NATIONAL FAMILY FARM COALITION

Washington, D.C. January 26, 2022

Mr. Douglas Parker, Assistant Secretary of Labor
Mr. James Frederick, Deputy Assistant Secretary of Labor
Mr. Andrew Levinson, Acting Director - Directorate of Standards and Guidance
Occupational Safety and Health Administration
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

Re: Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings. Docket No. OSHA-2021-0009

Dear Mr. Parker, Mr. Frederick, Mr. Levinson, and OSHA staff

On behalf of the members of the National Family Farm Coalition, we thank you for the opportunity to submit comments in response to OSHA's Advance Notice of Proposed Rulemaking regarding the development of a federal standard for heat injury and illness prevention in outdoor and indoor work settings (October 27, 2021).

The National Family Farm Coalition (NFFC) is an alliance of grassroots farmer- and advocate-led groups across 42 states, representing the rights and interests of independent family farmers, ranchers, and fisherfolk in Washington, D.C. NFFC's 32 state, national, and regional farm and rural organizations are bound by a common belief that communities have the right to determine how their food is grown and harvested; that everyone in the food system should receive fair prices or wages; that all producers have equitable access to credit, land, seeds, water, markets, and other resources; and, that our food and agriculture policies must support sustainable farming, ranching, and fishing practices.

As growers, ranchers, and fisherfolks we are in support of the many workers who help us in the struggle for a fair and sustainable food system and believe the enactment of a federal heat standard to protects all workers, including agricultural, fishery, and processing workers, from heat injury and illness is necessary and beneficial for the food chain system.

We will complement some of other groups' science-based comments, with our experience as producers, responsible employers, and socially just policy advocates. We will follow the topics outlined on OSHA's *FactSheet* notice published 12/21.[1]

[1] *OSHA FactSheet, OSHA's Advance Notice of Proposed Rulemaking for Heat Injury and Illness Prevention Outdoor and Indoor Work Setting: How You Can Participate.* https://www.osha.gov/sites/default/files/publications/OSHA4142.pdf

**Occupational Illness, Injuries, and Fatalities Due to Hazardous Heat**

Agriculture, commercial fishing, and indoor processing plants workers -either on packing houses or kitchens, are essential for the US economy and paradoxically are at greater risk for heat related illness and injuries. It is not exclusively for the increase exposure to warmer working conditions, but it is also for the structure that many of these workers face when employed by profit-driven producers.

> OSHA enforcement data contain reports of 65 agricultural worker deaths caused by heat stress between 2002 and 2020, accounting for one sixth of occupational fatalities from heat stress during this period,[2] even though agricultural workers represent only 1.4% of all employed workers in the U.S.[3] A different analysis indicates that from 2000 through 2010 the death rate for heat-related illness among agricultural workers was 35 times higher than the rate for all other industries—with an average of 6.8 deaths per year—based on data obtained from the Census of Fatal Occupational Injuries of the Bureau of Labor Statistics.[4]

Similarly, the commercial fishing industry in the United States is one of the most hazardous occupations. Operations are characterized by strenuous labor, long work hours, harsh weather, and moving decks. Risk varies by vessel and types of gear. During 2000–2016, the fishing industry suffered a fatality rate of 115 deaths per 100,000 workers, compared with an average of 4 deaths per 100,000 workers among all U.S. workers.[5] In addition, researchers trying to identify the best personal flotation devices (PFDs) for shrimp fishermen have had to understand the differences between perceived heat stress and physiological heat stress during simulated shrimp fishing tasks in hot and humid environments while wearing PFDs. These results suggest that perceptual heat strain can be used as an indicator of physiological heat strain at a moderate intensity under similar hot and humid environmental conditions.[6]

The data is relevant because perception of heat stress and actual physiological heat stress is fundamental for workers to prevent injuries and illness. Particularly, because despite the dangerous work conditions and recurring HRI, farmworkers frequently report lacking training in

---

[2] Calderon I. *Temperatures continue to rise and farmworkers continue to be at risk.* Midwest Center for Investigative Reporting. October 21, 2021. Available at: https://investigatemidwest.org/2021/10/21/temperatures-continue-to-rise-and-farmworkers-continue-to-be-at-risk/. Last accessed December 3, 2021.

[3] USDA Economic Research Service. *Ag and Food Sectors and the Economy*. Updated November 8, 2021. Available at: https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/. Last accessed December 10, 2021.

[4] Gubernot DM, Anderson GB, Hunting KL. (2015) Characterizing occupational heat-related mortality in the United States, 2000-2010: an analysis using the Census of Fatal Occupational Injuries database. *Am J Ind Med*. Feb;58(2):203-11. doi: 10.1002/ajim.22381. PMID: 25603942; PMCID: PMC4657558. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4657558/

[5] Lincoln, J. M., Carruth, A., Cherry, D., Kincl, L., & Syron, L. N. (2021). Occupational Health Research in the Commercial Fishing Industry. *Journal of agromedicine*, 26(1), 28-30. https://www.tandfonline.com/doi/pdf/10.1080/1059924X.2021.1849494

[6] Hajizadeh R, Golbabaei F, Dehghan SF, Beheshti MH, Jafari SM, Taheri F. (2016) Validating the heat stress indices for using in heavy work activities in hot and dry climates. *J Res Health Sci*.16:90–95. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7189940/

heat safety.[7, 8, 9] Knowing to recognize the symptoms leading to HRI significantly reduces the risks associated with it. OSHA's HRI prevention recommendations, while well intentioned and comprehensive are not properly implemented. The issue represents not just an imminent problem as it has been described, but a long-term issue for workers in diverse sectors.

For example, research has pointed to the frequency with which farmworkers experience risk factors for kidney disease or kidney injury because of occupational heat exposure. A review of the scientific literature on occupational heat exposure and risk factors for chronic kidney disease of non-traditional origin (CKDnt) across fifteen occupations in the U.S. revealed a high frequency of at least mild hyperthermia (core body temperature above 38.0°C) among agricultural workers.[10] Prevalence studies have added information about occupations at risk for CKDnt, both agricultural and non-agricultural. While it is often stated that young, male agricultural workers are disproportionately affected by CKDnt[11], not all types of agricultural workers are affected equally, and some non-agricultural occupations also carry increased risks. In agriculture, the highest risk for CKDnt is for sugarcane cutters and field workers[12] [13] with CKDnt also reported for cotton, banana, rice and corn workers.[14] These are industrial crops and contrast with findings from El Salvador and Nicaragua where kidney dysfunction was not observed among subsistence farmers in coastal areas and coffee farmers who had never worked in plantation agriculture.[15] It was suggested that small farmers have more

---

[7] Luque JS, Becker A, Bossak BH, Grzywacz JG, Tovar-Aguilar JA, Guo Y. (2020) Knowledge and Practices to Avoid Heat-Related Illness among Hispanic Farmworkers along the Florida-Georgia Line. *J Agromedicine*. Apr;25(2):190-200. doi: 10.1080/1059924X.2019.1670312. Epub 2019 Sep 23. PMID: 31544652; PMCID: PMC7075471. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc7075471/

[8] Flocks J, Vi Thien Mac V, Runkle J, Tovar-Aguilar JA, Economos J, McCauley LA. (2013) Female farmworkers' perceptions of heat-related illness and pregnancy health. *J Agromedicine*. 18(4):350-8. doi: 10.1080/1059924X.2013.826607. PMID: 24125050; PMCID: PMC5682625. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc5682625/

[9] Spector JT, Krenz J, Blank KN. (2015) Risk Factors for Heat-Related Illness in Washington Crop Workers. *J Agromedicine*. 20(3):349-59. doi: 10.1080/1059924X.2015.1047107. PMID: 26237726; PMCID: PMC5562231. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc5562231/

[10] Chapman CL, Hess HW, Lucas RAI, Glaser J, Saran R, Bragg-Gresham J, Wegman DH, Hansson E, Minson CT, Schlader ZJ. (2021) Occupational heat exposure and the risk of chronic kidney disease of nontraditional origin in the United States. Am J Physiol Regul Integr Comp Physiol. Aug 1;321(2):R141-R151. doi: 10.1152/ajpregu.00103.2021. Epub 2021 Jun 23. PMID: 34161738; PMCID: PMC8409908.

[11] O'Donnell JK, Tobey M, Weiner DE, Stevens LA, Johnson S, Stringham P, Cohen B, Brooks DR. (2011) Prevalence of and risk factors for chronic kidney disease in rural Nicaragua. Nephrol Dial Transplant. 26(9):2798–2805. https://academic.oup.com/ndt/article/26/9/2798/1815183

[12] Torres C, Aragón A, González M, López I, Jakobsson K, Elinder CG, Lundberg I, Wesseling C. (2010) Evidence of widespread chronic kidney disease of unknown cause in Nicaragua Central America. *Am J Kidney Dis*. 55(5):485–496. https://www.academia.edu/download/47481441/Decreased_Kidney_Function_of_Unknown_Cau20160724-17992-1l15d1z.pdf

[13] Peraza S, Wesseling C, Aragón A, Reiva R, García RA, Torres C, Jakobsson K, Elinder CG, Hogstedt C. (2012) Decreased kidney function among agriculture workers in El Salvador. *Am J Kidney Dis*. 59(4):531–540. http://anhaes.org/wp-content/uploads/2013/04/Publicacion-AJKD-SALTRA-CKD-SV-2012.pdf

[14] Orantes CM, Herrera R, Almaguer M, Brizuela EG, Núñez L, Alvarado NP, Fuentes EJ, Bayarre HD, Amaya JC, Calero DJ, Vela XF, Zelaya SM, Granados DV, Orellana P. (2014) Epidemiology of chronic kidney disease in adults of Salvadoran agricultural communities. *MEDICC Rev.* 16(2):23–30. https://www.scielosp.org/article/ssm/content/raw/?resource_ssm_path=/media/assets/medicc/v16n2/05.pdf

[15] Wesseling C, Aragón A, González M, Weiss I, Glaser J, Rivard CJ, Roncal-Jiménez C, Correa-Rotter R, Johnson RJ. (2016) Heat stress hydration and uric acid: a cross-sectional study in workers of three occupations in a hotspot of Mesoamerican nephropathy in Nicaragua. *BMJ Open*. 6(12):e011034.

control over their working conditions than laborers.[16] Non-agricultural occupations with reported moderate-high prevalence of kidney dysfunction are construction workers 5-15%, miners 6-16%; port workers with heavy labor (8%), fishermen 7%, and shrimp farm workers 10%.[17]"

All this information is important because it demonstrates that the problem goes beyond the enactment of proper HRI prevention regulations but that in the long run it is necessary to change our overall food production system. Outdoor and indoor workers must have heat stress injuries and illness protection because climate change makes it more imperative; while climate change is accelerating in part because the food chain system is an important factor in carbon production. It is beyond the scope of the requested comments, but as small producers we must point out the overall problem: industrial food production.

**Determinants of Hazardous Occupational Heat Exposure and Heat Related Illness in the Workplace**

In agriculture, we see three main risk factors for HRI: the piece-rate system, workers' low-wages, and workers immigration status.

A recent literature review of the piece-rate factor on the health and safety effect of workers concluded that overall, it has a negative effect on workers. "The fact that 27 of the 31 studied articles found negative effects of piece rates on different aspects of health and safety does not prove causality, but together they give very strong support for the hypothesis that in most situations piece rates have negative effects on health and safety." [18]

For farmworkers to make ends meet under the piece-rate system they have to harvest as much as possible. These conditions force harvesters to work faster, take less breaks, and have longer journeys. Even when companies, farmers, or contractors train workers or provide water, breaks, and shade workers will prefer immediate financial reward rather than long term health conditions. Like many issues in agriculture, you never know what is going to happen next harvesting season, so for them what is needed is to make money now.[19] [20]

Behind the reason for the piece-rate system are the economic interest of harvesters and producers to reduce cost, and for workers to overcome their economic low-income condition. On both sides

---

[16] Brooks DR, Ramirez-Rubio O, Amador JJ. (2012) CKD in Central America: a hot issue. *Am J Kidney Dis.* 59(4):481–484.

[17] Wesseling C, Glaser J, Rodríguez-Guzmán J, Weiss I, Lucas R, Peraza S, da Silva AS, Hansson E, Johnson RJ, Hogstedt C, Wegman DH, Jakobsson K. (2020) Chronic kidney disease of non-traditional origin in Mesoamerica: a disease primarily driven by occupational heat stress. Rev Panam Salud Publica. 2020 Jan 27;44:e15. doi: 10.26633/RPSP.2020.15. PMID: 31998376; PMCID: PMC6984407. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc6984407/

[18] Johansson B, Rask K, Stenberg M. (2010) Piece rates and their effects on health and safety - a literature review. *Appl Ergon.* Jul;41(4):607-14. doi: 10.1016/j.apergo.2009.12.020. Epub 2010 Jan 27. PMID: 20106469.

[19] Morera, MC. Gusto, C. Monaghan, PF. Tovar-Aguilar JA, & Roka FM. (2020) "We Force Ourselves": Productivity, Workplace Culture, and HRI Prevention in Florida's Citrus Groves. *Safety* 6:41. https://www.mdpi.com/2313-576X/6/3/41/pdf

[20] Horton, SB. (2016) They leave their kidney in the fields: Illness, injury, and illegality among U.S. farmworkers, University of California Press: Oakland, 200 pp. ISBN: 978-0-520-28327-5

of the productive system is the intrinsic nature of the demand for cheap food and increased revenue of actors who are not directly related to agriculture or fishing production: supermarkets, distributors, and packing industries. The socio-political and economic forces of the food system have systematically benefited larger producers and companies who had carve the power of producers, consumers, and policy making.

**Inequalities in exposures and outcome among workers of color and low-wage earners**

Linked to the same demand for cheap labor and the myth of "unskilled labor" is the United States broken immigration system which make undocumented,[21] and guest worker visa recipients (H2A and H2B) vulnerable to abuses. It is not the workers' perception of lack agency, but there are many documented instances in which workers, who report unsafe workers conditions or even accidents in their workplace, face retaliation by their employers or others in the form of either job loss, immigration enforcement, or both.[22] [23]

Workers of color in the United States are historically the bulk of the food chain system labor, unwillingly or not. While white farmers dominate as operator-owners, farmworkers, and food workers—from field to fork—are overwhelmingly people of color. Most are paid poverty wages, have inordinately high levels of food insecurity and experience nearly twice the level of wage theft than white workers. While white food workers' average incomes are $25,024 a year, workers of color make only $19,349 a year. White workers hold nearly 75% of the managerial positions in the food system. Latinos hold 13% and Black and Asian workers 6.5%.[24]

Between the production, processing, distribution, retail, and services food chain industry there are approximately 20 million people, who are one in five American private sector workers and fully one sixth of the nation's entire workforce. Many of these workers are at risk of HRI: farmworkers, processing workers, commercial fishery workers, drivers, and kitchen workers. At least 50% of low-level workers in the industry are people of color and/or immigrants.[25]

Workers identifying as Black, Hispanic, or Latino experience disproportionately high rates of occupational heat-related illnesses. In a 2015 study, the rate of occupational heat-related illnesses among outdoor workers identifying as Black was 1.5 times that of white workers, and Hispanic or Latino workers experienced 3.2 times the rate of such illnesses compared with non-Hispanic

---

[21] U.S. Dep't of Labor, *Research Report No. 13, Findings from the National Agricultural Workers Survey (NAWS) 2015-2016: A Demographic and Employment Profile of United States Farmworkers* 36 (2018) https://www.dol.gov/sites/dolgov/files/ETA/naws/pdfs/NAWS_Research_Report_13.pdf.

[22] "Much abuse, little pay": How US farming Profits from Exploitation. Yucatan Times, December 29, 2021. https://www.theyucatantimes.com/2021/12/much-abuse-little-pay-how-us-farming-profits-from-exploitation/

[23] Moran, G. As Climate Emergency Grows, Farmworkers Lack Protection from Deadly Heat. Civil Eats, June 14, 2021. https://civileats.com/2021/06/14/as-the-climate-emergency-grows-farmworkers-lack-protection-from-deadly-heat/

[24] Sustainable Agriculture and Food Systems Funders, 21-Day Racial Equity Habit-Building Challenge: 10 Things to Know About Race/Racism and the Food System, April 5, 2021. https://www.agandfoodfunders.org/10-things-to-know-about-race-racism-the-food-system/

[25] Food Chain Workers Alliance, The Hands that Feed US, June 6, 2012. https://foodchainworkers.org/wp-content/uploads/2012/06/Hands-That-Feed-Us-Report.pdf

workers.[26] Furthermore, research has found that non-U.S. citizens are more likely to die on the job because of extreme heat exposure than their U.S. citizen counterparts, especially if Hispanic.[27]

**Structure of work and work arrangements affected by hazardous heat**

Almost 97% of farms in the U.S. employ fewer than 50 employees,[28] while 48% of agricultural workers, totaling over 1.15 million, work on farms with fewer than ten workers, according to the most recent Census of Agriculture.[29] However, the process of consolidation and the pressure of farmers to lower production costs had pushed many farms to rely on the farm labor contractor (FLC) system. Over 50% of farm workers are employed under this system.[30, 31] FLCs are notorious for flouting labor regulations, being responsible for one-fourth of all federal wage and hour violations detected in agriculture and one-half of violations in California and Florida, according to an analysis by the Economic Policy Institute (EPI).[32] A federal heat standard must ensure that requirements are in place to protect all workers from hazardous heat exposure, whether they are directly hired by farm owners or through an FLC.

**Existing Efforts on Heat Illness and Injury Prevention**

While few states had enacted regulations to protect outdoor workers and in one case indoor workers, the main barrier to adequately protecting workers from hazardous heat is the lack of a federal heat standard. However, as we saw in the anti-trust arena, regulations are useless unless they are properly enforced. The number of OSHA inspectors has been steadily decreasing in the past few years, which significantly limits the agency's capacity to enforce any existing rule.[33]

---

[26] Gubernot D, Brooke G, Hunting K. (2015) Characterizing occupational heat-related mortality in the United States, 2000–2010: An analysis using the census of fatal occupational injuries database. *Am. J. Ind. Med*. 58:203–11. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc4657558/

[27] Taylor EV, Vaidyanathan A, Flanders WD, Murphy M, Spencer M, & Noe RS. (2018) Differences in Heat-Related Mortality by Citizenship Status: United States, 2005–2014. *Am J of Pub Health* 108, S131_S136, https://doi.org/10.2105/AJPH.2017.304006

[28] Economic Policy Institute (EPI), "Nine in 10 farmworkers could be covered by the paid leave provisions of the Families First Coronavirus Response Act—but not if smaller employers are exempted,", March 31, 2020 (avilable at:Nine in 10 farmworkers could be covered by the paid leave provisions of the Families First Coronavirus Response Act—but not if smaller employers are exempted | Economic Policy Institute (epi.org).

[29] U.S. Department of Agriculture (USDA). *2017 Census of Agriculture. United States. Summary and State Data. Volume 1, Geographic Area Series, Part 51*. AC-17-A-51. April 2019. Available at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf. Last accessed December 8, 2021.

[30] Castillo M, Simnitt S, Astill G, Minor T. *Examining the Growth in Seasonal Agricultural H-2A Labor*. EIB-226, U.S. Department of Agriculture, Economic Research Service. August 2021. Available at: https://www.ers.usda.gov/webdocs/publications/102015/eib-226.pdf?v=5050.9. Last accessed December 8, 2021.

[31] Farmworker Justice. DOL H-2A FY2021 Data. 2021. https://datastudio.google.com/u/0/reporting/c1ee6b36-f290-4c23-bfd5-f83c6de9a5cb/page/1M

[32] Costa D, Martin P, Rutledge Z. *Federal labor standards enforcement in agriculture*. Economic Policy Institute. December 2020. https://files.epi.org/pdf/213135.pdf. Last accessed January 10, 2022.

[33] National Employment Law Project, *Worker Safety in Crisis: The Cost of a Weakened OSHA* (2020), https://www.migrantclinician.org/toolsource/resource/heat-related-illness-clinician%E2%80%99s-guide-june-2021.html.

OSHA for the most part is unknown in the agriculture industry because for the most part has limited oversight powers and even less economic and human resources. Moreover, most agencies are unable to prevent retaliation actions from employers because when they are “prompt to act” the complainer is unable to feed him/her-self or has been already deported.

We recognized that OSHA and NIOSH had try to educate employers and employees on the risks, symptoms, and preventing measures associated with HRI, but the fact that such efforts are a voluntary suggestion, and that workers and employers feel that such recommendations will affect the bottom line of making a living disenfranchise its implementation.

**Heat illness prevention plans and programs**

With the data, experience, and developed materials on the topic we are cautiously optimistic that prevention plans and programs are attainable. For once, we suggest that a small proportion of the infrastructure bill should be dedicated to the human protection of workers against HRI. Access to healthcare services should not be conditional to public transportation or the location of the facilities. Same wise, access to shade, water, and dignified affordable housing should be a priority as a society.

Broadband is among the priorities of the current administration and the availability tools to prevent HRI could be improved to serve a more diverse, and technologically limited population, as well as the employers who in many cases are already thinking on the benefits of the so-called “climate smart agriculture”. Such efforts must include the health and safety of workers.

Finally, land-grant universities, Historically Black Colleges and Universities, as well as non-for-profit organizations who had dedicated a significant amount of time and resources to prevent HRI should lead the effort to translate the scientific facts and strategies to at-risk outdoor and indoor workers. Either individually, but more appropriately on teams with similar demographic and geographic interests.

Plans and programs preventing HRI will only be effective if trust sources are the medium to communicate, and if the industry is committed to protect their workers. Contrary to relying exclusively on inspections and fines, some incentives should be contemplated to employers who are embracing and implementing HRI programs.

**Engineering controls, administrative controls, and personal protective equipment**

Many efforts are being made to prevent HRI by engineering controls: Apps, sensors, rehydration strategies, ergonomics, and shade systems to decrease heat exhaustion are welcoming strategies. However, its implementation depends on the potential investment the employer is willing or able to make on their business. Considering size, region, and readiness to implement new rules should be considered to provide resources or, in some cases, impose sanctions.

Administrative controls should be a consensual process in which large employers do not shield from their responsibilities and small growers are considered to not affect their economic stability.

Personal protective equipment (PPE) should be considered a risk factor for HRI. It has been already suggested in other forums that the Workers Protection Standard of the Environmental Protection Agency should enhance HRI on their training and oversight. The possibility that PPE can become a prevention tool and not a risk factor is positive, but we must recognize that its cost may be unattainable for most farm operators or the commercial fish industry.

A completely different conditions should be address for indoor workers expose to high temperatures and long journeys, engineering tools exist to decrease rising temperatures. If enacted specific rule is needed to improve working conditions on those locations, under the understanding that an implementation process considers the size and resources of each business.

**Acclimatization**

Some harvesting companies in Florida had followed a process in which guest workers coming from Mexico do not start picking fruit the whole day but incrementally work for more hours until full journeys in a period of two weeks. Unfortunately, this is the common denominator for most local or similar H2A workers.

Acclimatization is incredibly important to let the physiology of workers be at their best to resist the intense heat conditions of the fields. Moreover, while the acclimatation process is important from workers moving from less heat areas to warmer temperatures, resting days -which can be as long as a few weeks off- should be also considered when going back to work.[34]

There are other strategies that can also help and not just the process of working less hours during the harvesting season but provide longer breaks at the start of the acclimated period. For example, Mondays, which tend to be the first day of the working week, have a little more rest time than the following days of the week.

**Physiologic and exposure monitoring**

We had cited a robust body of research in the United States and beyond that documented the physiologic effects of heat on outdoor workers, particularly farmworkers, and many of those efforts translated into practical interventions.[35] But additional scientific translation requires that workers and employers have easy to use and affordable physiological monitoring.

---

[34] Zurawlew, MJ, Jessica AM, & Walsh NP. (2018) Heat acclimation by postexercise hot-water immersion: reduction of thermal strain during morning and afternoon exercise-heat stress after morning hot-water immersion." *Int. j sports physi and perf* 13; 10:1281-1286.

[35] Grzywacz, JG, Gonzales-Backen M, Liebman A, Marín AJ, Trejo M, Ordaz Gudino C, Economos J, & Tovar-Aguilar JA. (2019). Attending to pesticide exposure and heat illness among farmworkers: Results from an attention placebo-controlled evaluation design." *J occup & envir med* 61, no. 9:735-742.

Physiologic monitoring is superior to exposure monitoring because workers can have the agency to prevent HRI; but the only way in which such a strategy could have positive effects is with the participation of employers and these should ensure that their investment also has positive results.

There are already exposure monitoring tools like the OSHA-NIOSH heat stress prevention app, or the Florida Automated Weather Network but one limitation is accessibility. Both tools are not available without signal and my personal experience is that they do not work in remote areas of Florida and, most likely, in other rural areas as well.

The second important limitation of exposure monitoring is the individual physiology of each worker. While the mentioned tools are affordable, potentially easy and widely accessible, they may not move workers or employers to act. In places where actions are triggered by exposure monitoring the challenge has been mandatory limits and its subsequent enforcement.

We suggest that both processes be implemented: cost, accessibility, and acceptance will limit physiological implementation, but exposure monitoring is already available. In both cases, the main factor is that its use will follow preventive actions.

**Planning and responding to heat illness emergencies**

The Federal Emergency Management Agency's (FEMA) national public service campaign, says, "extreme heat is responsible for the highest number of annual deaths among all weather-related hazards."[36] According to the National Weather Service, who also monitors weather-related fatalities, heat has been the leading cause of death among weather-related fatalities over the past 30 years.[37] These fatalities include not occupational related deaths, but as we mentioned before it is likely that some work heat-related fatalities are underreported.

All these said that, with climate change looming in the horizon, consideration for emergency plans to serve at risk outdoor and indoor workers and the communities where they live priorities. Rural communities lack infrastructure and human resources to properly serve its population. There is a need for important investment in these areas and proper incentives for healthcare professionals to staff these facilities.

One final thought is the limited access to broadband services in rural areas, this limitation impacts the request for emergency services and the ability of emergency callers to offer precise location for such services to arrive timely.

---

[36] FEMA-Ready, Extreme Heat, Last accessed January 26, 2022. https://www.ready.gov/heat#:~:text=In%20extreme%20heat%20your%20body,greater%20risk%20from%20extreme%20heat.

[37] National Weather Service, Weather Related Fatality and Injury Statistics 2020. https://www.weather.gov/hazstat/ Last accessed January 26, 2022.

**Workers training and engagement**

Overcoming decades of de-investment in the public sector limit the effectiveness of initiatives promoted by OSHA, NIOSH, CDC, and local Department of Health and Agriculture. On the other hand, providing funds to land-grabbing grant universities is unsustainable when their overhead cost cuts in half any project they lead.

Non-for- profit organizations, faith organizations, and self-help groups had been picking up services that otherwise should have been the responsibility of the State. The process not only distracts these groups from their mission but accounts for large social inequities we see.

We foresee two solutions for these mammoth challenges: a) the State invests in trustworthy outreach programs led by local culturally competent agencies or, b) the State gives direct grants and assistance to community organizations to lead outreach programs.

We do not have priorities for which strategy takes precedence, we expect that in some cases the first action may have more traction due to the capabilities of community organizations, while in some other cases the local institutions may be socially or politically prevented from taking the lead.

A third and somehow riskier alternative is to provide employers with the tools and resources to conduct such training and engagement. There are cases in which such processes have been effective. One factor is true for any of the outline options: Workers are the best promoters of any new rules as long as they are protected from retaliation and compensated for it.[38]

To clarify the last statement; not all employers have the capacity or the willingness to provide comprehensive training. As it was mentioned above many employers are small operations which prevent them from taking on additional tasks. However, if an enforce framework is in place and resources are available in ways we described, employers must be part of the outreach process.

Once employers see the benefits of HRI prevention programs, or are forced to implement them, we advocate for the implementation of a wide community-health workers (CHW) program on-site or managed by local healthcare services.

The CHW model has been a well-documented low-cost and effective method for occupational health and safety.[39] [40] Our experience showed that when CHW are embedded in the workers'

---

[38] Tovar-Aguilar JA, Monaghan PF, Bryant CA, Esposito A, Wade M, Ruiz O, McDermott R. (2014) Improving eye safety in citrus harvest crews through the acceptance of personal protective equipment, community-based participatory research, social marketing, and community health workers, *J of agromedicine*, 14(3)

[39] Swanberg, JE, Nichols HM, Clouser JM, Check P, Edwards L, Bush AM, Padilla Y, & Betz G. (2018) A systematic review of community health workers' role in occupational safety and health research." J of immig & minority health 20, 6: 1516-1531.

[40] Caffaro F, Cremasco MM, Bagagiolo G, Vigoroso L, & Cavallo E. (2018). Effectiveness of occupational safety and health training for migrant farmworkers: a scoping review. *Pub health*, 160, 10-17.

crews, co-workers are adopting positive behaviors and that farmer operations value such intervention.[41]

As many promoters of the CHW model have pointed out, it is important that they are compensated, recognized, and that they count with the proper technical and extended support to conduct their work.[42]

**Cost, economic impacts and benefits**

There is growing evidence that the labor productivity effects of climate change could be substantial. Already today, the aggregate national-level effect of heat on economic output is on a par with other health-related impediments to labor productivity. The empirical relationship between heat stress and the task productivity of individual workers is reasonably well-known and robust, although there are different approaches to quantifying it.[43]

From the farmer, rancher, and commercial fishery point of view the relevance of cost-benefit of any regulation is fundamental but is secondary to the U.N. Declaration on the Rights of Peasants and Other People Working in Rural Areas.[44]

As stated in such a declaration, health and safety conditions are human rights of workers. OSHA should enforce regulations to prevent HRI considering the slide cost for food producers and processors; organizations implementing and enforcing such regulations; the tools necessary to implement and promote the new regulation; and even the potential cost for workers.
Workers and employers alike will be economically affected with the new regulation. Wages losses, potential retaliation actions, production reduction, and the implementation cost at diverse fronts should be expected. As we saw in other programs,[45] It is possible that HRI and deaths rise once the regulation is in place, but this is a natural consequence of increased reporting, not a negative effect of its implementation.

We echo Dr. Day's team: "Private individuals are the primary agents of behavioral adaptation, choosing to take a rest, have a drink or wear appropriate clothing, However, governments are instrumental in creating an environment or regulations that facilitate change in social norms.

---

[41] Monaghan, PF, Forst LS, Tovar-Aguilar JA, Bryant CA, Israel GD, Galindo-Gonzalez S, Thompson Z, Zhu Y. & McDermott, RJ (2011). Preventing eye injuries among citrus harvesters: the community health worker model. *Am j of pub health*, 101(12), pp.2269-2274. https://ajph.aphapublications.org/doi/pdfplus/10.2105/AJPH.2011.300316

[42] Zulu JM, & Perry HB. (2021) Community health workers at the dawn of a new era. *Health Res Pol and Systems*, 19(3)1-5. Most articles of this special number are relevant for this comment. https://link.springer.com/article/10.1186/s12961-021-00761-7

[43] Day E, Fankhauser S, Kingsmill N, Costa H, & Mavrogianni A. (2019). Upholding labor productivity under climate change: an assessment of adaptation options. *Climate policy*, 19(3):367-385. https://www.tandfonline.com/doi/pdf/10.1080/14693062.2018.1517640

[44] United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, Adopted on 28 September 2018. https://digitallibrary.un.org/record/1650694?ln=en

[45] Luque JS, Bossak BH, Davila CB, & Tovar-Aguilar, JA. (2019). "I Think the Temperature was 110 Degrees!": Work Safety Discussions Among Hispanic Farmworkers. *J of agromedicine*, 24(1):15–25. https://doi.org/10.1080/1059924X.2018.1536572

They may enact workplace regulations to encourage shifts in working hours or lead by example in their role as an employer."[46]

Equally important is the need for an implementation process to address some of the economic costs we mentioned. We are certain that the benefits of OSHA's new rule will be greater than the current cost and worse if such rules stayed as simple recommendations.

**Impacts of climate change on hazardous heat exposure for outdoor and indoor work settings**

Due to the rise and frequency of extreme weather events, it's important to emphasize the health threats and challenges imposed by climate change. While everyone will be faced with the health impacts inflicted by climate change, certain groups will disproportionately feel the health impacts, as they can be less climate resilient. Among those populations that are at greater risk are those in occupations exposed to extreme weather and people with pre-existing conditions.[47]

Workers we had described in the first section of these comments are precisely at increased risk of heat related injuries and illness; in addition because this population is as well at risk for food insecurity and access to health care services an important proportion of them suffer from untreated pre-existing conditions.[48] OSHA's ruling is not going to affect the earning, healthcare access, or immigration status of food chain workers but it is the minimum protection these workers deserve. If you have any questions about this comment, please feel free to contact Antonio Tovar (antonio@nffc.net), and thank you for the opportunity to comment and for your consideration of our views.

Sincerely

Antonio Tovar PhD
Policy Associate
National Family Farm Coalition
antonio@nffc.net

[46] Day E. et al. Citation 47

[47] American Public Health Association, Climate Change Health: Vulnerable Populations, Last visited 01/25/22. https://www.apha.org/Topics-and-Issues/Climate-Change/Vulnerable-Populations

[48] Food Chain Workers Alliance, Food Workers on the Front Line of Public Health Crisis Need Urgent Protection, March 12, 2020. https://foodchainworkers.org/2020/03/food-workers-on-the-front-line-of-public-health-crisis-need-urgent-protections/