

Extreme Weather Resulting from Global Warming is an Emerging Threat to Farmworker Health and Safety



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ABSTRACT. *A warming climate has been linked to an increase in the frequency and severity of extreme weather events, including heat and cold waves, extreme precipitation, and wildfires. This increase in extreme weather results in increased risks to the health and safety of farmworkers.*

Keywords. *Climate change, Extreme weather, Farmworkers, Global warming, Health and safety.*

Meteorological data show that the temperature of the Earth's atmosphere has been rising by about 0.36°F per decade since the 1970s. Research indicates that a warming climate is related to the increasing frequency and severity of extreme weather events, which have been seen across the U.S. and in other countries, including heat and cold waves, extreme precipitation, and events such as hurricanes, floods, and wildfires. In addition to extreme weather events, warmer temperatures are already affecting agriculture around the world and will continue to do so in the future. It has been estimated that climate disruptions to agricultural production are likely to increase, agricultural regions will experience impacts on crop production, and the changing climate will necessitate changes in farm management and agricultural processes.

Although there has been much talk about the impacts of climate change on crops, livestock, farming procedures, and overall public health in broad terms, there has been little focus on the impact on the health of those who work in agriculture. Because farmworkers work outdoors in an already hazardous sector, they face multiple sources of exposure to the effects of extreme weather and potentially greater risks to their health and safety. In addition, because the agriculture sector serves a global market, the impact of extreme weather in a particular region can affect agriculture around the world through changing market mechanisms.

In the face of warming temperatures, farmworkers will be more exposed to more extreme and more frequent heat waves. They also face increased exposure to air pollution in

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the form of airborne ash due to longer wildfire seasons and more frequent and severe wildfires. Drought, which affects agricultural communities through water scarcity and lower-quality surface water, exacerbates respiratory illnesses through increased airborne dust and particulate matter. These impacts on respiratory health are compounded by pest migrations and pest population expansions that will require increased pesticide use.

Warmer temperatures can also alter the distribution of vector-borne diseases, and agricultural workers may face increased exposure to pathogens including West Nile virus, Valley Fever, and others. Changes in the growing season due to warmer temperatures will require adaptations in crop management, with corresponding shifts in worker safety and protection practices.

In addition to heat and drought, farmworkers and farm managers must adapt their work procedures to extreme precipitation. Workers can be at risk when they work in flood conditions, and their livelihoods can be at risk due to lost work days when they cannot work because of extreme weather. In summary, due to the nature of agricultural work, farmworkers and their communities can be affected by extreme weather in multiple ways.

Compounding the problem of the multiple sources of exposure is the fact that little information is available on how farmers should address climate issues related to worker health and safety. Furthermore, there is a lack of input from agricultural stakeholders and communities, whose concerns and experiences are relatively unknown as policy-makers evaluate plans for responding to a warming climate. Information on the risks to the health and safety of farmworkers and the potential impacts on their communities is urgently needed, as is raising awareness among these groups in general.

At UC Davis, we are carrying out research to compile what is known about the health and safety effects of climate change, and of extreme weather, on agricultural workers. We are also educating farming communities and including them in the research process by engaging in stakeholder relations and training.

We believe that researchers, stakeholders, and policy-makers urgently need to come together to design and support effective climate mitigation plans that include protecting farmworker health and safety. Farmworkers face significantly greater exposure to the adverse impacts of climate change than the general population; therefore, they warrant specific attention.