Behind The Produce Curtain: Exploring Occupational Health Of Connecticut Migrant Farmworkers In A Changing Climate

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Behind the produce curtain: Exploring occupational health of Connecticut migrant farmworkers in a changing climate

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Abstract

Due to climate change exacerbating high heat days, it is speculated that farmworkers will bear the brunt of this in the fields. High heat is only one of many consequences of climate change but was chosen as the occupational exposure of study due to its lack of literature in northeastern states like Connecticut. This study has three aims. The first aim is to explore the health impacts of extreme and prolonged heat exposure in Connecticut migrant farmworkers. Second, understand the current awareness among health care providers and the intervention methods that are being taken, if any. Finally, understand what barriers exist in improving farmworker conditions and protections. This study was conducted through qualitative interviews with a range of farmworkers and associated groups throughout Connecticut. This includes interviews with a nurse, social worker, community health worker, workplace safety officers, physicians, healthcare workers, and farmworkers (N=39). Non-farmworker interviewees were reached through cold calling and cold emailing, followed by snowball recruitment. Farmworkers were reached through a non-farmworker interviewee introduction. Thematic analysis was conducted using Nvivo software, yielding the following themes: adverse health outcomes, work environment, barriers to improving work conditions, barriers to receiving healthcare, and solutions and interventions. Adverse health outcomes included heat-related illnesses, poor mental health, and other chronic and acute illnesses. The work environment was described as dependent on type of work and employer, and that workers depended on outside entities for providing heat-related personal protective equipment. Barriers to work conditions included a lack of enforcement by outside agencies, exploitative practices by the growers, fear of exercising worker protections, and lack of knowledge of the minimal existing work protections. Barriers to receiving healthcare included reluctance to take time off, ability to pay, and overwhelmed federally qualified health centers.
Finally, solutions and interventions identified were placing the responsibility on farmworkers to protect themselves through providing them with personal protective equipment and prevention education, as well as shifting their work hours to avoid heat, and scheduling them for clinic visits on bad weather days. These findings highlight that while treatment in Connecticut is deemed better, farmworkers still face systemic structural restraints that lead to adverse health outcomes, as well as additional barriers to improving health care access and better work conditions. Targeting these findings will be helpful to improve poor health outcomes.
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In memory of Gabriel Trujillo.
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Introduction

Farmworkers are the backbone of the agricultural industry. These laborers participate throughout the entire farm to table process— they plant the crops, harvest, package, and sell. Their work directly contributes to the availability and affordability of food, virtually impacting our entire population (Hernandez & Gabbard, 2019). Without the thousands of laborers in the U.S., the $164.7 billion output from farms would not be possible (United States Department of Agriculture, n.d.). Despite their significant contributions, farmworkers are one of many occupational groups in the states who are vulnerable and marginalized (Aguilar Buenrostro & Martínez, 2024). They still face systemic and structural barriers such as minimal occupational protections and access to adequate healthcare. Climate change is likely to exacerbate these preexisting inequities.

Climate change is leading to more frequent and intense high heat days which has significant consequences for agricultural workers. Farmworkers who spend most of their day in the fields are at higher health risks (El Khayat et al., 2022). Many workers are low income and of immigrant status and cannot afford to take breaks (Environmental Defense Fund, n.d.). From the 2015-2016 National Agricultural Workers Survey report, 52% of migrant workers and 38% of undocumented workers fell below the poverty line (Hernandez & Gabbard, 2019). Many of them earn their income through piece-rate, which means they are paid by how much produce they pick. This system rewards them for their productivity but also incentivizes them to take less rest. Additionally, the income that they do earn is significantly less compared to other occupations. According to the Economic Policy Institute, farmworkers only made 60% of what “nonsupervisory non-farmworkers”, the group they deemed most similar to compare to, made in
Due to these factors, workers are compelled to work through adverse conditions including illnesses and inclement weather. Unfortunately, this compromises their health which can lead to additional downstream adverse events.

Adverse health impacts from extreme heat include heat stress and heat exhaustion with accompanying symptoms (vomiting, edema, headaches, dizziness, fainting, etc.), organ failure, death, and chronic illnesses that affect the cardiovascular system and kidneys (Seltenrich, 2015; Environmental Defense Fund, n.d.). According to the Environmental Defense Fund, farmworker heat-related mortality rates overall are 20x higher compared to other industries including non-federal and private (Environmental Defense Fund, n.d.). It should be of note that the United States does not currently have federal standards in relation to working in the heat, nor does the Occupational Safety and Health Administration keep tabs on heat-related mortality data (Chilukuri, 2023).

Within the United States, northeastern states may be overlooked for high heat days when compared to southern and western states. However, according to the Environmental Protection Agency, Connecticut has warmed 2.86°F from 1901 to 2021 (Environmental Protection Agency, n.d.). Considering its agricultural output, in 2022 Connecticut had 5,058 farms, produced $704 million in agricultural products, and ranked 5th in the nation for tobacco production (United States Department of Agriculture, n.d.).

**Study focus and objectives**

This paper explores the connection between extreme heat exposure, migrant farmworker health, and subsequent awareness and intervention. The target population is migrant farmworkers in
Connecticut. This choice is largely because Connecticut is not typically thought of as a farmworker state and subsequently has been less explored compared to its California and Florida counterparts, which are widely recognized as migrant farmworker hot spots. More specifically, this study has three aims. First, explore the health impacts of extreme and prolonged heat exposure in Connecticut farmworkers. Second, understand the current awareness among health care providers and the intervention methods that are being taken, if any. Finally, understand what barriers exist in improving farmworker conditions and protections.

These aims were sought out in a qualitative manner because there is a significant gap in exploring lived experiences of farmworker heat exposure in the United States. Existing literature is primarily quantitative or fails to incorporate intersectionality in documenting experiences (Méndez et al., 2020). According to a systematic review published in 2022, El Khayat et al. found that only 10% of studies on heat stress and agriculture were qualitative (El Khayat et al., 2022). When considering farmworker health outcomes and provider awareness and intervention, the integration of both qualitative and quantitative data is synergistic. The combination of the two provides depth and additional understanding that captures the experiences, emotions, and feelings of those involved. Gathering first-hand evidence of what these farmers experience, both in the fields and in medical settings, and what is needed to improve their work conditions are crucial in workplace reform.

*Migrant farmworker protections nationally and in Connecticut*

Migrant farmworker injustices have been well documented, especially during the height of the United Farm Worker’s Movement (UFWM) (Sbicca et al., 2020). Although some progress has been made in securing farmworker protections in the state of California, the same protections
have not been secured in Connecticut. According to a nonprofit organization committed to the protection of migrant farmworkers, FarmworkerJustice.Org, outlines that Connecticut excludes agricultural workers from the overtime law and workweek law. Additionally, Connecticut does not have a provision allowing the right to organize unions, join unions, or collectively bargain (Farmworkerjustice.Org/CONNECTICUT/, n.d.).

For national protections, it is worth mentioning the National Labor Relations Act (NLRA) of 1935. The NLRA protects unionization, collective bargaining, and collective action, but specifically excludes farmworkers (National Archives, n.d.). However, there are a handful of labor laws that provide minimum protections to some agricultural workers. The first is the Fair Labor Standards Act that guarantees minimum wage and recordkeeping provisions for specific groups of farmworkers (Farmworker Justice, n.d.). The second is the Migrant and Seasonal Agricultural Worker Protection Act of 1983, which includes preliminary disclosure of employment terms and basic housing standards, among others (Farmworker Justice, n.d.).

**Barriers to improving migrant farmworker protections and conditions**

Barriers to improving protections and conditions have been well documented (Salzman, 2018). These were especially brought to light with the UFWM in 1962. Led by Cesar Chavez and Dolores Huerta, they organized one of the most memorable environmental justice movements of our time. Even before the UFWM, there were a series of smaller farmworker justice movements that pushed for better farm working conditions, eventually integrating into one. One barrier that the UFWM faced in improving work conditions were agribusinesses and growers that wanted to continue exploiting cheap nature and cheap labor. Additional hurdles also stem from unbalanced power structures and racism. Limited worker protections persist allowing those who prioritize
economic interests over workers’ well-being to exploit them under current governmental policies. This is particularly true in the case of undocumented workers, as many keep their heads down out of fear of deportation.

_Health care access nationally and in Connecticut_
Nationally, approximately 25% of farmworkers and their families seek care at community health centers, i.e. federally qualified health centers (FQHCs). These are health centers that receive funding through the Public Health Service Act, Section 330g, otherwise referred to as 330 Funded Clinics (Farmworker Justice, n.d.). FQHCs must meet specific statutory requirements set forth by the Bureau of Primary Health Care. Notably, they must treat patients regardless of ability to pay, and either be in a medically underserved area or medically underserved population (Connecticut State Department of Health, n.d.). According to the Health Resources and Services Administration 2022 National Report, health centers treated 991,558 agricultural workers and their dependents, with 330g awardee clinics receiving 260,054 migratory workers and 579,156 seasonal workers. Non 330g clinics received 152,384 migrant and seasonal workers (Health Resources and Services Administration, n.d.).

According to the 2019-2020 National Agricultural Workers Survey (NAWS) administered by the U.S. Department of Labor, 29% of respondents could not speak English, and 40% could not read English (Gold et al., 2022). Not having rights or healthcare information translated to native languages can create barriers for farm workers. They may not know what rights they have, and growers may not relay this information to them. As for having health insurance for injuries and illnesses outside of the workplace, only 28% of all farm workers had access, with 33% of
authorized workers having access, and 21% of undocumented workers having access (Gold et al., 2022).

Within Connecticut, the University of Connecticut Migrant Farm Workers Clinic (MFWC), the Connecticut River Valley Farmworker Health Program (CRVFHP), and FQHCs work together to secure care for these workers. Together, all parties collaborate to provide care to farmworkers, regardless of insurance, income, and citizenship status. MFWC, CRVHP and FQHCs rely on federal grants to operate.

**Demographics of Connecticut migrant farm workers**

According to the University of Connecticut Migrant Farm Worker Clinic (MFWC), farm worker demographics change yearly. However, in 2018, the farmworker population that they served was 84% Hispanic, 12% Jamaican, 3% White and Brazilian, and 1% Haitian. They estimated that there were between 7,000-20,000 migrant farmworkers within the state (Connecticut Area Health Education Center Network, 2018). Based on a 2017 estimate from the National Center for Farmworker Health, there were 12,442 migrant and seasonal workers in the state (National Center for Farmworker Health, n.d.). Of note, the difference between the terms ‘migrant’ and ‘seasonal’ worker is usually context-dependent and workers may shift between the two (Sakala, 1987). Generally, migrant workers leave their place of permanent residence to seek out agricultural work, whereas seasonal workers partake in temporary farm work but do not move. However, the term ‘migrant farmworker’ according to the Migrant Clinicians Network, includes farmworkers who are temporary, seasonal, or are on H-2A visas (Migrant Clinicians Network, n.d.). For the purposes of this study, the term migrant farmworker includes these three groups.
**Literature review of heat and farm worker health in Connecticut**

No studies were found regarding the impact of extreme heat exposure on migrant farmworkers in the state of Connecticut. This gap extends across both qualitative and quantitative research studies. In a comprehensive review of the literature, there were few studies identified that explored occupational hazards on Connecticut farms in general. When the search was narrowed to include the criteria of heat exposure, migrant farmworkers or farmworkers, and Connecticut, no studies were found.

Notably, the only studies that remotely include occupational hazards on farms in the state primarily centered around tobacco farming. The focus, however, was not on migrant workers but rather on local child labor and seasonal workers from high schools across the states (Harrison, 2010).

Additionally, it should be noted that the only papers found that included both migrant farmworkers and either Connecticut or the River Valley were theses performed by students at the University of New Hampshire, Southern Connecticut State University, and the University of Connecticut. The first paper centered on “interviews of migrant workers’ life stories” aiming to change perceptions of migration (Cook, 2010.). The second involved a questionnaire focusing on hearing loss among migrant farmworkers in northern Connecticut (Solimini, n.d.). The third paper by William Carter III was the most relevant, examining occupational injuries and the prevention of these through educational posters. Carter found that there was a statistically significant improvement in knowledge of heat exposure prevention mechanisms among Latino workers with the implementation of informational posters on farms they visited (Carter III, 2009).
Expanding this search to include studies conducted outside of Connecticut, El Khayat et al. conducted a comprehensive review of global existing studies. Their search was restricted to farmworkers and occupational heat exposure with related synonyms and variations. After defining eligibility criteria and removing duplicate studies, 9,045 records were then reduced to 92 (El Khayat et al., 2022). Factors that they identified that increased farmworker’s risk to developing kidney disease and heat-related illnesses were working in a hot environment, non-protective clothing, workload, lack of control over workplace conditions, working for piece-rate compensation, dehydration, having heat-strain, and being female (El Khayat et al., 2022).

However, this study highlighted that vulnerable populations such as migrants (and children) have more unique factors influencing their adverse health outcome risks. They hypothesized that migrant farmworkers will try to keep their job by any means necessary because their legal status is directly tied to their employment (El Khayat et al., 2022). This means that workers with visas may be at risk for deportation if their employer takes away their work status. Elaborating further, El Khayat et al. synthesized literature finding that migrant farmworkers specifically were at higher risk of kidney disease and heat-related illnesses due to the increased barriers they face in obtaining and implementing heat exposure prevention (El Khayat et al., 2022).

Health care providers awareness and intervention methods
With a rise in frequency and duration of high heat days, some medical providers are exploring the risk factors in farmworkers during extreme heat exposure. For example, Mac et al. conducted a study in 2021 on agricultural workers in Florida. Over the span of three summers, they collected data on core body temperatures of workers and found that there was a high prevalence
of 59% of body temperatures breaking NIOSH recommended thresholds (Mac et al., 2021). However, although studies are being conducted on adverse heat outcomes, there are little to no studies exploring whether medical professionals are implementing heat prevention into practice. According to Seth Holmes in *Fresh Fruit, Broken Bodies*, a common phrase shared amongst agricultural workers is “Los medicos no saben nada” which translates to “Doctors don’t know anything” (Holmes, 2023).

**Methods**
This study was conducted via qualitative analysis through interviews with a range of farmworkers, and allied healthcare and enforcement workers throughout Connecticut. Both one-on-one in-depth interviews and focus groups were utilized in data collection. One-on-one interviews was the approach for non-farmworkers because they were able to spare some time during the workday and able to meet via zoom or phone. Farmworkers had minimal time and were only able to be interviewed in-person at home or at work, so they were placed into focus groups. This data sample included a nurse (N=1), human services worker (N=1), workplace safety officers (N=2), doctors (N=2), a community health worker (N=1), healthcare workers (N=3), and farmworkers themselves (N=29). Those in the ‘healthcare worker’ category had more specific roles but were placed into the category of ‘healthcare workers’ to preserve anonymity. Farmworkers represented 74% of interviewees, separated into three focus groups of 1 (N=18), 2 (N=5), and 3 (N=6). Non-farmworker interviewees were obtained through cold calling and cold emailing, followed by snowball recruitment. Farmworker focus groups were obtained through an introduction made by a non-farmworker interviewee. The IRB exemption document (approved by Yale IRB, Exemption number #2000036830, Category HRP-503D), the interview guides for
each type of interview, and the consent form were then sent via email or text prior to the interview (these documents can be found in the Appendix). After consent, the interviews were recorded via electronic devices. Farmworker interviews were conducted in Spanish with the aid of the non-farmworker interviewee who was able to translate. Interview recordings were de-identified and transcribed via Trint. Following transcription, scripts were corrected when Trint did not accurately transcribe spoken words. After this, thematic analysis was conducted using Nvivo software. Based on the interview guide and a full run-through of all transcripts, initial codes were created. Codes were then grouped together into themes. This process was then repeated to enhance clarity and comprehension, with some codes having to be re-grouped. Themes were then analyzed to examine if they accurately reflected the data at large. Finally, themes were officially defined. The five themes that emerged after coding analysis were adverse health outcomes, work environment, barriers to improving work conditions, barriers to receiving healthcare, and solutions and interventions. Additional information such as demographics, duties, and importance of farm workers were also recorded.

**Results**
In this exploratory analysis, interviewees described or recounted their own experiences of working in high heat conditions and resulting health outcomes. However, all narratives tended to expand towards non-heat health hazards and outcomes on the farm, broader systemic restraints to giving and receiving healthcare and improving work conditions, their solutions, recommendations, and what the current work environment looks like.
Additional background information
Interviewees were asked what demographics they had either treated or seen working on the farms, what types of duties workers performed, and their (healthcare workers) feelings towards farmworkers. The identified groups were Puerto Rican, Jamaican, Mexican, Hispanic (including South Americans in general), with a few interviews mentioning other nationalities including Brazilian, Indian, Afghan, Haitian and Southeast Asian backgrounds. Non-farmworker interviewees stated that workers may or may not have work visas, and although farmworkers are mostly young men, there is still diversity in age and gender. Duties of workers included a vast range: growing, picking, cutting, harvesting, packaging, other types of manual labor such as shoveling, running tractors, fixing equipment, applying pesticides, and landscaping. Many healthcare interviewees expressed gratitude towards farmworkers and emphasized the need to protect them, given their maltreatment in the United States. Informant 001 (a clinician) highlighted the paradox of negative stereotypes surrounding migrant workers juxtaposed with the reliance on them as the backbone of the US workforce:

“Despite the rhetoric out of Washington, as far as the evil undocumented, you know, workers, this country is dependent on undocumented workers, you know, in the hotel industry, the food industry, agriculture, trucking, everything. Yeah, you know, house cleaning, whatever it might be.”

Adverse health outcomes
All interviewees were asked what heat-related adverse health outcomes they have observed or experienced. These health outcomes ranged from dehydration to heat exhaustion. A few interviews mentioned some more extreme examples of farm workers becoming hospitalized for working through high heat conditions. For example, Informant 001 (a clinician) stated that sometimes they had to call ambulances for farmworkers who were suffering from heat exhaustion. Informant 13 (a healthcare worker) said that they had seen the whole range of heat-
related illnesses from fatigue, dizziness, and nausea to those who needed to be taken to the emergency room for I.V. rehydration.

However, almost all interviews gravitated towards other non-heat adverse health outcomes. One common topic that arose was the occupational hazards of working on tobacco farms. These hazards included ergonomic problems from handling the tobacco, the dangers of working near open flames, working at high heights within the barns, lifting heavy wood planks, and pesticide application. Informants 001 and 006 (both clinicians), as well as farmworkers from focus group 2, expressed these concerns. Informant 001 recalled a visit to a tobacco farm where their ergonomics team assessed the work environment. The team was unable to figure out how to resolve shoulder pain from tying tobacco. They also reported that these barns host an array of occupational hazards, including high fire risk.

The second non-heat-related health issue that emerged was the prevalence of poor mental health. Interviewees expressed that migrant workers come to the US to provide for their families and do not want to be separated. However, leaving their families behind and facing language barriers often leads to feelings of isolation and loneliness, which can result in depression and the development of adverse coping mechanisms. A few healthcare workers mentioned that some workers turned to heavy drinking to survive. Because some farms had very few payphones with numerous workers, farmworkers would only maybe be able to call home once a week. Informant 006 (a clinician) said that coming to the states was a “family and socially disruptive choice.” Informant 007 (a human services worker) similarly expressed how farmworkers do not want to be here, are missing their families back home, and develop negative outcomes from this:
“I’m just saying, you know, everyone says, oh, they want to stay here. No, no they don’t. You talk to anyone with some sense. They'll tell you they don't want to be out here. Not for sure. You know, a lot of them have missed births, deaths, graduations, all that they missed by being up here...

But yeah, I’m seeing the diabetes, the high blood pressure. Alcohol abuse for sure. Maybe some depression or, you know, just family separation issues, which anyone would have when they're separated from their family.”

Regarding language barriers, not being able to communicate was cited as a contributing factor to loneliness. Informant 006 (a clinician) brought up the story of two men from Somalia, who were unable to communicate with other farmworkers or the growers:

“You know, one year we had two Somali guys. And it was very hard. And this was before the AT&T language [a translator service] was available like all the time. So, I don't know how the growers and the workers communicate. Because it was just the two Somali guys that didn’t speak English. Oh, man. You know, like with Spanish speaking guys, some might be more or less literate, and some might be bilingual, and some might not. But there was like, sort of somebody there who could translate a little bit, like if the boss was saying, do this, like, you know, ‘hey Harry, this is what he wants you to do’. Yeah. And so they [the Somali farmworkers] didn’t come back, but it must have been terribly lonely for them also because they were living with a bunch of Jamaican guys and they couldn't communicate at all.”

Related was the feeling of stress and exhaustion. Farmworkers in both focus groups 2 and 3 expressed how there were not enough laborers to complete daily duties, and that their biggest health concern was chronic exhaustion. One farmworker (focus group 2) expressed his frustration with being overworked:

“Sometimes I think, not just me, that there’s so much stress and pressure when the boss says ‘you have to finish this, you have to finish that, or I want for tomorrow, all of this finished because after tomorrow we have more to do’ and sometimes the patron, the boss, they don’t understand the time versus what you have to do. So, the workers feel that stress.”

Another farmworker (focus group 3) expressed a similar sentiment:

“We’re more tired than anything. More tired.”
Informant 13 (a healthcare worker) expressed that exhaustion is normalized:

“And I think for the most part is that a lot of folks, most folks may feel physically well, and I think people are used to working under really demanding conditions and really demanding situations. And so, the amount of stress and the amount of fatigue becomes normalized to a certain extent. And so, I think that people are also coming from places where there's not a lot of access to routine health maintenance. So, if you if you feel crummy, then you go and seek care where you can. But if you feel fine and, the incentive to feel fine, like, I'm fine, I'm fine, I can work. I'm not that tired. I'm not that stressed. I'm not that... I don't have that much pain. Then, that something that people don't have access to in their own homes, in their own countries. And so, the idea of, like, well, why would I go anywhere to take time off when I feel fine? Just things that just seem like unnecessary.”

Finally, some interviewees mentioned specific adverse health outcomes observed on farms.

Informant 003 (a healthcare worker) discussed issues with eyesight, and how protective measures such as sunglasses were underutilized because workers would have difficulty determining when produce was ripe. Informant 10 (a community health worker) mentioned diabetes and hypertension, while Informant 007 (a human services worker) mentioned how migrants tend to develop ‘American dominated diseases’ such as high cholesterol after they have been here for a few years. Finally, one farmworker from focus group 2 shared their experience of being chemically burned from a pesticide accident.

**Work environment**

The next overarching topic was work conditions. This theme included what breaks entailed, employer treatment, and personal protection equipment (PPE) provided. Frequency and duration of breaks varied across employer and duty type. Relationships with employers were also variable, described by Interviewee 001 (a clinician) as a “bell shape curve”, with abusive employers at one end and compassionate employers at the other end. Finally, almost every
healthcare interviewee expressed that PPE was entirely provided by an outside organization, the CRVFHP, instead of employers.

Responses regarding breaks varied widely. Some growers were supportive and offered frequent breaks, while others were less accommodating. For instance, farmworkers in focus group 1 reported receiving two twenty-minute breaks. In focus group 2, workers mentioned getting one thirty-minute break for lunch, which did not change during high heat conditions. In focus group 3, half of the workers received one thirty-minute break for lunch, while the other half received two fifteen-minute breaks, with an extra fifteen-minute break during high heat.

Similarly, attitudes towards shade differed. Some employers would let workers leave the fields for a couple hours to rest and return in the evening to resume work. However, some interviewees expressed that workers preferred minimal breaks to maintain productivity. Informant 006 (a clinician) spoke on this problem:

“"There were kind of tanks of water. They weren't always close to where the folks were. And breaks, you know, it was kind of a mutual acceptance of not getting breaks in the sense that a lot of the guys even wanted to work on Sundays. Wow. Because they're there to make money and they're not there for that many months and as much money as they could get, they could get other guys. No, they took their Sunday off and stuff like that. So that's why I say it's sort of like a mutual abusive relationship."”

Employer treatment and relationships were also variable. A mix of healthcare and occupational enforcement informants gave their opinions on how they thought that growers did not care about their workers well-being. Informant 004 (a community health worker), mentioned that when workers were undocumented, they have likely been treated worse since their work was under the table. Informant 004 explained this:
“A lot of them work under the table because they are not documented. So, they don’t have Social Security, they can’t file taxes and whatnot. Yeah. So, a lot of work is under the table. And depending on where they live, I know, like if they reside more like a in a city, for example, Hartford, they may have more connections because more people from their country live here. So, it’s easier to get connections. And the treatment may be better. But in terms of like a farm worker, I think it depends like if they’re in a program, for example, through generations, you know, they may have better treatment. But if it’s under the table I’m sure the lines are a little loose.”

A farmworker from focus group 2 voiced his disapproval of the company he currently works for:

“Even now I work for ---, it’s a very terrible company, in the production department, they make so much pressure to the workers. The manager is very bad with workers. One time he screamed so much because the machine have problems and he pounded it with a shovel that broke, and almost hit one of the workers.”

However, farmworkers from focus group 1 reported no problems at the same company.

Informants 007 (a human services worker) and 10 (a community health worker) quickly added that workers from other states came to Connecticut because they are treated better. This trend was consistent across all interviews, with informants and some farmworkers agreeing that Connecticut was one of the better states to work in. One farmworker from focus group 2 explicitly stated that they were treated better in Connecticut than in both California and Florida.

Similarly, farmworkers in focus group 3 expressed satisfaction with their treatment in Connecticut, noting that they were also paid more.

Many interviewees echoed the spectrum of the bell shape curve. For example, Informants 001 (a clinician), 006 (another clinician), and 007 (a human services worker) spoke on some of the better relationships they had observed. Informant 001 said:

“We had 15, 14-year old’s to 85 year old’s because on some of the farms, there was a relationship with the grower between some farmer that had been going there for 50 years. And even though they were elderly, they may have had a special skill or few of them. It was love, you know. It was they were friends.”
Similarly, Informant 006 stated:

“So, you know, like, the bosses kind of ranged. I think that in some ways they were kind of paternalistic and like these, these were their kids. And they took care of them even though they were of course, grown men.”

Informant 007 (a human services worker) spoke on how one grower they knew tried to help workers out. The grower gave a worker’s father a job and would periodically send coworkers to Washington D.C. to advocate for more H-2a visas, one of the major barriers Informant 007 had cited to improving work conditions.

“And Mr. ---, the owner; he's the one I told you. His manager; ---. He used to send him to DC every year during legislative session to ask for me to ask for more H-2a visas. Okay. So, yeah. And he's the one who I said gave ---'s dad, a job. He gave him a chance.”

Every interview that mentioned heat-related PPE, such as bandanas and sunscreen, cited the CRVFHP as the provider. This was the most prevalent theme in almost every interview. The growers themselves did not provide these materials for the workers. For example, Informant 13 (a healthcare worker) voiced that workers were in desperate need of protective gear:

“I know that the Connecticut River Valley Health Program put together like care packages. Okay. Lots of, donating sunscreen. Sunglasses. Bandana and, bug spray to the workers because they need them so much. Which makes me think that for the most part, they're probably not being provided to.”

Supplying food and drink varied across farms. Some healthcare workers stated that workers received nothing, while others mentioned that they were provided some water. Some workers reported having to buy goods entirely themselves, whereas others noted that their employers let them use their credit card freely. Additionally, several healthcare workers expressed frustration with farms that only provided water, emphasizing that water alone was insufficient to protect workers from heat illnesses. They stated that workers needed electrolytes as well. One
interviewee, Informant 10 (a healthcare worker), recounts when they went out to the farms to provide the workers water:

“I drag my water out there, my cooler with my water out. Then give them water. And, you know, even if they didn’t get a break, the growers are going to see I'm coming. They're going to give them a break.”

**Barriers to improving work conditions**

This next theme constitutes the barriers in place that prevent an improvement in the previously mentioned work conditions. Many barriers were cited to improving work conditions for farm workers. These mainly included lack of enforcement by outside agencies, exploitative practices by the growers, fear of exercising worker protections, and lack of knowledge of the minimal existing work protections.

Some healthcare workers expressed that work conditions could be greatly improved if there were more inspections of work conditions by outside agencies. They imply that because there are minimal inspections, growers can get away with treating their workers poorly. For example, Informant 005 (an enforcement agency worker) spoke passionately on how there is not enough enforcement, and that employers have a responsibility to look after their workers.

“Good or not enough inspectors or not, there's not enough, enforcement of the law to make employers pay attention on their own... And OSHA unfortunately does not enforce that. I mean, there are some examples of what they call general duty clause citations. But employers know they're not going to get caught. Yeah, they know they don't follow it... it doesn't matter what the size of the employer is, doesn't matter what the industry is. They have a legal responsibility to provide a workplace free to recognize hazards. And it's constantly a merry go round of arguing about this. Well, small employers can't afford things. You know what? Then maybe small employers shouldn’t be in business. That's like saying that you can open up a restaurant and not follow the health code. Well, you know what you put up. If you really take the responsibility to open up a restaurant, you have to follow the health code. You have to provide the safety of the people. Yeah. You know, it's no different. Doesn't matter what size you are.”
More Informants such as 001 (a clinician) and 13 (a healthcare worker) expressed similar opinions. Here they spoke on the reality of non-compliance and the Department of Labor:

Informant 001 stated: “And this is where the Labor Department comes in, at least for farms that have contracts for H-2a workers, that they have potable water in the field that they have, you know, porta potty or whatever. You know, that is a requirement. You know, the issue always becomes the reality versus the policy, right?”

Informant 13 said: “And so similarly for farm workers, I think that if there were more- and part of this is that there's very little like the DOL. Doesn't have enough folks to do as much. Yeah. Like site visit and investigations and whatever. And so the enforcement is really difficult. Yeah. But that's where I feel like the most effective thing would be is to just for the DOL to show up on any July day and be like, citation, citation, citation, citation for sure.”

The next barrier, exploitation, arose out of many healthcare providers expressing the explicit abuse of these workers. A few interviewees mentioned that employers only care about their profit margins. Especially with high heat days, Informant 005 (an enforcement agency worker) stated that employers are fully aware of extreme work conditions but continue to treat their workers poorly. Informant 005 (an enforcement agency worker) shared:

“So, do I think employers know that there's climate change? How I think if you don't know then you're an ostrich, you know, I think that they know- they're fully aware that we've had a lot of hot days recently. But do they care enough about their workers or something else? Many employers look at workers as disposable tissues. They use them and throw them away and don't care.”

Additionally, Informant 007 (a human services worker), talked about the political contentiousness of undocumented workers, and how the cause of their immigration is due to corruption in various countries. They conveyed their frustration and criticism towards politicians and governments at large for not taking responsibility in perpetuating these problems. The interviewee called out political elites for both taking advantage of migrant labor while simultaneously being complicit in their maltreatment.
“We know why. Because none of the presidents and the governments in any of the countries involved, including ours, want to sit down and talk about this is a huge barrier. Root causes. We have a ridiculous election coming up. Yeah, and every single year our hearts break because this issue gets pushed to the backburner, backburner, backburner. If we get all the people who are caught in the system get blamed. Yeah, and I understand Denver can't take anymore. El Paso can't take anymore. New York City cannot take anymore I get it. But you guys are all to blame because nobody addressed the root cause. Guatemala's corrupt. Honduras is corrupt. El Salvador. Mexico's corrupt. Oh, and the U.S. is too. So, if you're not going to address a root cause and come clean with how many U.S. people or senator congressmen have undocumented people working for them, right? And how many of them don't want to give them up because they either treat them like family or they don't want to get exposed? Yeah, one or the other. Right. So you're part of the problem.”

When asked if farm workers knew about worker protections in place, almost all non-farmworker interviewees expressed that workers were unaware. Interviewees thought that this was due to language barriers, intentional gatekeeping of information by growers, or that obtaining this information was not the priority of farmworkers. For example, Informant 004 (a community health worker) stated that between language barriers and the eagerness to work, this creates a barrier in knowledge of workplace protections:

“So, with there being language barriers and I think just their eagerness to work, I'm not sure if that's on the forefront of their mind. You know what I mean? It should be that they should know. Like you're working here. You do have workers' rights. And I think those things should be related. Because again, I mean, these people are more in like a survival mode, like just coming to the US getting a job. And so, they're kind of willing to do whatever; and kind of be in maybe undesirable circumstances, whether that be the heat or whatnot. So, I definitely think there should be more of an emphasis on these people having, an idea of what their rights are. And, yes you're working and you're making an income but your life still matters, your health still matters.”

Informant 006 (a clinician) expressed that they were unsure if workman compensation posters were read or understood:

“All the places that I went to had the big workman's comp poster. Okay. But, you know, did they read it? Did they understand it? I don't know.”


Additionally, interviewees explained that even if workers were aware of their rights, this didn’t necessarily mean they felt safe enough to exercise their rights. Informants 005 (an enforcement agency worker) and 13 (a healthcare worker) expressed this:

Informant 005 stated: “Employers are not afraid of OSHA, but workers are afraid of their boss.”

Informant 13 commented: “I think that even though somebody may say there are protections for you. The difference between knowing about a protection and feeling empowered and safe enough to exercise that right of protection is very different.”

**Barriers to receiving healthcare**

The next theme identified among interviewees were hurdles that farmworkers face in receiving healthcare. The largest topics include reluctance to take time off, ability to pay, and overwhelmed FQHCs.

Non-farmworker interviewees expressed several reasons why farmworkers were reluctant to take time off for health appointments. First, many were concerned about their appearance of being sick. Second, they were fearful of not being able to fulfill farm duties, which could lead to not being asked to come back the following growing season. Finally, financial constraints played a role as taking time off meant earning less money.

For example, 001 (a clinician) recounted a time where workers declined to visit a clinic because the grower would try to discern their health conditions:

“She used to come to the clinic. So, none of the workers would come if they thought she was seen who was sick. Yeah. Talk about confidentiality and the need for confidentiality.”
Informant 006 (a clinician) recalled a similar scenario in which farmworkers were more concerned about their boss’s attitude toward taking time off, coupled with additional fear about breaches in confidentiality:

“They didn't want to get on the boss's bad side by taking too much time off for that. Certainly, one of the tobacco places was very bad about that. But again, they have been around for a long time. And one of the guys who I guess was maybe the foreman at that point. He wanted me to report what everybody had. Okay. And I took it, you know, like in order to be able to come. And I said, no, I can't do that.”

Informant 13 (a healthcare worker) among others stressed the anxiety farmworkers feel about not being asked to come back next season:

“Even if people have authorization, and kind of like a pathway to access care, and have kind of like a formal contract, and are entitled for the amount of time off, people really want to preserve their relationship with their employer with the hopes of coming back and being deemed a good worker and not wanting to lose their job. And so the difficulty of getting folks into clinic while they are here working on the farms is really, really hard. Yeah, everybody is just extremely incentivized to work as much as possible.”

Another cited barrier was ability to pay for healthcare services and constraints of losing income by taking time off. Some farm workers cited times where they had to pay for health visits out of pocket, and that the costs were extremely burdensome. In focus group 2, many of the farm workers agreed that many farmworkers experienced the strain of health care bills. Additionally, healthcare workers stated that because farmworkers did not want to lose out on a paycheck, they would intentionally delay or avoid going to clinics for treatment. Informant 001 (a clinician) stated:

“But the bottom line for all these workers is they are earning money to support their families, either back home in a distant country or in a Connecticut or Massachusetts city, and will do what they have to do to earn a paycheck. And health care is not their top priority.”
Informant 007 (a human services worker) recalled a time where a worker was ill and would not stop working up until the time they rolled up to the farm, for the reasons of not wanting to lose income:

“Like over the summer, one of the guys call me. He had a headache. When was it? It was October. October was still hot out. He had a headache and I'm like, okay, he asked 'can you give me a ride to the clinic in Hartford?' I go over and I went to pick him up and the owners met me in the driveway and, you know, led me out to whatever tobacco farm they were. They were drying, hanging and drying tobacco. And he had to get the guy out of the barn when I got there, like, he didn't, like sit down and stop working. He was still working until the same time I pulled up. And ---, the owner, he's like, yeah, I can't get --- to stop working. I told him it was okay to take time off.”

Almost all health care workers pointed out that FQHCs and related organizations are the main providers for farmworkers. They mentioned that these entities offer PPE, transportation to FQHCs, and sometimes even go to farms to provide basic care. However, interviewees also expressed that despite these efforts, they are underfunded and stretched thin. One healthcare worker noted that after COVID-19, funding for community health centers decreased. One clinician mentioned that their community health center withdrew from a farmworker health program due to being overburdened in other areas of work.

Furthermore, FQHCs face other constraints when dealing with growers. Some community health workers said they were only allowed onto farms for health screenings under the condition that they couldn't report work or health conditions they observed. Even when community health workers could visit farms, they could only conduct screenings, provide basic medications, and offer illness education. They were unable to provide primary care or treat workers on the spot for farm-related injuries.
Healthcare workers reported that although they could visit some farms, capacity constraints prevented them from visiting all farms. Some farms were also not involved in farmworker health programs. A few informants mentioned that there is a single outreach worker who picks up workers for health appointments, overseeing over forty farms. However, this worker is the only one doing this job, and they can only transport workers to and from appointments one farm at a time. There were reportedly past hires for help, but they lacked commitment, leading to a high turnover rate. Now, budget cuts have solidified this outreach workers’ position of being completely alone. Informant 007 (a human services worker) said:

“They [the farmworkers] don’t wait long for appointments. She’s a one person show. Okay. Whenever she retires, we’re f***ed. That’s our problem, and they will not hire someone to help her. We have more problems with --- and --- that cuts the budget to the point where she can’t have two vans. You know, my point is two vans, two workers. So, she’s not working 70 hours a week from May to October 1st. That’s inhuman. The one who’s being treated inhumane is her.

Finally, when asked why FQHCs and farmworker health programs tended to focus on education of farmworkers rather than upstream structural efforts, one health care worker spoke on the difficulties that come with navigating political visibility. They stated that because of discretionary federal funding, levels of advocacy efforts were dependent on the political moment. Informant 13 (a healthcare worker) stated:

“The fact of the matter is, is that we work within a primary care association that's federally funded and held other federally funded community health centers. And so we're not able to lobby or interest. We're not able to advocate. We can certainly like, support or provide, you know, like, hey, there's a bill on the lobby. We encourage you to vote on it. But what we're able to do in terms of, lobbying and advocacy is, is limited [...] I think just to, just to say this, that there is the concern of optics. And so especially depending on, on the political time at the moment. Yeah. The ---, and the community health centers really want to protect the other federally qualified health centers. And so, you know, there's a lot of like, protection of us so that we can continue to work and not draw attention. Okay. So, it's very awkward and uncomfortable sometimes.”
“So just really quickly, I think there's a lot, there's a fair amount of uncertainty, given the, the discretion that Congress has to fund FQHCs. And so there is a level amount of funding that can make that happen. But above that is anything above that is, is discretionary. And so, there's always a certain amount of needing to get passed, budgeting legislation and the willingness or support for that changes, of course, you know, from political moment to political moment. And so I think that, given the unpredictability of messaging and, and, and backlash, there is there is, you know, appropriate cautiousness with, with visibility.”

**Solutions and interventions**  
When asked about solutions and interventions for heat-related illnesses and other adverse outcomes, healthcare related interviewees highlighted education, healthcare improvements, and proactive protective measures. Education was emphasized, with FQHCs, farmworker programs, and enforcement agencies already visiting farms to provide education on heat-related illnesses. For example, farmworkers in focus group 3 mentioned that their employers invite the Occupational Safety and Health Administration annually to educate them on preventative health measures and worker rights in both Spanish and English. Improvements in healthcare were also suggested, such as using cultural organizations as bridges between migrants and health centers to build trust and facilitate communication. Another suggestion was having translating applications handy at clinics and on the farms to reduce language barriers. One informant stated that they would purposely schedule farmworkers to come into their clinic on rainy days, because they knew that they would not be working anyways, thus being more likely to come in for a check-up. For protective proactive measures, interviewees suggested shifting work hours to reduce sun exposure. One interviewee suggested the “buddy system”, where workers would monitor each other’s health for heat-related illness symptoms.


**Discussion**

**Summary of findings**
This study originally intended to explore the relationship between heat and health for farmworkers, awareness and intervention methods among healthcare providers, and barriers to improving farmworker conditions and protection. However, interviews broadened the scope of findings. The study included a range of health workers and organizations to understand their perspectives on these problems. Qualitative analysis identified five themes: adverse health outcomes, work environment, barriers to improving work conditions, barriers to receiving healthcare, and solutions and interventions.

For adverse health outcomes, even though heat-related illnesses were identified, they were not cited as the only prevailing adverse health outcome farmworkers experienced. Informants heavily emphasized negative mental health and exhaustion as issues burdening farmworkers, highlighting the need for mental health support on farms. Additionally, health provider and enforcement agency interviews revealed more specific chronic and acute illnesses such as diabetes and hypertension that they had observed. These outcomes highlight the importance of taking a holistic approach to treating farmworkers, especially for illnesses that are not typically examined or associated with farmworkers. Farmworkers are struggling with adverse health outcomes on more than one front.

As for work environment, interviews revealed that conditions varied by type of work and employer. Informants echoed the bell shape curve, where on the extreme ends, employers either treated their workers poorly or as family. On the poor performance end, farmworkers could fare better from increased breaks and shade. The largest concern was that many employers did not
provide their workers with PPE. CRVFHP was cited as the sole provider. This highlights the
dependence of farmworkers on outside entities to aid in protecting their health.

Barriers in improving work conditions were cited as lack of enforcement by outside agencies,
exploitative practices by the growers, fear of exercising worker protections, and lack of
knowledge of the minimal existing work protections. Health provider interviewees noted that
there weren’t enough inspectors coming to farms to incentivize growers to change poor treatment
conditions. Next, fear of exercising worker protections and knowledge of existing protections
was cited. This underscores the importance of reducing power structures, expanding workers
rights’ for both undocumented and visa holding workers, as well as providing them with a
comprehensive education of their rights, ensuring they are understood.

As for barriers in receiving care, reluctance to take time off, ability to pay, and overwhelmed
FQHCs were identified. Workers are reluctant to stop working due to fear of grower retaliation
and losing out on paychecks. Interviewees cited that workers were worried about not being asked
to come back the following year if they took too much time or appeared sick. This demonstrates
the imbalance of power structures on the farm and the heavy reliance on paychecks that
farmworkers have. This idea also overlaps with medical bills having a detrimental impact on
farmworkers, leading workers to avoid seeking medical care. Finally, overwhelmed FQHCs and
farmworker programs were heavily emphasized. With the lack of funding, minimal resources,
and existing power structures, they can only do so much for farmworkers.
Barriers to receiving healthcare, improving workplace conditions, and restraints of both FQHCs and enforcement organizations are depicted in figure 1 below:

**Figure 1**: This paradigm illustrates the underlying causes and resulting downstream effects of farmworker injustices. Structural racism against migrants is identified as the root cause of these issues. The study highlights the significant barrier of inadequate funding and support for inspection agencies and FQHCs in enhancing workplace conditions and healthcare access. Another cited obstacle to improving treatment is the exploitation of farmworkers by growers who take advantage of their citizenship status. Current measures taken by inspection agencies and FQHCs to combat adverse impacts are the implementation of heat illness education and PPE. Problems are highlighted in orange, and solutions are highlighted in blue.

Finally, solutions and interventions were discussed. One existing mechanism is placing the responsibility on the farmworkers to protect themselves. Health organizations attempt to intervene by providing PPE and prevention education to the workers. Some interviews suggested shifting work hours to avoid adverse weather, or having workers come into clinics during bad
weather days. However, upstream mechanisms are not currently addressed. Due to financial reliance, FQHCs cannot advocate for farmworker rights as much as they would like. In addition, FQHCs and farmworkers do not have much bargaining power against growers due to the farmworkers’ immigration status, exploitation, and lack of federal and state protections.

Strengths and limitations
The biggest strength of this study was that it included first-hand data collection from interviews from different organizations, healthcare workers, and farmworkers. Because this has never been performed in Connecticut, it provides the foundation for other studies to expand on.

Limitations include limited generalizability based on this one qualitative study. Additionally, the focus groups were of farmworkers in nurseries, hops, landscaping, and tobacco; context may be heavily influenced by crop. Finally, the size of focus group 1 (N=18), was another limitation. Due to the non-confidentiality between workers participating in the focus group, they may have felt peer pressured to keep unpopular opinions or sensitive information to themselves.

Recommendations
Recommendations either mentioned by informants or as an outcome from findings are as follows:

Firstly, mental health should be a larger focus in conjunction with physical health. This could be addressed on farms by increasing routes of communication with families back home, and among employees. Providing language classes or translational devices may aid in this.
Additionally, workers would benefit from having shade provided in the fields, an abundance of water and electrolyte-filled drinks, and the option to take breaks as frequently as needed. Employers should also be required to provide PPE, not outside entities.

Moving further upstream, the results of this study suggest that enforcement agencies and FQHCs would be less burdened through an increase in funding. Increased funding would allow for more inspectors from enforcement agencies to be able to check on farm conditions, and FQHCs could hire more outreach workers and expand their capacity to perform on-site screening visits. While enforcement agencies, FQHCs, and some employers already provide some education in worker protections, it would be beneficial to offer it in different languages and ensure it is understood.

**Conclusion**

Through this exploratory qualitative study on farmworker occupational health, five themes were identified: adverse health outcomes, work environment, barriers to improving work conditions, barriers to receiving healthcare, and solutions and interventions. While interviewees expressed that there is better treatment of farmworkers in Connecticut compared to other US states, alarming systemic problems persist. Farmworkers still experience an array of adverse health outcomes, with both barriers to receiving healthcare and improving work conditions. Interviewees point to the lack of political will, subsequent poor funding, and exploitation of immigration status that exacerbates these inequalities. Downstream efforts to improve outcomes could benefit from an increase in funding for FQHCs and enforcement agencies.
Appendix

Interview Guide for non-farmworkers

IRB Exemption: 2000036830
PI: Nicole-Kristine L. Smith

Questions:

1. Introduction and Connection to Farm Workers
   a. Can you briefly describe your line of work and how you are connected to farmworkers?
      i. In what ways do you provide support or services for them?
      ii. Have you experienced any barriers in working with farmworkers?
         1. (probing: language barriers)

2. Demographics of Farm Workers
   a. What are the demographics of the farmworkers you work with? This can include any of the following: race/ethnicity, gender, income and education level, languages spoken, and citizenship status.
      i. Are the farmworkers you work with undocumented? You may decline to answer this question.

3. Work Environment and Practices
   a. Diving into the daily experiences of farmworkers:
      i. Could you describe their primary duties? (picking crops, lifting, operating machinery, applying pesticides, etc.)
      ii. Describe what food, beverages, and medications are consumed at work? Are any provided or brought? (probing: ultra-hydration beverages such as Gatorade?)
      iii. Can you describe working conditions when it gets hot?
      iv. What PPE are provided that are related heat? Hats, sunglasses, cold water/hydration packs, sunblock, cold packs)
      v. Can you describe what breaks look like on a normal day, and if these changes depending on extreme heat days?

4. Injuries, Stressors, and Worker Protections:
   a. Reflecting on farm worker challenges:
      i. What are some common heat related injuries or illnesses that occur at work that you’ve treated? Are they classified as chronic or acute?
      ii. Do you think workers are aware of worker protections that are in place? If so, could you name some of them?
         1. Examples: Minimum wage, overtime laws, workers’ compensation, child labor, seasonal worker protection, visas, unions
      iii. Do you have experience with worker protections? For example, if a worker was injured on duty and then was treated by you, do you have to fill out some sort of form for workers compensation?

5. Personal Life, Community, and Support
a. Shifting to personal life and support systems:
   i. What relationships do farm workers have with their employers?

6. Health Issues and Precautions
   a. What are the most common heat-related health issues that you treat from farm workers?
      i. Probing: Are they acute or chronic? Are they physical or mental? What causes them? Are their issues bad enough to make them choose between their health and their job?
   b. Can you describe heat-related health precautions that farm workers take, and any recommendations you have that are not already taken? Have you made these recommendations to them before? Is this something you’ve thought about prior to our conversation?

7. Health Care Provider Input
   a. To examine if there are other important themes missed in this dialogue:
      i. Is there anything that we haven’t talked about that you feel is important for me to know?
Interview Guide for Farmworkers

1. Introduction and Connection to Farm Work
   a. Can you briefly describe your work on the farm and how you are involved in farm work?
   b. In what ways do you support or contribute to farm work?
   c. Have you faced any challenges in your work on the farm?

2. Demographics of Farm Workers
   a. What are the demographics of farm workers you are familiar with? This can include aspects like race/ethnicity, gender, income, education level, languages spoken, and citizenship status.
   b. Are the farm workers you know undocumented? You may choose not to answer this question.

3. Work Environment and Practices
   a. Can you describe the main tasks farm workers perform? (e.g., picking crops, lifting, operating machinery, applying pesticides, etc.)
   b. Describe the food, beverages, and medications consumed during work. Are these provided or brought? (probing: sports drinks like Gatorade?)
   c. What are the working conditions like when it's hot?
   d. What personal protective equipment (PPE) is provided for heat-related protection? (e.g., hats, sunglasses, cold water/hydration packs, sunscreen, cold packs)
   e. Describe what breaks are like on a typical day, and whether they change on extremely hot days.

4. Injuries, Stressors, and Worker Protections
   Reflecting on challenges faced by farm workers:
   a. What are some common heat-related injuries or illnesses you’ve experienced or seen at work? Are they considered chronic or acute?
   b. Do you think workers are aware of the protections available to them? If so, can you name some of them?
      i. Examples: Minimum wage, overtime laws, workers’ compensation, child labor laws, seasonal worker protection, visas, unions
   c. Have you had any experience with worker protections? For example, if a worker was injured while working, did you need to fill out any forms for workers’ compensation?

5. Personal Life, Community, and Support
   Transitioning to personal life and support systems:
   a. What kind of relationships do farm workers have with their employers?

6. Health Issues and Precautions
   a. What are the most common heat-related health issues that you or other farm workers experience?
i. Probing: Are they acute or chronic? Physical or mental? What causes them? Do these issues ever force you to choose between your health and your job?

ii. Can you describe the precautions you and other farm workers take to prevent heat-related health issues?

iii. Do you have any additional recommendations? Have you received such recommendations before, or is this something you've thought about prior to our conversation?

7. Additional Input
   To explore any important themes not covered in the interview:
   a. Is there anything else you think is important for me to know?
**Consent Form**

**COMPOUND AUTHORIZATION AND CONSENT FOR PARTICIPATION IN A RESEARCH STUDY**

**YALE UNIVERSITY**

**Study Title:** Behind the produce curtain: heat-related impacts on farm workers in Connecticut

**Principal Investigator (the person who is responsible for this research):** Nicole-Kristine L. Smith, Nicole-Kristine.smith@yale.edu

Hello, my name is Nicole Smith, and I am a researcher at Yale School of Public Health. I am conducting this study to better understand heat exposure impacts among agricultural workers, as well as health care provider experiences and knowledge about these issues.

**Research Study Summary:**
- We are asking you to participate in our research study.
- You must be 18 years of age or older to participate.
- You must be associated with the state of Connecticut.
- You must have worked with agricultural workers in some capacity during your career.
- The purpose of this research is three-fold: First, document the health impacts of extreme and prolonged heat exposure in Connecticut farm workers. Second, understand the current awareness among health care providers and the intervention methods that are being taken, if any. Finally, understand what barriers exist in improving farmworker conditions and protections.
- This study will be conducted via an online interview (Zoom) and should take about 30 minutes. De-identified audio recordings will be saved and translated through a transcribing service until the conclusion of the study.
- There are no risks to participating in this study and you can opt out at any time.
- Please ask questions if you need further elaboration on the study.

**Why is this study being offered to me?**
We want to hear your experiences and knowledge on farm workers and their health disparities.

**Are there any costs to participation?**
There are no monetary costs, just ~30 minutes of your time.

**Will I be paid for participation?**
No.

**How will you keep my data safe and private?**
The interview responses will be kept anonymous. No personal identification information will be collected. De-identified recordings will be kept on the PI’s password protected computer until the conclusion of the study (and subsequently permanently deleted). If you would like to see the results of the study after completion, please reach out to the principal investigator for the final
What Information will you collect about me in this study?
We will be collecting information about your experiences with treating and speaking with agricultural workers. Your information will not be personally identifiable.

How will you use and share my information?
We will use your information given by you to better understand agricultural disparities among farm workers. The final analysis and write-up may include anonymous excerpts from interview transcripts (NOT raw data) and may subsequently be shared with:

- Connecticut River Valley Farmworker Health Program
- University of Connecticut Migrant Farm Worker Clinic
- Representatives from Yale University, the Yale Human Research Protection Program and the Institutional Review Board (the committee that reviews, approves, and monitors research on human participants), who are responsible for ensuring research compliance. These individuals are required to keep all information confidential.
- Principal Investigator of the study
- Co-Investigators and other investigators
- Other farm worker advocacy and activist organizations
- Other stakeholders related to improving farm worker working conditions.

Who should I contact if I have questions?
Please feel free to email Nicole-Kristine Smith (Nicole-kristine.smith @yale.edu) for any clarifications needed or research related questions.

If you have questions about your rights as a research participant, or you have complaints about this research, you call the Yale Institutional Review Boards at (203) 785-4688 or email hrpp@yale.edu.
Works Cited


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