



Farmworkers and the Climate Crisis

Farmworker Justice's
Environmental Justice Symposium
Summary Report



July 2022

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Introduction

As global climate change continues to intensify, we are confronted with an urgent public health crisis. The long term shifts in weather patterns and rising temperatures have made certain types of extreme weather events such as droughts, heat waves, and floods more common and intense, resulting in widespread environmental degradation and threats to human health and livelihoods. As these climate extremes become the norm, there needs to be concerted action to protect communities on the front lines of these threats.

Exposure risk is not distributed equally—amidst rapidly changing environmental conditions, farmworkers face a range of threats: increased exposure to pesticides, heat-related illnesses, and limited access to clean and affordable water exacerbated by droughts. However, as a medically underserved population with substantial barriers to accessing health care, farmworkers often have the least ability to recover physically or economically from the impacts of climate change.

Farmworkers encounter numerous structural factors that put them at higher risk for poor health outcomes compared to the general public, such as language barriers, discrimina-

tion, low wages, and substandard housing. According to the 2019-2020 National Agricultural Workers Survey (NAWS), nearly half of U.S. farmworkers are without work authorization, leaving them extremely vulnerable to exploitation from employers.¹

The interplay between environmental stressors and social determinants of health—the social, economic, and environmental conditions that impact people's health and well-being—creates unique challenges in addressing the gaps in care and outreach to farmworker communities impacted by climate change. When natural disasters hit, emergency awareness and response capacity among farmworkers is often low due to lack of transportation, geographic isolation, and a dearth of culturally appropriate information.

Though most U.S. farmworkers are limited English proficient, few of the safety information and resources from local health departments and emergency management agencies are in the primary languages spoken by local agricultural workers. Health centers, government agencies, and community organizations can respond more effectively to the needs of farmworker communities by embracing cultural adaptation, community mobilization, and culturally appropriate service delivery models.



As referenced in Farmworker Justice's [Issue Brief: The Climate Crisis and Its Impact on Farmworkers](#) (published in May 2022),² there remain significant policy gaps to address the health impacts of climate change on farmworker communities. Bridging these legislative and programmatic gaps is critical to ensuring that the nation's 2.4 million farmworkers are able to adequately protect themselves from and respond to environmental hazards.³

On May 17 and 18, 2022, Farmworker Justice convened a two-day virtual Environmental Justice Symposium⁴ with subject matter experts and participants representing health, legal, academic, environmental, and other organizations. The aim of the Symposium was to understand how the climate crisis is affecting farmworker communities and to develop actionable recommendations and best practices for health centers, farmworker-serving organizations, and state and federal agencies. Throughout the Symposium, participants were invited to share experiences and recommendations.

The Symposium began with a presentation by Dr. Marysel Pagán-Santana from Migrant Clinicians Network (MCN), on the effects of extreme weather events and natural disasters on farmworker health, the systemic factors that increase health risks among farmworkers, and best practices to effectively respond to their needs.

The second day of the Symposium continued with presentations from invited speakers; Maritza Mendoza (GreenLatinos), Joan Flocks (University of Florida, Levin College of Law), and Lihlani Nelson (Center for Agriculture and Food Systems, Vermont Law School), on how three intersecting issues linked with climate change—water access, heat stress, and pesticide exposure, respectively—impact farmworker health. This summary report presents highlights from these sessions as well as key recommendations and promising practices generated from the Symposium.

Water Access

As climate change intensifies, many regions of the U.S. are getting drier, hotter, and more polluted. Successive droughts have left many communities without access to running water, with gaps in access frequently falling along existing racial and economic fault lines. As Maritza Mendoza from the environment nonprofit GreenLatinos noted in her presentation, ensuring universal access to clean and affordable drinking water is first and foremost an equity issue.

Decades of underinvestment in poor and rural agricultural communities have resulted in water infrastructure that often does not meet



minimal safe drinking standards. In California's Central Valley, where much of the nation's food is grown, the groundwater supply has shown extremely high levels of contamination from bacteria and nitrates from fertilizer and pesticide run-off.

Farmworkers also lack consistent access to safe drinking water in their workplaces; many agricultural employers don't provide drinking water, regular water breaks, or easily accessible sanitation facilities, despite federal requirements.⁵ When employers provide water for their employees, farmworkers are sometimes reluctant to drink water that they report as foul smelling and unclear. Their worries are not unfounded. One Symposium participant shared that in her community in Morrow County, Oregon, dairy and potato packing factories routinely recycle the water they use to wash the potatoes, further contaminating the crops.

Drinking contaminated water can have serious health implications. One Symposium participant noted seeing workers suffer from stomach and digestion problems after drinking contaminated water.

"They [the workers] have made complaints, but the government does not have the personnel to always monitor water quality. The

workers do not know the names of what is in the environment (pesticides, parasites); so when they get sick, it is difficult to treat them."

Another participant recounted an incident at a work site in Belle Glade, Florida:

"...they found out that the workers' water—the municipal water supply—had been contaminated with pesticides. Pregnant women had been drinking and showering with that water."

Extreme weather events linked to climate change have also made flooding and droughts more common, creating displacement and financial hardship for farmworkers. A recent report from researchers at the University of California, Merced estimated that 8,745 full and part-time jobs were lost to droughts across 385,000 acres in the Central Valley in 2021.⁶

With total capital spending by federal agencies on water and wastewater systems falling steadily over the last few decades, organizations like GreenLatinos have focused their efforts around increasing federal funding for infrastructure investments and low-income emergency water assistance programs to expand access to safe and affordable water. However,



data gaps and a lack of a central information hub to track water and sanitation access have made it challenging for community organizations to respond effectively to farmworker communities in need.

Pesticides

Agriculture in the U.S. has become increasingly reliant on pesticides—each year, approximately 1.1 billion pounds of varied synthetic insecticides, herbicides, and fumigants are applied to control pests.⁷ Farmworkers face a range of acute and chronic health problems from routine exposure to pesticides: respiratory illnesses from breathing in fumes, irritation and damage to their nerves, skin, and eyes, and increased risk for certain cancers. Most overexposure occurs when workers inadvertently have direct contact with pesticide residue on crops, soil, or drift from nearby fields. Pesticide residue can also linger on clothing so farmworkers often carry these toxins back to their families.

Pesticide exposure is only expected to worsen as rising temperatures linked to climate change decrease the efficacy of pesticides, which volatilize more quickly in hotter environments. This results in greater amounts applied to crops and more accumulated pesti-

cide exposure for farmworkers. Faster volatilization also increases the movement of pesticide fumes, leaving high concentrations of pesticides in the air.

Wearing personal protective equipment (PPE) or multiple layers of clothing adds a layer of protection from pesticide exposure, but can also exacerbate the conditions of heat stress for farmworkers and increase their susceptibility to heat-related illness. The interconnected nature of these occupational health threats only underscores the importance of instituting systemic changes to protect farmworkers rather than individual protective actions taken in isolation.

Many farmworkers also fear job loss and retaliation if they take measures to protect themselves. While federal legislation like the [Occupational Safety and Health Act \(OSH Act\)](#)⁸ prohibits employers from retaliating against workers that file safety complaints or report injuries, small farms (with 10 or fewer employees) are exempt from OSHA enforcement and investigation.

The Environmental Protection Agency's [Worker Protection Standard \(WPS\)](#)⁹ addresses the risks associated with pesticide-related illness among farmworkers and details specific obligations for agricultural employers when workers come into contact with pesticides.



However, as with many of the other occupational safety threats farmworkers face, there is chronic underreporting of pesticide illness and agricultural employers who flout occupational safety standards are rarely investigated.

Heat Stress

Of the varied workplace hazards farmworkers face, heat exposure is by far the most dangerous. As climate conditions shift, extreme heat events are expected to become more frequent and severe. The strenuous, physical activity of agricultural work for long hours in direct sunlight puts farmworkers at increased risk for a range of health problems due to heat stress: heart disease, heat stroke, blood pressure problems, and dehydration, which can lead to chronic kidney disease.

Prolonged heat exposure can also be fatal: a 2015 study found that agricultural workers are 35 times more likely to face a heat-related death than workers in other industries in the U.S.¹⁰ Recent research conducted by Farmworker Association of Florida (FWAF) and Emory University on heat stress among Florida farmworkers over a three-day period found that the majority of workers ended their days dehydrated and roughly one-third of workers showed markers of acute kidney

damage.¹¹

Farmworkers are especially vulnerable to heat stress because their working conditions are controlled by employers who frequently prioritize productivity over worker health and safety. Symposium participants shared stories of workers fainting from dehydration and heat stroke as a result of being unable to drink water or take breaks. Though there are individual protective measures farmworkers can take to reduce their risk of heat stress—wearing hats, breathable clothing, and taking breaks—in the absence of workplace safety mandates, farmworkers are often reluctant to take actions that run counter to employer demands.

“In interviews, farmworkers know how to take care of themselves in the heat, but employer pressure and demand for speed prevents them from doing so...” - Symposium participant

Though there have been some recommendations from the Occupational Safety and Health Administration (OSHA), as well as the development of enforceable heat standards in a few states (California, Oregon, Washington, and Colorado), there is still no federal standard or employer mandate to protect workers from heat exposure.



Promising Practices

Farmworker, community and other non-profit organizations work to address many of the impacts of the climate crisis. Symposium participants identified some of these promising practices to improve emergency response, promote heat hazard prevention, reduce pesticide exposure, and spread awareness about water quality issues, among many others. These and other effective practices are highlighted below.

Partnerships between diverse organizations

Partnerships between farmworker-serving organizations, community-based organizations, and academic institutions have proven successful in addressing important challenges farmworkers face. By combining the strengths of these organizations with different backgrounds and resources, they have been able to fill gaps that are sometimes overlooked by government services. Some highly successful partnerships involve mutual aid between farmworker and community organizations. One such partnership was created in Volusia County, Florida, when several groups that included the Farmworker Association of Florida (FWAF), the Alianza de Mujeres Activas (Alliance of Active Women), and Hispanos

Unidos came together to form the *Grupo Comunitario de Respuesta a Desastres* (Disaster Response Community Group). The group was formed after a series of hurricanes and tornadoes in the mid-2000s that severely impacted farmworker communities in the county. Their objective was to improve their communities' readiness for future disasters. They combined resources and networked with other groups and agencies to broadcast emergency warnings in Spanish, train group members in emergency response, and build a community disaster response center.¹²

Some partnerships leverage the technical expertise of research institutions and the reach of community organizations to help improve prevention and response to heat hazards. One such partnership includes the Pacific Northwest Agricultural Safety and Health (PNASH) Center, the University of Washington (UW) and the Northwest Communities' Education Center (NCEC) and its radio station—Radio KDNA. Staff from NCEC and Radio KDNA who belong to local farmworker communities are part of a PNASH/UW research team that implement and evaluate a heat stress intervention. This intervention involves farmworker training on heat-related illness (HRI) and a mobile application for supervisors designed to inform them of current and forecasted hot weather risks and prevention measures.¹³ As



part of that intervention, PNASH also developed a *Heat Education & Awareness Tools (HEAT)* toolkit, which includes a series of informational materials and a train-the-trainer guide.¹⁴

Other partnerships between diverse entities focus on distributing resources to help farmworkers protect themselves from heat stress. In North Carolina, the Episcopal Farmworker Ministry partnered with design students at North Carolina State University and a private company to create and distribute a water carrier that workers could wear in the fields.¹⁵ For its part, the Idaho Organization of Resource Councils works with the Idaho Immigrant Resource Alliance to collect and distribute water, electrolyte drinks, sunscreen, bandanas, hats, and ice packs to farmworkers.¹⁶

Community-based participatory research

In community-based participatory research (CBPR), community members take part alongside academic researchers in all aspects of a research project, from the needs assessment phase to the evaluation and dissemination of results. Wake Forest School of Medicine worked with the North Carolina Farmworkers Project and other community partners, including farmworker advocacy groups, to carry

out one such project: a research study to assess biomarkers of pesticide exposure among farmworkers and evaluate employer compliance with field sanitation and pesticide safety training requirements. The results of this project were disseminated to study participants, the general farmworker community, scientists, advocates and policymakers.¹⁷

Another example of a research partnership is the *Girasoles* (“Sunflower”) *Study*, conducted by Farmworker Association of Florida (FWAF) and Emory University. In addition to assessing biological markers of heat stress, dehydration, and kidney damage among farmworkers, FWAF and Emory University researchers documented the labor conditions that increased workers’ risk of heat stress and heat-related illness. Their findings have been published in peer-reviewed scientific journals as well as the popular media.^{18, 19} They were also cited by the Occupational Safety and Health Administration (OSHA) in its Advance Notice of Proposed Rulemaking in support of the development of a federal heat stress standard.²⁰

Policy briefs

Policy briefs are short documents that summarize and analyze relevant information in support of policy recommendations. Policy



briefs explain research results in language that is appropriate for lay audiences. They are useful educational tools, given that policymakers may not always have the expertise to understand and apply complex technical information. The Center for Worker Health at Wake Forest School of Medicine, for example, has developed a series of policy briefs on important issues such as drinking water quality in migrant labor camps, pesticide exposure, and farmworker access to health care, among others. These policy briefs explain in everyday language various research studies the Center and its partners have conducted to explore these issues, explain the significance of the results, and make policy recommendations.²¹ These policy briefs help farmworker advocates present and interpret data to policymakers and demonstrate that their recommendations are supported by solid evidence.

A complementary type of publication, the issue brief, can be used to summarize and explain government policy to advocates and the general public. Farmworker Justice has published multiple [issue briefs](#), one of which, [The Climate Crisis and Its Impact on Farmworkers](#), focuses on policies concerning heat stress, pesticide exposure, food security, and water access, and how these policies impact farmworkers during the current climate crisis.²²

Radionovelas and PSAs

Farmworker-serving organizations have a long history of using broadcast radio to disseminate health and safety messages to farmworker communities. Local radio stations broadcasting in Spanish and other languages spoken by the community are considered trusted messengers and tend to have greater reach among farmworkers than English language radio. A popular format used to deliver health messages is the *radionovela* (radio story). Migrant Clinicians Network (MCN) has created *radionovelas* to inform the farmworker community about environmental health issues such as pesticide safety and lead contamination in drinking water.²³ Public service announcements (PSAs), which are short educational segments, can be in either audio or video format. While audio PSAs are useful for radio broadcast, video PSAs are more versatile. Besides appearing on local television, they can reach large audiences on websites and social media, and can be played in public settings where the target audience is likely to be reached, such as waiting rooms in health centers. The Bilateral Consortium on Agricultural Worker Risk Communication and the Environmental Protection Agency (EPA) have used both radio and video PSAs to inform farmworkers about pesticide safety.^{24, 25}



Community health workers (CHWs)

Many health centers and farmworker-serving organizations successfully deploy community health workers (CHWs), or *promotores de salud*, to conduct outreach activities. These lay health educators typically belong to the communities in which they work, and are able to deliver health messages in ways that are culturally appropriate and that resonate with their audience. They are recognized as valuable partners of health care teams, helping address health care gaps and inequities.²⁶

CHWs' roles often extend beyond health education. During the devastating wildfires that affected Washington state in 2021, the CHWs at the Moses Lake/Quincy Community Health Center in central Washington learned that local migratory farmworkers had not been notified of an active evacuation order during a previous fire. To ensure that the community would be better prepared in case of future disasters, they developed an emergency preparedness fact sheet and partnered with another local health care organization to prepare and deliver emergency kits to farmworkers. This intervention might not have been possible if the CHWs were not frequently in contact with community members, carrying out needs assessments and listening to their concerns.²⁷ CHWs have also had success implementing

projects to reduce pesticide exposure in farmworker children,²⁸ and improving pesticide safety and heat stress knowledge among farmworkers.^{29, 30}

Social media campaigns

Social media is a valuable tool to reach farmworkers with important health and safety information, especially during the COVID-19 pandemic.³¹ It is also being used to conduct wide-reaching campaigns to inform farmworkers about how they can protect themselves from some of the most harmful impacts of climate change. PNASH conducts two social media campaigns in this area: the *Be Heat Smart* and *Be Smoke Ready* campaigns that educate farmworkers on how to prevent the negative health effects of heat stress and wildfire smoke exposure.³² Social media is also an excellent way to raise public awareness of farmworker issues and to let the public see the human face of farm work. The United Farm Workers (UFW) have published many posts describing the daily work of individual farmworkers, with photos or videos of the workers in the fields, allowing thousands of people to better understand the hard work of the people who grow our food.³³ These posts have appeared under the hashtags #WeFeedYou and #SoyEsencial ("I'm essential").



Farmworker testimonies

Farmworker testimonies have proven to be powerful tools to raise awareness about their living and working conditions, as well as the impact of climate change. FWAf created a video, *Facing the Sun*, that presents the stories of farmworkers and farmworker activists discussing the burden and dangers of working in hot weather, and the challenges farmworkers face in trying to protect themselves at work.³⁴ Earthjustice also produced a photo essay in which farmworkers tell impactful stories of their experiences working in the fields and being exposed to toxic pesticides.³⁵ In 2021, FJ created a short documentary film, *[Voices from the Fields](#)*,³⁶ that shared the stories of farmworkers and farmworker-serving organizations during the height of the COVID-19 pandemic.

Policy Recommendations


Although farmworker-serving organizations are working to address the disproportionate impacts of climate change on farmworkers, policy changes are necessary to address the systemic factors that increase the vulnerability of farmworker communities and to fill gaps that small organizations working with limited resources cannot cover. The fol-

lowing recommendations, shared by Symposium participants, are intended for policymakers at the federal, state and local level.

Address health impacts of the climate crisis

The health impacts of climate-driven disasters can be lessened through careful planning that considers the resources, needs, and circumstances of affected farmworker populations. This can be accomplished through policies that:

- ◆ Increase funding for health centers to improve their own emergency preparedness and to provide health care services to farmworkers after a disaster, including mental health services.
- ◆ Involve community organizations in all aspects of planning for emergency preparedness, response, and recovery.
- ◆ Ensure that emergency information and alerts, including evacuation information, are communicated in the languages spoken by local communities, through media and organizations that can reach all of the communities affected (including those living in employer-provided housing and other hard-to-reach locations).
- ◆ Ensure that all members of affected



communities, regardless of immigration status, feel comfortable accessing emergency shelter and other emergency services by communicating clearly, through trusted organizations, their right to use these services.

- ◆ Provide funding to farmworker organizations and other community groups to conduct emergency preparedness campaigns and provide preparedness resources in farmworker communities.
- ◆ Direct more recovery and response resources to underserved rural areas and farmworker communities.

Improve access to safe and affordable water & address drought impacts

Drought has reduced farmworker communities' access to safe and affordable water. Water scarcity leaves many communities reliant on unsafe sources of drinking water. Drought has also led to the loss of jobs and working hours, resulting in decreased incomes for farmworker families. To address these problems, we recommend that federal, state and local agencies adopt policies to:

- ◆ Promote and incentivize the adoption of indigenous farming practices that

rely on plant varieties suited to local growing conditions, which enhance water conservation.

- ◆ Increase water quality testing in communities that lack access to municipal water treatment, including those reliant on private water wells. Outreach workers, including CHWs, would be valuable partners for conducting water testing programs and delivering water quality information.
- ◆ Fund programs to provide home filtration systems in rural communities affected by water contamination.
- ◆ Increase funding for rural water systems and permit the funds to be used for construction, operation and maintenance (O&M), thereby helping address the gap in O&M funding.
- ◆ Increase funding for drilling and maintenance of wells in low-income rural communities.
- ◆ Decrease or eliminate matching fund requirements for low-income communities to participate in government-funded water infrastructure programs.
- ◆ Ensure that effective processes are put in place to enable low-income commu-



nities (including unincorporated communities) to benefit from government programs designed to increase water access. These processes must include the provision of technical assistance.

- ◆ Establish programs to provide temporary financial assistance to farmworkers whose jobs and incomes have been affected by drought.
- ◆ Ensure farmworkers' access to water in the workplace by increasing monitoring for employers' compliance with OSHA's field sanitation standard, which sets requirements for the availability of water and toilet facilities in the fields.

Reduce exposure to toxic pesticides

Climate change is enabling agricultural pests to expand their range, which may lead agricultural employers to apply increasing amounts of pesticides. Higher temperatures can also cause greater dermal absorption of pesticides and can facilitate the transformation of pesticides into more toxic degradation compounds.

** "IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment." University of California. [About the UC Statewide IPM Program](#).*

To protect farmworkers from these risks, policymakers must:

- ◆ Incentivize the application of regenerative farming systems, which increase plant and soil health, decrease pest damage and improve the soil's ability to store carbon, thus reducing the need for pesticide use.
- ◆ Promote and support the adoption of Integrated Pest Management (IPM)* in agriculture to reduce the use of toxic chemicals.
- ◆ Increase funding for pesticide safety training for farmworkers.
- ◆ Require pesticide manufacturers to provide product labels in Spanish.
- ◆ Increase investment in pesticide biomonitoring to assess farmworker exposures.
- ◆ Increase funding for pesticide poisoning surveillance through the [SENSOR-Pesticides Program](#) administered by NIOSH in partnership with EPA.³⁷



Protect farmworkers from heat stress

As extreme temperatures become more common, putting increasing numbers of outdoor workers at risk, these measures would help protect farmworkers from the severe effects of heat:

- ◆ Ensure that workers are able to take paid cool-down breaks, access drinking water and shade in every state, and be provided training in the following: heat stress prevention, first aid for heat-related illness, emergency response and workers' rights; all in languages that trainees can understand. The Occupational Safety and Health Administration (OSHA) is currently developing a federal heat stress standard. While that process is underway, states can adopt their own rules to protect farmworkers from the increasing dangers of hot weather.
- ◆ Increase the number of unannounced workplace inspections for heat-related hazards. Federal OSHA is carrying out a *National Emphasis Program* (NEP) to inspect workplaces in certain industries for heat-related hazards. This program operates in states where OSHA is responsible for job safety and health programs. Those states that are in charge

of their own programs ("State Plans") can and should also implement the NEP.

- ◆ Increase public outreach and educational campaigns on heat stress prevention and response.

Conclusion

FJ's Environmental Justice Symposium highlighted some of the pressing challenges affecting farmworkers due to climate change, including health needs stemming from exposure to natural disasters, heat stress, insufficient access to water, and increased pesticide exposure. Many of the promising practices and recommendations generated from the Symposium discussions emphasize the need to include affected farmworker communities in the planning and implementation of strategies to address the impacts of climate change on these communities.

Another common thread is the importance of ensuring that communities are provided with relevant information in the languages they speak and in formats that are accessible to them. Throughout the discussions, presenters and participants stressed the need for policies that not only address the impacts of climate



change, but also tackle the systemic issues confronting farmworkers.

Recordings of the Symposium presentations are available [online](#).³⁸ If you have questions related to the impacts of climate change on farmworkers or other environmental justice issues affecting farmworker communities, please contact Mayra Reiter at mreiter@farmworkerjustice.org.

Farmworker Justice (Justicia Campesina) is a nonprofit organization that seeks to empower farmworkers and their families to improve their living and working conditions, immigration status, health, occupational safety, and access to justice. For more information, visit our website: farmworkerjustice.org.

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