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Submitted via regulations.gov

Andrew Levinson, Acting Director
Directorate of Standards and Guidance
U.S. Department of Labor
Re: Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings (Docket No. OSHA-2021-0009)

Disclaimer: The opinions expressed herein are our own and do not necessarily reflect the views of The Johns Hopkins University.

Dear Mr. Levinson,

We are researchers at the [Johns Hopkins Center for a Livable Future](#) (CLF), an interdisciplinary research center based at the Johns Hopkins Bloomberg School of Public Health. CLF applies science and systems thinking to help build healthy, just, equitable, resilient, and sustainable food systems. In 2021, CLF published [Essential and in Crisis: A Review of the Public Health Threats Facing Farmworkers in the US](#)ⁱ, and collaborated with the University of Vermont Law School's Center for Agriculture and Food Systems on a companion report [Essentially Unprotected: A Focus on Farmworker Health Laws and Policies Addressing Pesticide Exposure and Heat-Related Illness](#).ⁱⁱ As a Center, we are also cosignatories on a very thorough comment letter submitted by Farmworker Justice and other organizations representing farmworkers. In this letter, we focus on key health considerations pertinent to farmworkers working in outdoor agricultural settings and provide recommendations for heat injury and illness prevention with this population in mind.

Here in the US, we rely on an estimated 2.4 million agricultural workers to perform the essential—and often grueling and underpaid—labor of growing and harvesting our food. According to the National Agriculture Workers' Survey, the average farmworker makes between \$20,000 and \$24,499 per year, and one-third had family incomes below the federal poverty line.ⁱⁱⁱ About 75 percent of farmworkers are immigrants.ⁱⁱⁱ Despite their critical importance, agricultural workers have suffered from a lack of basic legal protections that have long been afforded to other types of workers. As the Advance Notice of Proposed Rulemaking (ANPRM) highlighted, the agriculture sector is one of the most dangerous industries when it comes to heat-related fatalities. Workers in the Agriculture, Forestry, Fishing and Hunting sector are **35 times** more likely to die from a heat-related illness when compared to workers across all sectors.^{iv} These include people such as Sebastian Francisco Perez, a 38-year-old who died on June 26, 2021, while working in extreme heat on an Oregon tree farm. He had arrived from Guatemala just two months prior to earn money to start a family with his wife.^v

Many more agricultural workers suffer non-fatal work-related heat injuries and illnesses each year. The current lack of a federal heat protection standard (along with insufficient oversight of some existing regulations such as access to water and sanitation) contributes to an environment in which farmworkers perform physical labor for long hours, under varied weather conditions, often without sufficient water, food, and restroom breaks or facilities. While the average age of farmworkers is increasing (41.6 years old), children also make up a distinct and particularly vulnerable portion of the farmworker population. According to a 2019 study by Quandt et al., in 2014 33 children were injured each day in an agriculture-related incident across the US.^{vi} A 13-year old research participant in this study reported working an average of fifteen-hour days on farms in North Carolina on days she was not in school.^{vi} Most farm employers pay farmworkers per piece/unit of crop harvested instead of an hourly wage, incentivizing farmworkers to forgo rest and water breaks in order to maintain and maximize their pay.^{vii,viii,ix}

As the ANPRM noted, the official estimates of occupational heat-related illnesses, injuries and fatalities are “likely vast underestimates.”^x According to a 2014 study conducted by Leigh et al., the current reporting systems failed to capture more than three-quarters of all occupational injuries and illnesses in agriculture.^{xi} One reason is that workers may underreport their occupational injuries because doing so may result in losing their jobs and their sole source of income.^{xii,xiii} The poverty rate within agricultural communities (especially migrant and unauthorized communities) is almost twice the poverty rate of the United States as a whole.ⁱⁱⁱ Thus, agricultural workers may feel pressured to tolerate unsafe conditions due to factors including fear of retaliation from their employer, lack of sick leave, lack of health insurance, limited transportation, lack of flexible hours at health care providers, and cultural and linguistic barriers.^{xiv,xv}

While the most immediately recognizable impacts on worker health are tied to conditions like heat stroke—there are also a host of other long-term and chronic impacts. Prolonged or recurring exposure to extreme heat events can strain the heart, lungs and other vital organs causing chronic disease or exacerbating underlying conditions.^{xvi} Given that heat stress symptoms can be similar to other medical conditions, the role that heat exposure plays in an individual may not be recognized by health care providers or acknowledged on death certificates or other reporting systems. This is another reason why the burden of heat-related illness is underestimated.

Yet another way that the impact of heat can be hidden is in its contribution to workplace accidents. Working in extreme heat is known to impair functions such as balance, dexterity, response time, muscle fatigue and cognition. A study that reviewed California workers compensation injury reports found that while about 850 injuries per year were classified as caused by extreme temperatures, an additional 20,000 injuries per year were likely due to heat.^{xvii}

Within this context of disproportionate risks and increased vulnerability of agricultural workers to heat-related illness, the increasing impacts of climate change in recent years is another important factor. The record-breaking heat in the Pacific Northwest in June 2021 is just one recent example of a weather-related event that almost certainly was the result of human-induced climate change.^{xviii} The threats presented by constant heat exposure are severe and long-lasting, and climate change will only continue to exacerbate them, thereby disproportionately endangering farmworkers' lives and futures.^{xix,xx} Research modeling several emissions and population scenarios suggests that extreme heat will become much more frequent this century—with the number of days with a heat index above 100 degrees Fahrenheit doubling or tripling by mid-century and occurring four to eight times more often by late century.^{xxi}

The planetary increase in hot temperatures and heat waves disproportionately impact agricultural workers. As a result, many farmworkers experience heat-related illnesses (HRIs), including heat cramps, heat syncope, heat exhaustion, fatigue, nausea, dizziness, dehydration.^{xxii,xxiii} According to a 2010 study in North Carolina, 40 percent of farmworkers reported experiencing at least one HRI symptom during their lifetime.^{xxiv} Similarly, two 2013 studies in Oregon and Georgia found that 64 percent of farmworkers reported experiencing at least one HRI symptom in the previous week^{xxv} and more than 33 percent experienced at least three HRI symptoms over a week, respectively.^{xxvi} More recently, a 2018 study in Florida revealed that 84 percent of farmworkers experienced HRI symptoms within the previous week.^{xxvii}

In addition to the harmful and increased incidence of HRIs, prolonged exposure to heat can also lead to life-threatening outcomes such as heat strokes. In fact, in a 2019 qualitative study of farmworkers on the Florida-Georgia line, researchers Luque et al. documented several stories of farmworkers dying due to heat stroke.^{xxviii} Extensive research has shown a direct relationship between heat exposure and kidney disease. For example, a study of acute kidney injury (AKI) in Florida found that there was a significant relationship between heat index and AKI index, with 53 percent of workers presenting as dehydrated before their shifts and increasing to 81 percent after their shifts.^{xxix} Similarly, in a California study analyzing heat strain and AKI indicators among agricultural workers on a given workday, 12.3 percent of 283 workers met the criteria for AKI.^{xxx}

While this letter only provides a cursory summary of the evidence, it is well-established that heat poses significant risks to farmworkers. Importantly, we know how to prevent these deaths, illnesses, and injuries. There are simple, inexpensive measures to mitigate these risks. It is unconscionable that anyone is put in a position to lose their life or suffer injury or illness due to a lack of basic protections such as rest, water, and shade. Considering the circumstances relevant to farmworkers, we strongly recommend that the Department of Labor include the following, at a minimum, in the federal heat protection standard and ensure that resources are in place to effectively enforce it in agricultural settings. In order to ensure that worker safety is prioritized over employers' economic

considerations, the implementation and enforcement mechanisms are particularly important.

For additional details about the components of an effective heat standard below, please see Farmworker Justice’s comment letter. Existing state standards in Colorado^{xxxix}, California^{xxxix}, Oregon^{xxxix}, and Washington^{xxxix} also provide a template that can be adapted and improved to guide the development of a federal rule.

Essential components of an effective heat standard:

- Outdoor temperature thresholds and action levels should take into account the effects of humidity and the type of clothing and equipment that workers commonly wear for safety (such as hats, long sleeves, boots, and face coverings)
- Requirements for acclimatization and accommodations for other increased risk conditions such as unhealthy air quality.
- Paid rest breaks with minimum rest break frequencies as well as preventive breaks on an as-needed basis
- Availability of drinking water with specifications as to quality, quantity, location and temperature
- Availability of shade, with specifications as to extent, location and/or types of structures
- Communication and training to workers (and supervisors) regarding the requirements of the heat standard, and ways to prevent and recognize HRI.
- Employers must develop clear written workplace safety policies, including an emergency plan and train supervisors and other workers.
- Trainings and communications must be provided in languages that workers understand.
- Surveillance system for heat-related illnesses which includes requirements for employer and clinician reporting (to address current data limitations).
- Sufficient capacity for unannounced workplace inspections and significant fines for violators to incentivize compliance.

Thank you for the opportunity to provide this comment, and for your actions to protect workers on farms (and in all other settings) from these preventable illnesses and deaths. We urge the Department of Labor to move quickly to protect the millions of farmworkers who endure dangerous conditions to feed this nation.

Sincerely,

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