	Total	n =
NOFA: How many acres do you farm?	259	0.1	6000	28,204	109
NODPA: How large is your dairy herd?	151	40	730	2,875	19

The distribution of main crops grown by the H&S Survey sample is shown in Figure 4.1. Roughly 50% of respondents

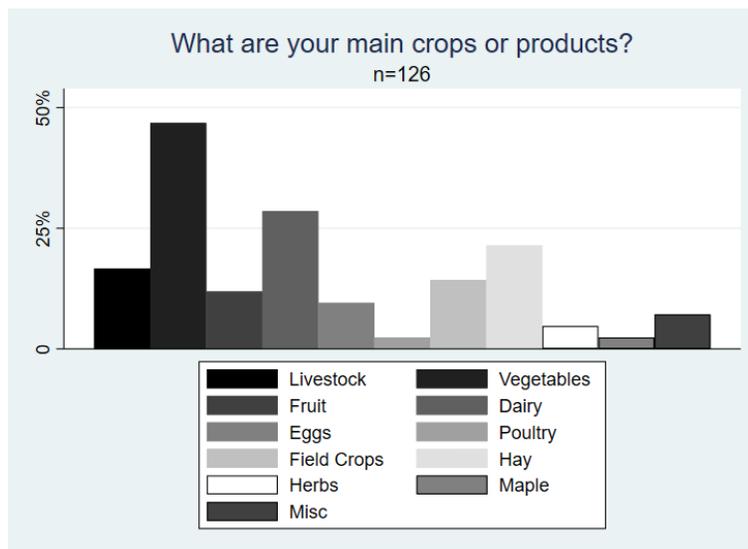


Figure 4.1: Main crops or products

reported growing and producing more than one type of crop. The version of the survey sent to NODPA affiliated farms excluded this question because it was assumed that dairy was the main product. However, it is likely that some of these respondents would have also reported additional crops or products, had they been asked.

Hired workers

The 95 farmers and producers who indicated that they hired labor collectively reported a total of 796 workers. The average number of workers hired was 8.4 people with 75% of respondents reporting between 1 and 7 workers. This number alone does not capture the full variety of work arrangements that vary from a single part time, seasonal worker reported by numerous farms to 200 hired workers on one vegetable farm. Most respondents also reported workers in multiple categories.

Table 4.3 summarizes the average number of each type of worker hired by farms in the sample. The number of respondents who reported hiring at least one worker in a given category is reported under “n=”. The average number reported under “Mean” is conditional on the number of respondents who reported hiring each type of worker. Some respondents only reported the total number of workers hired and did not specify by category. Therefore, the distribution of workers by category in Table 4.3 does not comprehensively convey the distribution of workers hired by the sample.

**Table 4.3: Average number workers, by category, 2017
(N=796)**

Category	Mean	<i>n</i> =
All workers	8.38	95
Full time, year round	2.32	44
Full time, seasonal	5.06	24
Part time, year round	2.82	28
Part time, seasonal	3.33	43
Family members, year round	1.95	43
Family members, seasonal	1.88	16
Interns/ apprentices, year round	1.71	7
Interns/ apprentices, seasonal	2.12	8
Volunteers, year round	3	3
Volunteers, seasonal	5.83	12
H-2A workers, year round	-	0
H-2A workers, seasonal	5	2
Other immigrant, year round	3.67	3
Other immigrant, seasonal	4.78	9
Other, year round	1	1
Other, seasonal	2.33	3

Roughly half of respondents hired between one and two family members on average, with 43 respondents indicating year-round family support and 16 indicating seasonal. Fewer farms reported hiring interns, volunteers and immigrant labor. Only 64 (or 8%) of all workers hired by survey respondents were specifically noted to be immigrants (either H-2A workers or Other immigrant workers).

Wages

Survey respondents were also asked about the pay rate for each category of worker. Response options included salary, hourly, piece-rate, flat-rate, combination or other, and multiple options could be selected for each category of worker. Seventeen farms reported that full time workers are paid salary, while 34

reported paying hourly. While majority of farms with part time workers reported paying hourly, 5 respondents said part time workers were paid salary. Few respondents reported paying any category of worker piece-rate, flat-rate or another way. Based on the format of this question on the survey, it is not clear if workers in a given category (i.e. Family members, year round) were paid in the same way (hourly versus salary) on a single farm.

The lowest and highest pay rates reported by the survey sample were difficult to summarize because they were reported in hourly, salary, and other forms using a short answer free-response format. The hourly pay rates reported by 55 respondents were selected for analysis and are summarized in Table 4.4 The lowest pay rate was \$11.37 on average with 65% of respondents paying a minimum wage of between \$10-12. The average highest rate reported was \$15.09, but four farms paid \$17.50 and seven paid \$20.

Table 4.4 Range of hourly pay rates (N=55)

Pay rate	Average	Minimum	Maximum
Lowest	\$11.37	\$7.00	\$15.50
Highest	\$15.09	\$10.00	\$45.00

A number of respondents excluded from these calculations reported having volunteer labor or paying \$0 per hour, meaning the true average wages when all workers are considered may be lower on average than these estimates. In the State of New York, family members are exempt from minimum wage and employers may make pay deductions for other types of workers in exchange for meals and lodging (NYS Department of Labor 2017). Because volunteers, family members and informal work arrangements were included in the dataset, it is

unclear whether or not the average minimum pay rate reported by the sample reflects these exemptions.

Surveys conducted with dairy producers and produce farmers in New York in 2009 found that dairy workers were paid over one dollar more than fruit and vegetable workers on average (Maloney and Bills 2011b, [a] 2011). However, the survey results suggest no statistically significant difference between pay rates for workers on dairy farms and all other farms.

The sample reported that the two most significant barriers to paying higher wages were that competition has pushed prices down and that prices received and

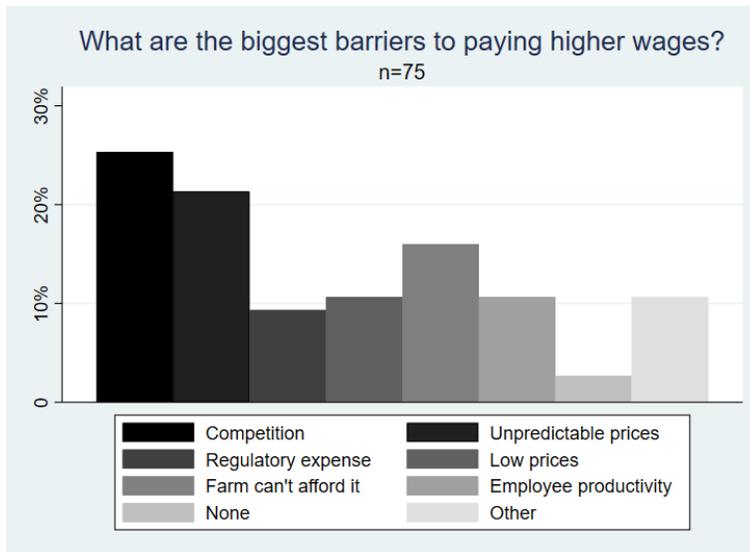


Figure 4.2: Barriers to higher wages

quantities sold are unpredictable (Figure 4.2). Other respondents used the “Other” option to identify the farm’s inability to afford a higher wage (16%) and low prices unrelated to competition (10.6%). An additional 10.6% of respondents described a barrier related to the productivity or quality of workers. These free responses included: “No qualified people for higher wages,” “haven’t found an employee who generates the value of his wages yet,” and “what employees can do.”

Hazard tracking and reporting

Survey participants were asked to indicate all of the ways they track and report hazards on their farms and the barriers to doing so. The large majority (65%) of 75 respondents reported that workers tell farm management directly, while almost 30% reported that crew leaders resolve hazards or incidents when they notice them. An additional 17% of the sample indicated that they had no method. When asked what barriers they experience to tracking and reporting hazards, more than one third of respondents (37%) reported that they experienced no barrier.

Trainings

They survey asked which safety trainings, if any, were given to workers from the following options: Fertilizer, chemical, pest management; Personal Hygiene and Safe Food Handling

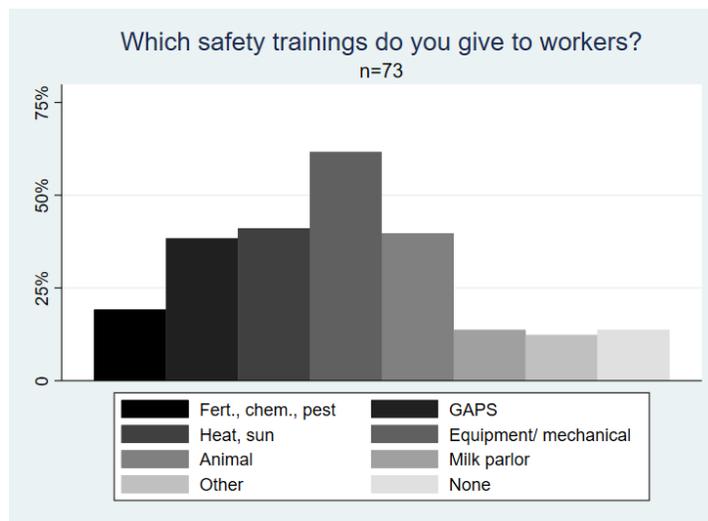


Figure 4.3: Safety trainings for workers

(GAPS); Heat, Sun, Hydration; Tractor, Equipment or Other Mechanical Hazard; Animal handling; Milk parlor safety (Figure 4.3).

Different worker arrival times (31.5%) and the short length of stay for seasonal workers (27.8%) were the two most commonly reported barriers (Figure

4.4). Other respondents

used the “Other”

option to describe

informal training and

learning by working

alongside employers

and co-workers, and a

number of other

individuals expressed

frustration with workers’ willingness and ability to retain the information shared.

Health care access

When asked how workers access health care, the majority of individuals (67% of 70 respondents) responded that their workers have private health insurance. Since health care is not legally required for workers, it most likely does not rise as a priority for farm employers. “Other” responses included that it is not the employer’s responsibility to provide it and they had never spoken with workers about it. The most commonly reported barrier (75% of 59 respondents) was unsurprisingly that private health insurance is too expensive, and seven respondents wrote “none” in the “Other” response option.

Hiring

When asked how workers are hired, 82% of respondents reported that they hire employees directly. Only two people reported hiring through a contractor. The two challenges to hiring workers directly most commonly cited by the survey

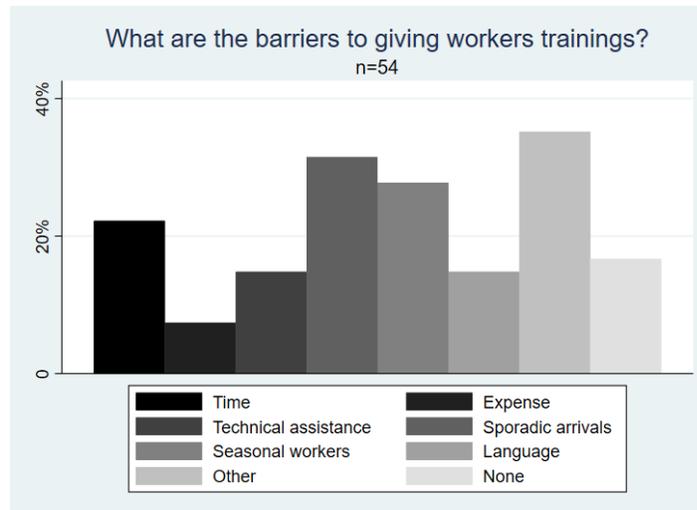


Figure 4.4: Barriers to safety trainings

respondents include finding workers with the appropriate skills or temperament (50%) and finding labor quickly when needed (21%).

Similarities: Survey and literature findings

The survey results expose a number of key similarities and differences in practices and challenges related to worker health and safety between survey respondents and the findings cited in the literature. The major similarities are related to wages, training barriers and hiring barriers. (Similarities are indicated in bold, red text in Figure 4.5.) The sample hired mostly seasonal workers in all categories, which reflects the seasonal nature of most jobs workers are hired for in agriculture across the country. On average wages for workers around the country and on farms in the Health and Safety Survey sample are higher than the legally required minimum wage. The average wage rate for hired crop and animal workers in 2017 in the United States was \$12.47 (NASS 2018), well above the federal minimum wage of \$7.25 (U.S. Department of Labor 2018). Among the survey sample, the average lowest wage rate reported was \$11.37 per hour, while the hourly minimum wage in the State of New York in 2017 for farmworkers was \$9.70 (NYS Department of Labor 2017). Despite the higher than minimum average wages, there is no evidence workers are earning a livable annual income in either case.

The barriers related to trainings and hiring workers expressed by the survey sample are also similar to the conclusions in the literature. The major issues that emerged have to do with the challenge of the temporary, seasonal work force. In terms of hiring workers directly, farmers express that it is difficult to find

workers when they are needed on short notice with the appropriate skills. Studies on farms with dozens or hundreds of hired workers also cite additional barriers to hiring workers such as language, inefficiencies with the H-2A program and worker liability (Duvall 2017; McMillan 2017; Block and Penaloza 2017). It is common practice for farmers to address these challenges by using farm labor contractors (CA Farm Bureau, 2017). However, less than 5% of survey respondents reported using labor contractors or the H-2A program, likely due to the small scale of most operations in the sample. In this context, hiring challenges for larger farmers can be met with labor contractors, while the same challenges faced by smaller scale operations are largely left unresolved.

Another similarity is that workers do not receive health care benefits from their farm employers. Most survey respondents said that their workers use private insurance and indicated that they did not talk with their workers about this topic. Most of the survey sample indicated that the biggest barrier to health care access for their workers was expense, and this challenge is widely recognized across the United States. The literature diverges from the survey sample by describing a more nuanced set of challenges for workers in addition to expense including transportation, language barriers and a lack of services or facilities (Hoerster et al. 2011; Sexsmith 2017). Given that most of the studies capture the farmworkers' experience, this difference between the survey findings and the literature may indicate that farmers are either not entirely aware of the full range of barriers or that these additional barriers are not as relevant to workers on farms in the sample.

Topic		Literature findings	Survey findings
Wages	Practice	\$12.47/ hr federal mean wage ; \$7.25/hr (federal minimum wage)	\$11.37/ hr mean lowest wage ; \$9.70/ hr (NY minimum wage)
	Barriers	Competition lowers prices; financial pressure	Competition lowers prices (25%); financial pressure (21%)
Hazard Tracking & Reporting	Practice	Report to OSHA; small farm exemptions; underreported by 77.6%	Workers report to management directly (65%)
	Barriers	<u>Workers don't report for fear of retaliation; language</u> ; small farm exemptions	<u>None (37%); no tracking tool (17%)</u> ; workers don't report (12.7%)
Trainings	Practice	General OSHA standards	82% give at least 1 training
	Barriers	Different arrival times; short term workers ; lack of technical assistance (farmers are not teachers); enforcement and efficacy; <u>language</u>	Different arrival times (31.5%); short term/ seasonal workers (27.8%) ; Other responses: none (16.7%); workers don't listen (7%)
Health Care	Practice	Health insurance not required ; small farms exempt from workers' compensation; migrant health clinics	Private insurance (not provided by employer) 67% ; Other: don't know, other sources
	Barriers	Expense; lack understanding of workers compensation; transportation; <u>language</u> ; lacking services and facilities	Expense (74.6%)
Hiring	Practice	Direct; <u>labor contractors</u> ; H-2A program	<u>Direct (82%)</u> ; Other (22%): word of mouth
	Barriers	Hard to find quickly when needed; limited supply ; fear; liability; inefficient H-2A	Hard to find workers with appropriate skills/ temperament (50%); hard to find quickly when needed (21%)

Figure 4.5: Health and Safety Survey findings – Comparative results

Differences: Survey and literature findings

There are also a number of major differences between the survey sample findings and the findings in the literature. The survey sample hired fewer workers on average and depended less on immigrant labor and more on family labor than farms discussed in the literature. While language is a widely cited barrier to farmworker health and safety across the literature, survey respondents rarely cited language as a challenge, which is likely explained by the different employee demographic. (Differences are indicated in underlined, blue text in Figure 4.5.)

A second distinction that emerged is the barriers to hazard tracking and reporting. The literature explains how the fear of retaliation is a significant barrier that results in widespread underreporting (Leigh, Du, and McCurdy 2014). However, when asked about hazard reporting, 65% of the survey respondents indicated that workers report directly to management and almost 40% of the sample indicated that they perceived no barrier to tracking or reporting. One possible explanation for why survey respondents largely perceived no barrier is that they are more present on the farm and working alongside employees. In this case, farmers would likely notice a hazard or be accessible for workers to report. However, another possibility is that workers are actually not reporting, as suggested in the literature, but due to a lack of communication farmers are simply not aware of challenges perceived by workers. Twelve percent of respondents did in fact indicate that one barrier was that their employees do not report.

Conclusions

Study limitations

There are a number of limitations of the farmer survey described in this chapter. Given that farm labor is such a politically charged and sensitive topic, the scope and depth of questions particularly related to wages and documented status of workers was limited. This topic may have reduced the desire for some farmers to participate and may have eliminated others altogether, if they do not hire labor. In the future, more effective methods to solicit responses should be refined and implemented earlier in the winter when farmers are less busy in order to offer a

longer response period and to achieve a higher response rate, particularly for NODPA members.

A primary concern for the NOFA organization was survey length. For this reason, the survey was short with multiple-choice questions. However, if repeated, this survey would ideally include 3-4 additional questions on each topic to gain a deeper understanding of farmer perspectives. While the goal of this research diverged from the NOFA survey conducted in 2013, future surveys may consider asking parallel questions in order to track changes among NOFA members over time.

The survey asks about volunteer labor, family labor, and hired labor in the same question. Due to the order of questions in the survey and inconsistent reporting by respondents, it is unclear if different types of workers were paid different rates on the same farm. Questions about pay rates for volunteer labor and family members should have been separate from questions about hired workers. This approach would have provided a better understanding of the proportion of volunteer versus paid labor supporting the farms.

Future research

An interesting follow up survey could engage farmers and workers on the same set of farms in order to compare differences in perceptions and understandings of health and safety between employers and employees. The Health and Safety Survey could also be administered to comparative samples of organic and conventional farmers or to small and large farms in order to more directly gain insight on how farmer perceptions vary by farm type.

Finally, the large majority of farmworker studies focuses on characterizing the largely poor health and safety conditions this population faces. However, additional research should be conducted on practices that constitute a positive health and safety environment for farmworkers and farmers alike, similar to the Best Labor Management Practices on Twelve California Farms study complete in 2005 (Strochlic and Hamerschlag 2005). The study results describe the labor practices workers value most and offer one potential set of standards for positive health and safety practices to work towards.

Chapter 5: Conclusions

Summary of findings

This thesis took a mixed methods approach to explore the various barriers to health and safety for workers in U.S. agriculture. The first approach was to develop the Farmworker Health Landscape conceptual framework. The framework illustrates how structural factors shape the certain determinants of health, which ultimately result in poor health outcomes. The framework represents a synthesis of the literature and serves as a tool to organize and understand the wide range of barriers to improving health and safety conditions in agriculture. The studies and research that informs the Farmworker Health Landscape is largely from the farmworker's perspective, conducted by farm labor scholars, advocates or worker organizations.

The second approach to exploring the barriers to improving health and safety was a survey with small, organic farmers in the northeast region of the United States. Since most of the research on farmworker health and safety is – appropriately and logically – focused on the worker's perspective, the survey results make a unique contribution to the literature by including the farmers' voice. The survey results also provide practical information for the regional farmer support organization, NOFA.

The farmers and their workers represented in the survey sample also differ from those described in the literature in terms of farm size, organic status and work force demographics. Given that all farms in the United States generally operate within the same structural environment, the Farmworker Health

Landscape suggests that all farms and their workers would be impacted, at least to some extent, by the same structural pressures regardless of farm location or other quality. The survey findings support this proposition by illuminating how the conceptual framework applies to the sample of NOFA and NODPA farmers in a number of ways.

The first example is that most survey respondents reported hiring very few workers. As described in Chapter 3, small farm exemptions alleviate employers with less than 11 workers from certain federal inspections, wage standards, and compensation, but may also act as a safety hazard for workers. Given that just 12 farms in the sample reported hiring more than 10 employees, these exemptions apply to workers on almost all farms in the survey sample. The most notable exemption is that these employers are not required to track or report occupational illness or injury that occurs on their farm unless the incident is fatal (OSHA 2018a). These same farms are also not required to pay workers' compensation for missed hours, wages or medical expenses, in the event of an injury. Without the legal requirement to track and resolve hazards, the incentive and capacity for the farmers in the survey sample to do so systematically is limited. In this way, the survey results contribute to the existing body of literature that demonstrates how political exemptions may be a health and safety hazard for farmworkers.

Based on the survey results, NOFA and NODPA farmers and their workers also reflect the economic analysis discussed in the context of the Farmworker Health Landscape. The vast majority of the survey sample reported that the major barriers to increasing wages and offering health care for workers

were related to expense and market competition. A number of free responses conveyed a version of related barriers such as low food prices in America, affordability and the cost of health care in general. Despite the location, small scale and organic status of most of the farms in the survey sample, the NOFA and NODPA farmers confirm that the same financial constraints felt by farmers across the country are also limitations to their employees' wages and health care access.

Finally, since the sample reported mostly non-immigrant workers, racism and discrimination may not seem as relevant on an interpersonal level for these workers. However, the historic racism that created many of the policy exemptions impacts all types of workers on all farms through the hands-off regulatory environment. Historic racism that facilitated the flow of immigrant farmworkers to the United States from Mexico through the Bracero Program also helped to decrease the cost of food production by providing a cheap supply of labor. In this context, regardless of the farmworker demographic, prices for farms in the Northeast are to some extent shaped by historic sociocultural factors and their present-day manifestation.

Future research: Health and Safety Survey

As previously mentioned, there is a lack of research that demonstrates differences in worker health outcomes associated with different farm size, farm practices or geographic region. More empirical analysis and comparative studies are needed to fill this gap and to improve understanding about the potential differences for workers around the country. Farmer perceptions of health and safety for their employees and for themselves also need to be incorporated into

this line of research. There is a need for increased understanding about why and how farmers perceive health and safety conditions for their employees and why they may or may not prioritize improvements.

A future study that may be conducted using the Health and Safety Survey as a baseline is a systematic survey where random samples of farmers and workers are asked versions of the same questions, across regions, sectors and farm size. This would provide comparative results on the differences between worker and farmer perceptions. Specific surveys designed to test the validity of the Farmworker Health Landscape could also be conducted to understand how it applies, or does not apply, to different agricultural work environments in nuanced ways.

Finally, expanded work should be done on white farmworkers, who are perhaps the least documented in the literature. Not a single study specifically discussed the 17% of farmworkers who report being U.S.-born and white (NAWS 2014). How does their health and location compare to immigrant farmworkers? What are other attributes about this population that keeps them in farm labor and from seeking an alternative occupation? The survey results capture some of these workers given that most of the workers reported in the sample were not immigrants. However, the survey questions were not designed to explore distinctions between U.S.-born, white workers and immigrant workers.

Future research: Farmworker Health Landscape

The Farmworker Health Landscape identifies the major structural factors and determinants of health that were uncovered through the research conducted

for this thesis. However, future research should explore additional categories, themes and examples in order to make the framework more comprehensive and robust. Land ownership and upward mobility are two major themes that were outside the scope of this project. However, both themes are deeply connected to economic outcomes, worker agency and the ability to ensure healthy and safe working and living conditions, in addition to health care. Land access and land ownership were not mentioned by any of the health and safety literature reviewed, which may indicate that structural analysis specifically between these two topics is limited. On the surface, land ownership and health outcomes may seem unrelated. Consequently, one intention of the Farmworker Health Landscape is to facilitate connections and analysis between seemingly disparate structural factors and health outcomes in the future.

Since the framework covers a broad range of issues, each topic that was included was not explored comprehensively. In particular, additional research on the impacts of structural racism and discrimination on health and safety for farmworkers would improve the analysis presented in Chapter 3. The pervasive and qualitative nature of discrimination seems more difficult to document and prove systematically than policy outcomes, but its influence is relevant for both political and economic analysis. Impacts of sociocultural factors may be less tangible than political and economic structural factors, or conversely, intentionally overlooked. Either way, the potential solutions also seem less tangible, which makes it a difficult topic for researchers who seek to make concrete, feasible policy recommendations.

Despite the challenge of identifying, understanding and resolving structural influences in society, continued and deeper analysis is needed in order to resolve various negative outcomes of existing structures. In a comparative study on the social determinants of self-rated health in the United States and Canada, researcher Steven Prus provides evidence that being foreign-born or non-white is “much more strongly associated with poor health in the United States than in Canada,” due to structural factors such as institutionalized racism and segregation (Prus 2011). The reasons for this distinction should be studied further to gain additional insight into structural factors that shape farmworker health specifically and health outcome for minorities in the United States in general.

The value of structural analysis

In Jones’ description of the pervasive and persistent impacts of racist policies and social norms on the lives of people of color (Jones 2014), she exposes a structural explanation for the daily hardship felt by farmworkers, as well. The structural explanation that the Farmworker Health Landscape provides ensures that the disproportionately poor health outcomes observed in the farm labor sector are not mistakenly attributed to behavioral qualities of workers or the determinants of health alone. Not only does a structural analysis focus on the root of the problem, but it also gets away from blaming the farmer (employer) for poor health outcomes of their employees. Seth Holmes (2006) captures the nature of structural economic pressure on farmers in his call to “understand [farmers] as human beings trying to lead ethical, comfortable lives, committed to the family farm in the midst of an unequal, harsh system.” Since farmers presumably have

the most agency and decision-making power in the work place, they are easily targeted as the villain – whether it is for environmental damage, animal conditions, or farmworker exploitation. However, this analysis is neither useful nor entirely accurate. While there are indeed some “bad actors,” what is more pervasive is the political, sociocultural and economic context that enables, encourages or requires certain behavior (Asbed and Hitov 2017). Identifying these structural forces is the first step to understanding their pervasive influence and to deconstructing their negative outcomes on farmworker health.

A second reason to shift thinking away from interpersonal or individual actors is that by villainizing the farmer, the farmworker is implicitly framed as the victim, suggesting that farmer prosperity and farmworker health are at odds with one another. This juxtaposition establishes a zero sum game mentality where if the farmer wins, the farmworker by necessity loses. While most farmers in the United States are much more politically, socially and economically privileged than their employees, most farmers would not consider their occupation a “win” in the face of low prices and small margins. Instead of pinning farmworkers’ well being against that of the farmers’, the two populations might become allies – and not adversaries – in working to improve conditions as they are some of the few people in this country who personally experience the outcomes of the current system daily.

Ultimately, the development of the Farmworker Health Landscape accomplishes a number of goals, which include 1) to place the albeit limited health data on farmworker health in a broader context for understanding, 2) to

establish a common lens to use in problem and solution framing for improving conditions, 3) to identify root causes and outcomes of current working conditions, living conditions, access to health care and health conditions for farmworkers, and 4) to describe one way systemic racism manifests in the food system and American society.

A promising alliance

The research conducted for this thesis sheds light on the difficult conditions faced by farmworkers and farmers alike. Given that workers and employers in agriculture are both exposed to difficult and dangerous physical labor, insecure income, and external political, social and economic pressure, understanding both perspectives is key to developing realistic and nuanced solutions.

I spoke with Mike Weaver, the President of the Contract Poultry Growers Association of the Virginias, the President of the Organization for Competitive Markets, and poultry farmer after meeting him at the 2017 NESAWG Conference in Baltimore, MD about the conditions for contract poultry among U.S. farmers. He described strong parallels between the structural factors that influence the health of farmworkers described in this thesis and the structural economic exploitation of farm owners in the poultry industry by corporations who own farmers' inputs and control prices, much like Asbed and Hitov (2017) explain in the context of field crops previously discussed in Chapter 3.

Mike Weaver explained that his fellow poultry farmers have limited economic resources, knowledge and confidence. They do not speak out because

they fear retaliation by the companies who buy their product, and currently there is not enough coordination among poultry farmers to force any political or industry change. The “Farmer Fair Practices Rule” acknowledges these realities in its proposal to protect independent contract farmers against abusive practices, including retaliation, of a few large multinational poultry and livestock corporations (“USDA Announces Farmer Fair Practices Rules” 2016; Mitchell 2016). However, the proposed rule was officially turned down on October 18, 2017. These desperate conditions that impact all food system stakeholders beg the question of how farmers and workers can align against the structural forces and associated economic conditions to improve the situation for everyone. The Food Chain Workers Alliance is one organization, which works to build solidarity and political power through these connections.

If the goal is to create an equitable society, to improve health and safety for all people in the United States, and to maintain the American reputation as the most prosperous country in the global economy, then political, social and economic systems have to be analyzed specifically for these outcomes. However, through the structural analysis that the Farmworker Health Landscape facilitates, it is clear that many structural barriers to improving health and safety persist today. In her book titled *Environmental Justice and Farm Labor*, Berkey quotes one of 17 principles adopted by the delegates at the First National People of Color Environmental Leadership Summit of 1991. The passage states that public policy should be “free of discrimination, an affirmation of the right of all people to.... a safe working environment that does not force a decision between work and one’s

safe livelihood, an opposition to the destructive practices of multinational corporations, and an education about social and environmental concerns...” (Berkey 2017). This principle touches on numerous themes raised in this thesis and, if taken seriously, may guide the unraveling of farmworker exceptionalism and contribute to more equitable work conditions for workers and farmers across the United States.

As the number of agricultural workers and number of farms both continue to shrink in the United States, producing equitable, sustainable and healthy food will continue to present some of the most complex challenges faced today. Continued research is needed to more accurately understand the true nature of the problem and to effectively craft solutions that consider the political, social and economic complexities of the American agricultural system.

Personal reflections

One of the goals of writing this thesis was to ground my preliminary understanding of farm labor issues in the United States in concrete evidence and to establish a more nuanced narrative of the root causes. I wanted to understand details of the conditions that agricultural workers face in their lives on and off the farm and why the general public has such a limited understanding of these conditions. Perhaps more concerning is that even among food system scholars and experts, there is extremely limited knowledge regarding policies and practices that impact farmworker health, dignity and quality of life. As a student of the Friedman School of Nutrition Science and Policy, I hope this thesis may serve as a resource for my colleagues and classmates – not as the ultimate source of

farmworker knowledge, but as a starting place for discussion and exploration of these issues.

I also approached the process of researching and writing this thesis as an opportunity to adopt an equity-based lens of analysis on the food system. Since this is not a lens I have explicitly adopted in previous writing, it was a challenge to develop the correct vocabulary and express concepts in a concrete way. Before writing this thesis, I could converse about the ways in which structural racism is present in the food system. Now I have constructed a personalized understanding and documented the concrete mechanisms that enable farmworker exploitation. In this project, I have established a foundation from which I can continue to grow and learn.

Appendix 1: Farmworker Health Landscape: Details on determinants of health

Chapter 3 presents the Farmworker Health Landscape conceptual framework to describe the ways in which structural factors in American society shape health outcomes for farmworkers. The focus of Chapter 3 is on the arrows that flow from the “Structural factors” box on the far left of Figure A1. The discussion in Appendix 1 expands on the analysis presented in Chapter 3 by describing the three categories of determinants of health in more detail and the direct implications for health and safety. The discussion below is focused on the arrows that flow from the “Determinants of health” boxes in the middle of the framework.

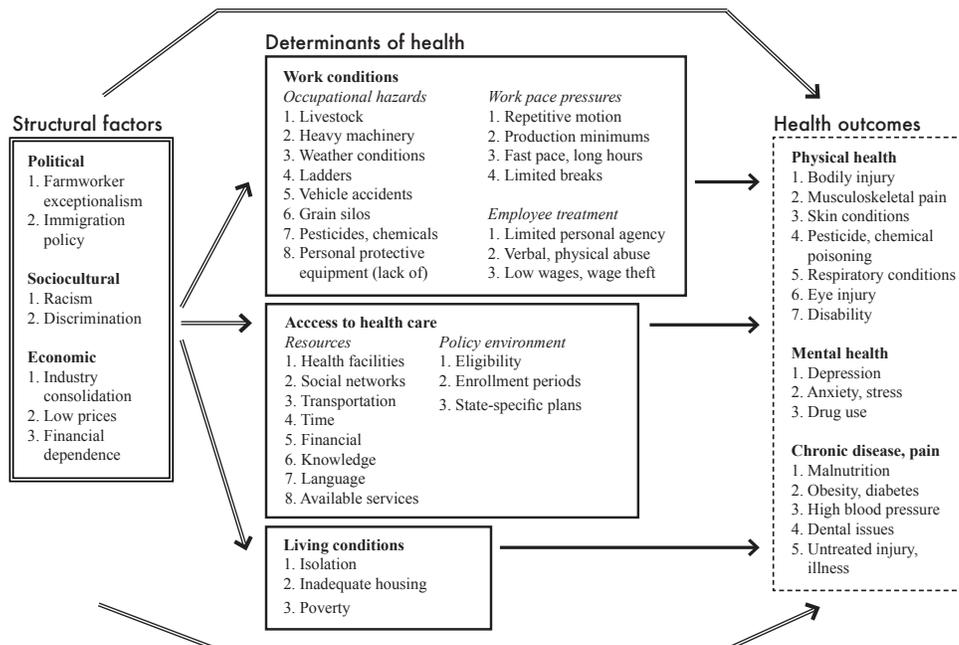


Figure A1: Farmworker Health Landscape conceptual framework

There are many determinants of health for workers in agriculture in the United States including work conditions, access to health care and living conditions.

Work conditions

Working conditions that farm laborers face daily are divided into three themes indicated in italics in Figure A1. These work conditions include occupational hazards, a fast pace of work (“Work pace pressures”) and poor treatment by crew leaders and managers, considered broadly under “Employee treatment” in the conceptual framework. Occupational hazards that lead to injury and illness include handling large livestock, working with heavy machinery, and having to endure extreme heat or harsh winter conditions. Falling from ladders, vehicle accidents and engulfment in grain storage silos are less commonly considered, but still documented causes of injury and death (OSHA 2018b).

Workers are also tasked with handling pesticides and chemicals and exposed to respiratory hazards like organic dusts, particles and fumes (OSHA 2018b). Improper or nonexistent personal protective equipment is common (Sexsmith 2017; Tovar-Aguilar et al. 2014). Occupational hazards directly lead to an assortment of health outcomes from acute physical injuries such as fractures, amputations, and lacerations to long term or permanent consequences such as chronic pain, eye injuries or blindness, and disability (Liebman et al. 2016). Other health consequences include a wide range of side effects from chemicals and toxins such as rashes, poisoning and respiratory conditions like asthma (Guild, Richards, and Ruiz 2016).

Worker vulnerability to occupational risks is heightened by work pace pressures like production minimums and repetitive motion. Production minimums, which require a minimum daily weight or other unit of production from each worker, encourage workers to move at a faster pace for longer hours with limited breaks for food, water or the bathroom to ensure the minimum is reached (Holmes 2006). Prolonged repetitive motion, heavy lifting and uncomfortable postures, particularly during the short, intensive harvest of fruits and vegetables, lead to higher rates of musculoskeletal pain for farmworkers than workers in other industries (Xiao et al. 2013). Work pace pressures increase the risk of occupational hazards and accidents as workers get rushed and become tired or careless (Grzywacz et al. 2013).

In addition to increasing rates of physical injury and illness, the high stress work environment contributes to heavy psychological burdens and associated mental health outcomes. High rates of depression, anxiety and stress are consistently reported in farmworker studies (NCFH 2018). The reports range from 17% to as high as 37% percent of workers with depression and between 9–41% report “nervios,” a condition of stress and anxiety in Hispanic culture (Weigel et al. 2007). Men were seven times more likely to experience depression if they had had an occupational injury (Ramos et al. 2016).

In addition to intensive physical demands, farmworkers report being treated poorly on the job. They face a lack of choice and autonomy in their daily tasks and routine and report being forced to work through injuries (Holmes 2013). Verbal and physical abuse, sexual violence and harassment (Bauer and Ramírez 2010), and systematic wage theft still consistently plague the agricultural work environment in this country (Asbed and Hitov 2017). Despite the high-risk associated with farm labor, almost all of these workers have extremely limited income, with 65% of agricultural workers earning less than \$20,000 in annual income (NAWS 2014). Consistent poor employee treatment impacts individual self-worth and has been observed to lead to internalized racism (Holmes 2006). Conversely, humane treatment was ranked more highly in importance than pay by farmworkers in one study about good labor practices conducted on twelve California farms (Strochlic and Hamerschlag 2005).

Living conditions

The slew of health challenges for farmworkers does not stop at the work place. Social and cultural isolation, poor housing conditions, and poverty also

directly shape farmworkers' lives and health outcomes (Baker and Chappelle 2012; Lackey 2008). Living on or near the farm, workers are physically isolated from resources and any external community. Cultural and social isolation are also prevalent for the largely immigrant population, due to language barriers and separation from family (Kolstrup et al. 2013). Meanwhile, farmworker housing is often overcrowded, substandard (Mora et al. 2016) or compromised with molds, rodents and structural or maintenance problems (Moore 2015). Poor housing conditions contribute to psychosocial stressors that can also lead to poor mental health (Menger, Pezzutti, et al. 2016). Low wages and inconsistent, seasonal work put this population at higher risk for poverty, food insecurity and related health outcomes than the rest of the population (NCFH 2018). For example, farmworker women in one study were 2.3 times more likely to be depressed if they experienced food insecurity (Pulgar et al. 2016).

The working and living conditions just described are thought to contribute to farmworkers' disproportionately high rates of chronic disease and pain (Luo and Escalante 2017; Hoerster et al. 2011). High rates of obesity, diabetes, high blood pressure and dental issues are exacerbated by stress, malnutrition, and low health care access (MMWR 2011; Villarejo et al. 2010). One study of Sonoma County farmworkers reports that 15% of farmworkers have diabetes, 25% are categorized as obese and 44% report their general health to be poor or fair, compared to only 5%, 22% and 13% of the general Sonoma County population, respectively (Moore 2015). Additional studies find that up to 82% of farmworker households experienced food insecurity (Ip et al. 2015) and 63% of workers did not have enough to eat (Hill et al. 2011). Malnutrition is the likely reason that farmworkers are overweight, but still hungry. The irony is compounded by the fact that many of these workers are surrounded by healthy fruits and vegetables, which they cannot afford to purchase.

Access to health care

To compound the issues, once confronted with an illness or injury, farmworkers face an unprecedented number of barriers to health care related to available resources and the policy environment. The examples listed under "Resources" in Figure A1 include the number of facilities and the ability to utilize them, the means and employer permission to arrive and pay, and accurate knowledge and language accessibility. According to Strohlic and Rittenhouse (2013), the migrant health clinics in this country have the capacity to serve less than 20% of the farmworker population. The rural environment where many farmworkers live and work often lack such health service facilities, public transportation, and social support networks. Transportation is limited because the expense of owning a car and limited access to gain a drivers license. Only twelve states, excluding Washington, Texas and New York, allow undocumented workers to drive legally (Mendoza 2016). Between travel time, paperwork, appointments and follow-ups, workers must chose to sacrifice paid time in place of health care visits. Workers are not legally entitled to paid time off and requests even for unpaid time off are denied or can be received with the threat of being fired (Snipes, Cooper, and Shipp 2017). Ultimately farmworkers are found to

have 25% lower health care utilization rates than non-Hispanic whites in the United States (Luo and Escalante 2017).

Limited financial resources compound these barriers as insurance is expensive and worker's compensation is inconsistently provided (Liebman et al. 2016). Workers also have limited and varying knowledge of available health care resources and are often at the will of their employers for this information, which may not be given in a language they understand (Guild, Richards, and Ruiz 2016). Language barriers place a further burden on understanding information about available services, communicating health care needs to employers and doctors, and other interactions within the health care system (Hoerster et al. 2011; Baker and Chappelle 2012). Given that farmworkers ultimately have limited access to all of the necessary resources, the barriers for workers to even arrive to a health care facility in the first place are extremely high. Without access to health care, in the event of an occupational injury or stressor that may otherwise be treated for workers in another industry with improved health care access, farmworker incidents may lead to chronic or permanent ailments at higher rates (Xiao et al. 2013).

The policy environment that shapes access to health care is the final determinant of health included in the framework. Health care eligibility for farmworkers is limited due to specific insurance enrollment periods and a lack of flexible health care plans that operate across a region (Guild, Richards, and Ruiz 2016). For a mobile population with tenuous legal status, it is clear to see how limited eligibility, fixed enrollment periods, state-specific coverage, and high administrative barriers to enroll in health insurance all present restrictive policy barriers that specifically and disproportionately impact farm laborers (Padilla, Scott, and Lopez 2014; Sexsmith 2017; Luo and Escalante 2017).

This Appendix describes how the determinants of health included in the Farmworker Health Landscape directly result in disproportionately low health outcomes. See Chapter 3 for a comprehensive understanding of the role of structural factors in the conceptual framework.

Appendix 2a: Print version of survey for NOFA-affiliated farmers

SURVEY: Labor practices and challenges for farmers – NOFA New York

*Survey may also be completed online

INTRODUCTION

At a time when many farmers are having trouble finding enough highly skilled workers and when immigration issues are hotly debated in the public arena, the Northeast Organic Farming Association of New York would like to better understand farmers' needs and challenges related to labor. **If you have hired labor, you are invited to participate in this anonymous survey.**

The results of the survey will help NOFA better serve its members and also contribute to a master's thesis project about farm labor in U.S. agriculture.

YOUR PARTICIPATION

Your participation in this survey is voluntary, and **we hope you take 5-10 minutes to answer the questions.** You may opt out of the survey at any time. By completing the survey, you are agreeing to be a volunteer in this research project. If you decline, it will not affect your relationship with NOFA-NY. **Given that the survey is anonymous, the information you provide will remain strictly confidential** and will never be associated with your name or farm.

The lead researcher is Tessa Salzman, a graduate student in a Master's of Science Program at Tufts University. Tessa Salzman and her academic advisor, Sean Cash, in addition to Elizabeth Henderson and Louis Battalen of NOFA will have access to the survey data.

Please contact Tessa Salzman with any questions: tessajsalzman@gmail.com.
Thank you again for taking the time to respond! Please begin below.

Background information:

Please circle your answers or fill in the blank

1. Are you a member of NOFA-NY?
 - a. Yes
 - b. No
2. Do you consider farming your primary occupation?
 - a. Yes
 - b. No
3. How many acres do you farm? ____
4. What are your main crops and/ or products?

5. Is your farm organic?
 - a. Yes
 - b. No

Forgot to include this question on printed survey version. Can we assume farmers at the conference were at least affiliated with NOFA-NY?

6. **How many people worked on your farm for each category in the 2017 calendar year?**
If you hired 0 workers, please write 0 here and submit your survey _____

'Year Round' is anyone who is a 12-month employee of your farm and 'Seasonal' applies to anyone working less than that. If no one in a category worked on your farm in 2017, please write 0.

Category	Year Round	Seasonal
Total # Full-Time paid employees		
Total # Part-Time paid employees		
<i>Total employees</i>		

# of Family Members		
# of Interns/Apprentices		
# of Volunteers		
# of H2A Workers		
# of Other Immigrant Workers* (who are not H2A workers)		
Other (please describe)		

*from Mexico or other country outside the U.S.

Pay Rates:

7. How do you pay each type of worker? *Please check all appropriate boxes.*

Category	Salary	Hourly	Piece-rate	Flat-rate	Combination/other (please explain)
Full-Time Paid employees					
Part-Time Paid employees					
Family Members					
Interns/Apprentices					
H2A Workers					
Other Immigrant Workers* (who are not H2A workers)					
Other (please describe)					

*from Mexico or other country outside the U.S.

8. What is the pay scale for the workers you hire from lowest to highest?

Lowest rate: _____ Highest rate: _____

9. What are the biggest barriers to paying higher wages? *Circle one response.*
- Competition has pushed prices down
 - The prices received and quantities sold are unpredictable
 - Regulatory burdens are expensive
 - Other _____

On-Farm Safety

10. How are hazards reported and tracked on your farm? *Circle all that apply.*
- a. Crew leaders resolve hazards or incidents when they notice them
 - b. Workers tell farm management directly
 - c. Farm reports them to OSHA or EPA, depending on the incident
 - d. NIOSH's SENSOR pesticide incident tracking program
 - e. Other _____
 - f. None
11. Are there barriers to tracking on-farm hazards and incidents? *Circle up to two.*
- a. It is difficult to get farmworkers to report problems
 - b. Language barriers between workers and management
 - c. Record keeping is a burden
 - d. I am not aware of a tracking or reporting tool to help farmers
 - e. OSHA does not require it
 - f. Other _____
 - g. None
12. Which safety and/ or food safety trainings do you give to workers? *Circle all that apply.*
- a. Fertilizer, chemical or other pest management safety
 - b. Personal Hygiene and Safe Food Handling (GAPS)
 - c. Heat, Sun, Hydration Safety
 - d. Tractor, Equipment or Other Mechanical Hazard Safety
 - e. Animal handling
 - f. Milk parlor safety
 - g. Other _____
 - h. None
13. What are the barriers to giving workers the trainings selected in the last question? *Circle up to two.*
- a. It takes too much time
 - b. Trainings are expensive
 - c. I need more technical assistance
 - d. Workers arrive at different times throughout the year
 - e. Short term/ seasonal workers are only here for a short time
 - f. Language barriers
 - g. Other _____

Health Care

14. How do your workers access health care? *Circle all that apply.*
- a. Employer-provided workers compensation
 - b. Medicare/ Medicaid
 - c. Migrant health clinics
 - d. Open door clinic
 - e. They have private health insurance
 - f. Other _____
 - g. None

15. What are the biggest barriers to health care access for your workers? *Circle up to two.*
- a. Private health insurance is too expensive
 - b. Expense and administrative burden of Workers Compensation is too high
 - c. There are no migrant health clinics near by
 - d. Transportation is limited
 - e. Language is a barrier
 - f. Other (please explain) _____

Hiring Practices

16. How do you hire workers? *Circle all that apply.*

- a. Directly
- b. Through a crew leader
- c. Through a labor contractor
- d. Through the H-2A program
- e. Other _____

17. What are the challenges with hiring workers directly? *Circle up to two.*

- a. Language barriers (between workers and farmer or employer)
- b. It's hard to find labor quickly when it is needed
- c. It is hard to find people with appropriate skills/temperament
- d. Recruitment and labor management responsibilities are too time intensive
- e. The liability of hiring workers is too high
- f. The administrative load for pay roll, record-keeping and/ or insurance is too high
- g. H-2A program is inefficient or ineffective
- h. Other _____

18. Are there additional barriers or challenges to improving health and safety on your farm that this survey didn't cover? Please leave us your comments below.

Appendix 2b: Print version of survey for NODPA-affiliated producers

SURVEY: Labor practices and challenges for NODPA Producers

*Survey may be taken online

INTRODUCTION

At a time when many producers are having trouble finding enough highly skilled workers and when immigration issues are hotly debated in the public arena, the Northeast Organic Dairy Producers Alliance (NODPA) would like to better understand producers' needs and challenges related to labor.

If you have hired labor you are invited to participate in this anonymous survey. The results of the survey will help NODPA better serve its members in national and regional policy and also contribute to a master's thesis project about farm labor in U.S. agriculture.

YOUR PARTICIPATION

Your participation in this survey is voluntary, and **we hope you take 5 minutes to answer the questions.** You may opt out of the survey at any time. By completing the survey, you are agreeing to be a volunteer in this research project. If you decline, it will not affect your relationship with NODPA. Given that it is anonymous none of the information you provide will be associated with you or your farm.

The lead researcher is Tessa Salzman, a graduate student in a Master's of Science Program at Tufts University. Tessa Salzman and her academic advisor, Sean Cash will have access to the survey data. The results will be shared with Liz Bawden and Ed Maltby of NODPA. Please contact Ed Maltby (emaltby@comcast.net) or Tessa Salzman tessajsalzman@gmail.com with any questions. **Thank you again for taking the time to respond! Please begin below.**

SURVEY

Background information:

Circle your answer or fill in the blanks

1. Are you a member of NODPA?
 - a. Yes
 - b. No
2. Do you consider farming your primary occupation?
 - a. Yes
 - b. No
3. How large is your dairy herd (number of head)? _____
4. What state do you farm in?
 - a. Connecticut
 - b. Delaware
 - c. Maine
 - d. Maryland
 - e. Massachusetts
 - f. New Hampshire
 - g. New Jersey
 - h. Pennsylvania
 - i. Rhode Island
 - j. Vermont
 - k. Other _____
5. Is your farm organic?
 - a. Yes
 - b. No

6. **How many people worked on your farm for each category in the 2017 calendar year?** If you hired 0 workers, please write 0 here and submit your survey _____

'Year Round' is anyone who is a 12-month employee of your farm and 'Seasonal' applies to anyone working less than that. If no one in a category worked on your farm in 2017, please write 0.

Category	Year Round	Seasonal
Total # Full-Time paid employees		
Total # Part-Time paid employees		
<i>Total employees</i>		

# of Family Members		
# of Interns/Apprentices		
# of Volunteers		
# of H2A Workers		
# of Other Immigrant Workers* (who are not H2A workers)		
Other (please describe)		

*from Mexico or other country outside the U.S.

Pay Rates:

7. How do you pay each type of worker? Please check all boxes that apply.

Category	Salary	Hourly	Piece-rate	Flat-rate	Combination/other (please explain)
Full-Time Paid employees					
Part-Time Paid employees					
Family Members					
Interns/Apprentices					
H2A Workers					
Other Immigrant Workers* (who are not H2A workers)					
Other (please describe)					

*from Mexico or other country outside the U.S.

8. What is the pay scale for the workers you hire from lowest to highest?

Lowest rate: _____ Highest rate: _____

9. What is the biggest barrier to paying higher wages? *Circle one response.*
 a. Competition has pushed prices down

- b. The prices received and quantities sold are unpredictable
- c. Regulatory burdens are expensive
- d. Other _____

On-Farm Safety

10. How are hazards reported and tracked on your farm? *Circle all that apply.*
- g. Crew leaders resolve hazards or incidents when they notice them
 - h. Workers tell farm management directly
 - i. Farm reports them to OSHA or EPA, depending on the incident
 - j. NIOSH's SENSOR pesticide incident tracking program
 - k. Other _____
 - l. None
11. Are there barriers to tracking on-farm hazards and incidents? *Circle up to two.*
- h. It is difficult to get farmworkers to report problems
 - i. Language barriers between workers and management
 - j. Record keeping is a burden
 - k. I am not aware of a tracking or reporting tool to help farmers
 - l. OSHA does not require it
 - m. Other _____
 - n. None
12. Which safety and/ or food safety trainings do you give to workers? *Circle all that apply.*
- i. Fertilizer, chemical or other pest management safety
 - j. Personal Hygiene and Safe Food Handling (GAPS)
 - k. Heat, Sun, Hydration Safety
 - l. Tractor, Equipment or Other Mechanical Hazard Safety
 - m. Animal handling
 - n. Milk parlor safety
 - o. Other _____
 - p. None
13. What are the challenges to giving workers the trainings selected in the last question? *Circle up to two.*
- h. It takes too much time
 - i. Trainings are expensive
 - j. I need more technical assistance
 - k. Workers arrive at different times throughout the year
 - l. Short term/ seasonal workers are only here for a short time
 - m. Language barriers
 - n. Other _____

Health Care

14. How do your workers access health care? *Circle all that apply.*
- h. Employer-provided workers compensation
 - i. Medicare/ Medicaid
 - j. Migrant health clinics
 - k. Open door clinic

- l. They have private health insurance
- m. Other _____
- n. None

15. What are the biggest barriers to health care access for your workers? *Circle up to two.*

- a. Private health insurance is too expensive
- b. Expense and administrative burden of Workers Compensation is too high
- c. There are no migrant health clinics near by
- d. Transportation is limited
- e. Language is a barrier
- f. Other (please explain) _____

Hiring Practices

16. How do you hire workers? *Circle all that apply.*

- f. Directly
- g. Through a crew leader
- h. Through a labor contractor
- i. Through the H-2A program
- j. Other _____

17. What are the challenges with hiring workers directly? *Circle up to two.*

- i. Language barriers (between workers and farmer or employer)
- j. It's hard to find labor quickly when it is needed
- k. It is hard to find people with appropriate skills/temperament
- l. Recruitment and labor management responsibilities are too time intensive
- m. The liability of hiring workers is too high
- n. The administrative load for pay roll, record-keeping and/ or insurance is too high
- o. H-2A program is inefficient or ineffective
- p. Other _____

18. Are there additional barriers or challenges to improving health and safety on your farm that this survey didn't cover? Please write your comments below.

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