

THE COMPOUNDING EFFECTS OF CLIMATE CHANGE

The San Joaquin Valley produces a significant portion of California's crops. But for its farmworkers, climate change exacerbates several risks, including extreme heat, pesticide exposure, air pollution, and Valley Fever.

EXTREME HEAT

Farmworkers wear long sleeves and layers to protect from insect and pesticide exposure. However, the direct sunlight can increase the heat index by 27°F. As temperatures rise from climate change, the extreme heat makes this labor-intensive work even more challenging.

California farms use nearly 20% of the nation's pesticides, and thousands of farmworkers experience acute pesticide poisoning annually. As temperatures increase, pesticides evaporate more quickly, swelling the number of pesticides in the air. Pesticide exposure can also lead to cancer, depression, diabetes, neurodegenerative diseases, and reproductive issues.

A **heat wave** is a period of unusually hot weather that can last two days or longer. The temperatures must be warmer than historical averages, in a particular area, to be considered a heat wave. Heat waves form when a high-pressure system forces air downward, trapping hot air closer to the earth's surface.

As the earth's climate changes, high-pressure systems have become more prevalent, lasting longer than ever before. Heatwaves lasting longer than six days were nonexistent before 1956. After the 1970s they have occurred regularly.

Farmworkers are also less likely to rest and hydrate when their earnings are based on how much they harvest. This type of wage scale incentivizes skipping breaks. Physical strain and continuous heat exposure can lead to fatigue, respiratory illnesses, or death.

AIR POLLUTION

The air quality in the San Joaquin Valley is among the worst in the country. As climate change triggers stronger wildfires, smoke lingers for prolonged periods and impacts outdoor workers. Other activities contributing to air pollution in the valley are agriculture and oil drilling, as well as traffic along Interstate 5 and Highway 99. Exposure to particulate matter (PM2.5) can aggravate cardiovascular illnesses and exacerbate asthma symptoms.



Farmworkers in Oxnard, CA continue to labor underneath dark smoke from the Hill and Woolsey fires in 2018. Photo by Stephanie Rodriguez/Courtesy of CAUSE (Central Coast Alliance United for a Sustainable Economy).

VALLEY FEVER

The respiratory disease Valley Fever derives from the *Coccidioides* fungus, which lives in soil and spreads through airborne spores when the soil is disturbed by farming, construction, or dust storms. Because of drier years and more dust storms, more people contract the virus each year. Between 2000-2011, California's cases rose six-fold, with 75% of these cases in the San Joaquin Valley's southern sections.

While most recover, 1% experience serious spreading of the disease to the skin, bones, and other organs or systems. In the most severe cases, the virus reaches the brain and requires treatment for life. A UC Irvine study predicts that, as climate change expands hot and dry conditions, the infection rate could grow by 50% by 2100.