

# Calor Extremo: On the Frontlines of Climate Change with North Carolina Farmworkers

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Increasingly hotter temperatures threaten the environment and pose serious risks to human health. From contending with damaged crops and loss of work due to extreme weather to working in life-threateningly hot and humid temperatures, agricultural farmworkers are on the front lines of this harsh reality.

## Shifting Weather Patterns and Rising Temperatures

An overwhelming amount of scientific evidence has demonstrated that the chemistry of Earth's atmosphere is changing, and it is warming [1]. Since the Industrial Revolution, the burning of fossil fuels and changes in land use and land cover have significantly contributed to increases in the amount of anthropogenic carbon emissions and other greenhouse gases in the atmosphere [1-3]. This proliferation of chemicals continues to disrupt the earth's atmospheric balance, contributing to a warming effect that has increased Earth's land and ocean temperatures by an average of approximately 1.5°C (2°F) since preindustrial times [1-4].

This gradual increase in Earth's temperatures is creating a global warming effect and influencing weather patterns and temperatures, making some regions of the world experience severe droughts while others have more rainfall and flooding [2, 5, 6]. These changes, including direct effects from extreme weather events and increased pressure from pests and pathogens, threaten food security and agricultural crop and livestock development [2, 7-9].

Globally, heat waves are occurring more often and hotter days and warmer nights are becoming more frequent [10, 11]. Experts predict heat waves will become more frequent, and by the year 2100 some regions of the world will experience up to 120 extra heat-wave days per season [4]. North Carolina is no exception to the brunt of these increasingly rising temperatures. According to a recent report (May 2020) by the NC Climate Change Interagency Council, from 2009 to 2018, North Carolina experienced the warmest 10-year period on record, 1.2° above the long-term average (1895-2018), and in 2019, the state had its hottest year on record [12]. In the same report, under future model sce-

narios, North Carolina temperatures are projected to continue to rise, with warmer summers and higher heat index increases in all seasons [12].

## Heat Vulnerability and Health Impacts

The health effects of exposure to extreme heat include a range of symptoms, from the minor effects of heat exhaustion, heat syncope, dehydration, and muscle cramps to life-threatening heat stroke and even death [13]. Not all populations will experience the health effects of heat from climate change equally; some populations are disproportionately more vulnerable to extreme heat-related events [5, 14, 15]. More specifically, climate-sensitive individuals are usually less able to adapt to the effects of heat and are more likely to experience the greatest health risks. At the population level in the United States, this includes, but is not limited to, the poor and disadvantaged, underserved groups, people of color, the elderly, and those who are disabled and/or medically fragile [16, 17].

Each year, more people die from extreme heat exposure than any other weather-related cause of mortality [18]. Some of the largest numbers of heat deaths have occurred in just the past 30 years, primarily among climate-sensitive populations. For example, the European heat wave of 2003 is estimated to have caused approximately 70,000 deaths [19, 20].

Heat waves and record-breaking temperatures are not just limited to other countries. Here in the United States, heat kills an estimated 670 people and sends approximately 300,000 to the emergency room with heat-related illnesses each year [21, 22].

North Carolina continues to experience its own share of extreme temperatures and heat-related deaths, including many among vulnerable agricultural workers. In a CDC

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report on heat-related deaths, North Carolina reported more crop worker fatalities than any other state [22]. In another report, Mirabelli and Richardson evaluated medical examiner records over a 25 year period and found that 45% of all heat-related fatalities in North Carolina occurred among farmworkers, many of whom died unnoticed and without medical attention [23].

### Challenges for Farmworkers

Agricultural farmworkers in the United States are a unique and vulnerable population that has historically been marginalized and oppressed. From the times of slavery and Jim Crow to the present, farmworkers have enjoyed fewer protections and benefits than non-agricultural workers, facing restrictions on overtime pay, lack of minimum wage requirements, and less protection in child labor rules [24].

It is estimated that there are approximately 2.4 million to 3 million farmworkers in the country [25, 26]. In North Carolina, the majority of farmworkers are immigrants from Mexico and Central America [24]. Before coming to the United States, many of these workers were small-scale farmers in their home countries and took jobs here because of access to higher wages (internal data, Garzon L).

Most North Carolina crops are harvested by seasonal and migrant farmworkers. Migrant workers travel from other states (like Florida or Georgia) and other countries (primarily Mexico) to North Carolina, while seasonal workers tend to stay in one location. Workers from other countries obtain H-2A visas permitting them to work temporary agricultural jobs. Sometimes, workers within the United States bring their families and children, who also work in agriculture [27]. They often work in open fields, including on farms that produce tobacco and sweet potatoes in Eastern North Carolina; Christmas trees in the west; and berries, apples, and low-

lying crops all over the state (Figure 1). Most workers make poverty wages and often work more than 10 hours per day. Despite abundant labor violations and dangerous working conditions, most farmworkers do not file complaints or seek medical attention due to fear, isolation, or lack of information [24].

Farmworkers are critical to the agricultural industry for getting food out of the fields and to American tables. The current COVID-19 pandemic provided farmworkers with the status of “essential workers” [28]. However, unlike other non-agricultural “essential workers,” farmworkers are disproportionately disadvantaged and lack job security, and do not qualify for unemployment benefits. They do not get paid sick time, and live and work under the fear of detention and/or deportation.

The number of H-2A workers in the United States has increased exponentially in the last 10 years. In 2019, North Carolina hosted 21,605 workers, with the North Carolina Growers Association (NCGA) consistently being ranked number one in the Department of Labor’s top 10 H-2A employers in the country [29]. Obtaining an H-2A work visa allows foreign agricultural farmworkers the opportunity to earn higher wages than in their home countries, while supporting the US agriculture industry. Although these workers may qualify for health insurance under the Affordable Care Act, and sick pay under the CARES Act, they do not qualify for unemployment, and their visa is tied to their employer, removing their ability to search for better jobs and disincentivizing them from speaking up when their rights are violated.

Farmworkers perform hard physical labor, often working long hours in open fields under the sun in extreme hot weather conditions, and live in crowded, non-air-conditioned housing [24]. If severe weather impacts crops, they do not work, and they do not get paid. For these reasons, most people will not do this work [30].

### Episcopal Farmworker Ministry (EFWM)

The EFWM is a joint ministry of the Episcopal Diocese of North Carolina and the Episcopal Diocese of East Carolina that provides direct services, leadership development programs, and educational and advocacy programs aimed toward a systemic change of the policies that affect farmworkers and their families.

Since its beginning in 1982, EFWM has been committed to providing health outreach to farmworkers living in migrant labor camps. Outreach staff provides workers with educational information about resources and services available to them, as well as pesticide application and outdoor, heat-related safety training. In addition, EFWM works to distribute hats, long-sleeved shirts, and bottled water in order to incentivize workers to protect their health.

#### *Working to Stay Cool*

EFWM is highly concerned about the consistent number of heat-related illnesses and heat-related deaths among

**FIGURE 1.**  
Immigrant Farmworkers Harvesting Sweet Potatoes



Source: L. Garzon, 2019.

agricultural workers. In 2015, EFWM consulted with farmworkers about the main issues they faced at work. One of the primary issues that was mentioned was lack of access to fresh potable water when working. EFWM heard consistent reports from workers that their employers did not provide them with water regularly while working, and when water was made available, it was often warm and served without disposable cups.

After hearing these concerns, a former farmworker came up with an idea to create a portable water bottle holder that could be attached to the workers' clothing, allowing them to use their hands freely in the field while providing them with a cool drink. This would encourage workers to drink more water and stay hydrated throughout the day.

In 2016, EFWM staff worked with design students at North Carolina State University and a private company to create a water carrier product that could be mass produced and distributed. As a result, EFWM has distributed the water carrier to thousands of workers when attending migrant camps and performing health outreach duties while providing health education on heat-related illnesses and the importance of rehydration.

The fruits of these efforts have been mixed. Some workers report that they use the water carriers often and sometimes use them to store their purchased drinks. Other workers report that they use them to hold their money "chips" that they get for every bucket of produce picked; others report that they do not use them at all because they are either too heavy to carry or the carrier bumps against the plants, damaging them as they walk.

EFWM continues to work to improve the design of the water carriers and to evaluate their health impact on workers. Although much work remains to be done, the water carrier pouches have provided EFWM with a unique opportunity to start conversations with workers about hydration, heat-related illnesses, and caring for their health. This is highly important, as many farmworkers are often isolated outside communities and experience challenges gaining access to credible information.

## Occupational Health Laws

With a changing climate, all workers should be protected from working in outdoor heat and rising temperatures. Unfortunately, current federal Occupational Safety and Health Administration (OSHA) laws do not include specific occupational health standards for workers who labor long hours in excessive heat. Working among heat-related hazards falls under the General Duty Clause, Section 5(a)(1), which requires employers to provide workers with a workplace that is "free from recognized hazards that are causing or are likely to cause death or serious physical harm to . . . employees" [31]. North Carolina's Occupational Safety and Health Act (OSHANC), General Statute 95-129(1), follows similarly with non-specific laws related to exposure to heat, placing the burden on employers [32].

Many advocacy groups, including EFWM, say that this is not enough protection and these obscure laws provide additional challenges to farmworkers. Farmworkers exposed to hot temperatures and humid conditions are at high risk of heat-related illness and even death. Early season warming due to climate change increases the risks of heat-related illness by giving workers less time to adapt to warm weather.

Guidance by OSHA recommends that workers drink water every 15 minutes to prevent heat-related illnesses. However, unlike other occupations, farmworkers working in the fields are often paid by the piece, pound, or bucket instead of by the hour. A hesitation in work momentum could mean less pay to a worker, and less incentive to stop for a water break. In the words of one farmworker, even with water stations located along the sides of the fields, it can sometimes take as long as an hour and a half to reach one as they work their way down the rows [33].

Currently, only two US states (California and Washington) have laws requiring employers to provide nearby shade (e.g., canopy, raised tent) and drinkable water to meet the needs of work crews. Offering workers pay while taking shade and water breaks incentivizes them to hydrate to avoid heat-related illnesses.

## Recommendations and Conclusions

Now is the time, in the face of climate change and rising temperatures, to recognize that current laws must be amended to protect the lives of farmworkers. The decision to make these changes rests with policymakers, and until then workers will continue to toil in escalating heat. The cruel yet convincing reality of the climate challenges farmworkers face, and their vulnerability when working in the heat, is best expressed in "*Urbano's Song*," a song about how an H-2A worker named Urbano was left to die of heat stroke while laboring in the tobacco fields of North Carolina, written by Baldemar Velazquez, president of the Farm Labor Organizing Committee of the AFL-CIO [34].

For many reasons, North Carolina agricultural farmworkers are vitally important to farmers and to the economy, yet working in escalating temperatures undoubtedly places farmworkers on the frontlines of climate change. In addition to other life struggles experienced as immigrants, current laws do not provide adequate protection for farmworkers working in outdoor heat. As temperatures continue to rise, farmworkers will continue to feel these impacts and more unnecessary health effects in the future. It is critical that North Carolina policymakers recognize how to adapt to these changes to protect these vulnerable workers from extreme heat and decrease heat-related illnesses and deaths. NCMJ

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