



UCDAVIS

Western Center for
Agricultural Health and Safety

Feeding the Nation: Agricultural Health and Safety in the West

Kent E. Pinkerton, Director

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Presentation Outline

- ▷ Introduction to WCAHS
- ▷ Overview of Western agriculture
- ▷ Worker vulnerabilities
- ▷ Occupational hazards in agriculture
- ▷ Opportunities to engage WCAHS

Western Center for Ag Health & Safety

- Located at the University of California, Davis and covers a four-state region.
- One of 11 NIOSH-funded Agricultural Centers with an emphasis on research and outreach.
- The agricultural stakeholder audiences in the West are broad and vary linguistically, culturally, politically, and economically.



Agriculture in the West

- ▶ California agriculture includes more than 400 commodities
 - ▶ 1/3 of U.S. vegetables
 - ▶ 2/3 of U.S. fruits and nuts
 - ▶ Specialty crops; labor intensive
- ▶ 400,000 – 800,000 farmworkers
- ▶ 70,000 farms



It must also be recognized that many people, since there is a need to work, a need for money, many will stop themselves from stopping. They see that they are sick, they see that they are feeling unwell and many do not want to [stop].

They do not want to be stopped ... they themselves decide not to stop.

Vulnerabilities

- ▷ Low income; crowded housing
- ▷ Immigrant; documentation status
- ▷ Fear of government agencies
- ▷ Lack of access to safety net programs
- ▷ Low education levels
- ▷ Limited English language



Occupational Hazards



Agriculture is one of the most dangerous industries globally and in the U.S. Roughly 11% of agricultural fatalities and 42.6% of injuries occur in the western region.

Agriculture is dangerous work

- ▶ Agricultural workers are exposed to numerous hazards – physical, chemical, biological:
 - Heat
 - Air quality
 - COVID-19
 - Pesticides
 - ATVs
- ▶ **6 X** more likely to die on the job than the average U.S. worker.

Really dangerous work

- ▶ **23.1 per 100,000** fatal work injury rate for ag sector; all industries 3.5 per 100,000
- ▶ **21,700** nonfatal injuries in WCAHS region in 2019
- ▶ **\$7.6 B** annually in medical and lost productivity costs from ag injuries and deaths
- ▶ **80%** of nonfatal occupational injuries and illnesses on farms are not counted



Heat Illness





...the heat is unbearable being out in the open for so many hours, and some people without even water... how many cases have we seen where people die from heat?

- Imperial Valley Farmworker

Signs and symptoms

Heat exhaustion can quickly develop into heat stroke which can lead to organ failure, coma, or even death.

Nausea/vomiting

Fast heartbeat

Sweaty skin

Headache

Weakness

Dizziness

Cramps



High body temperature

Little/no sweating

Red, hot, dry skin

Fast heartbeat

Convulsions

Confusion

Fainting



California Heat Illness Study

- ▷ **7% +** were at risk of HRI (core body temperature $\geq 101.3^{\circ}\text{F}$)
- ▷ **11% +** were dehydrated at the end of the day
- ▷ **12% +** suffered reversible acute kidney injury
- ▷ **50%** experienced a heat illness symptom

Heat illness is entirely preventable

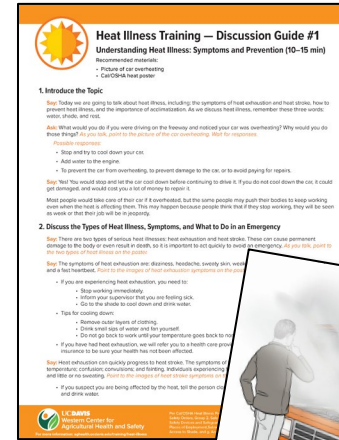
- ▶ Work intensity is associated with increased risk of heat illness
- ▶ Work intensity is driven by piece rate pay structures

“Yes, we just have to continue working, especially when it is piecework in order to earn more we continue to make our day. When we see that we have only earned 50 or 40, we have to continue to reach at least 100, and then we take it easy, if not, then we continue, but if we feel bad, then we take a break.”

- Participant #6, Farmworker Focus Group, June 14, 2013

WCAHS Response: Heat

- ▷ Research
- ▷ Trainings – online and in person
- ▷ Farmworker safety messages
- ▷ Training guides



Prevenção de Enfermidades Causadas por el Calor

Agotamiento por Calor

El agotamiento por calor puede convertirse rápidamente en golpe de calor. Eso puede causar falla de los órganos, coma, o hasta la muerte.

Síntomas:

- Náuseas/Vómitos
- Lafidos rápidos del corazón
- Piel sudorosa
- Dolor de cabeza
- Debilidad
- Mareo
- Calambres

Insolación/Golpe de Calor

Síntomas:

- Temperatura corporal alta
- Piel roja, caliente y seca
- Lafidos rápidos del corazón
- Convulsiones
- Confusión
- Desmayo

Si tiene alguno de los síntomas busque asistencia médica.

En Caso de Emergencia

- Recuerde: AGUA, SOMBRA Y DESCANSO.
- Llame al 9-1-1 y avise al supervisor.
- Baje la temperatura corporal:
 - Respetuosamente ayude a quitar las capas exteriores de ropa.
 - Abaniqué suavemente.
 - Rocíe un poco de agua, o pase una esponja con agua fría en la cara.
- Si la persona está consciente y no está vomitando, proporcione pequeñas cantidades de agua.
- NUNCA deje a la persona sola.

Reduzca su Propio Riesgo

- Tome suficiente agua.
 - Tener sed = deshidratado.
 - Monitoree el color y el olor de la orina.
 - Limite el consumo de alcohol.
- Use ropa suelta y de colores claros para trabajar.
- Tome una ducha fría.
- Duerma en una habitación fresca.

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¿Cómo puede reducir su riesgo de sufrir una enfermedad por el calor?

- Tome suficiente agua.
 - Tener sed = deshidratado
 - Monitoree el color y el olor de la orina
 - Limite el consumo de alcohol
- Use ropa suelta y de colores claros para trabajar.
- Tome una ducha fría.
- Duerma en una habitación fresca.

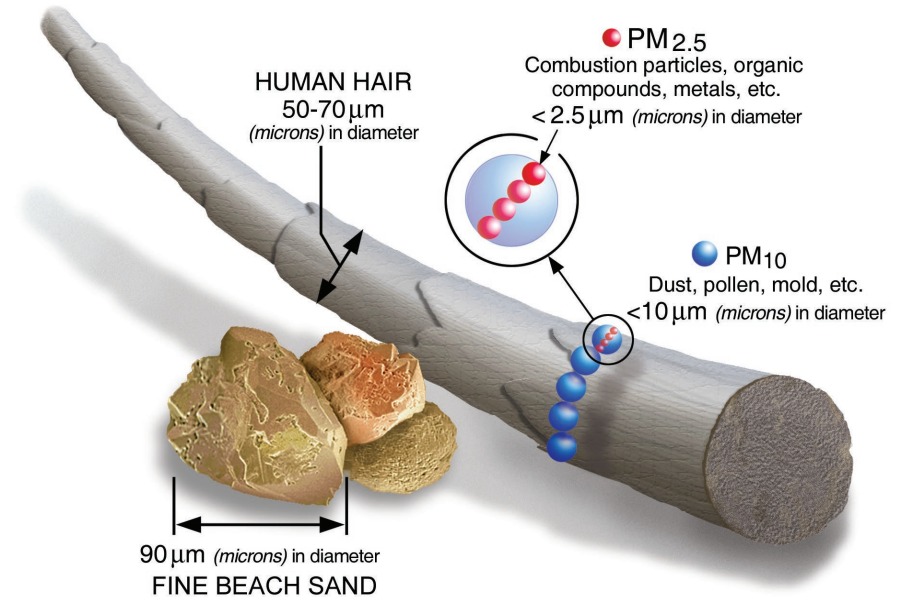
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Air Quality & Wildfire Smoke Exposure

Particulate matter (PM)

- ▶ PM are microscopic particles suspended in the air
- ▶ Sources include agriculture, emissions, dust, smoke
- ▶ Three size fractions: coarse, fine, ultrafine
- ▶ All can cause health problems





Short-term health effects

Burning eyes

Runny nose

Chest pain

Fatigue

Coughing

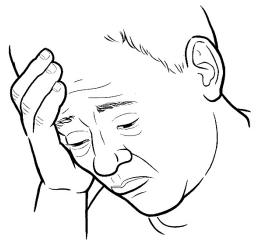
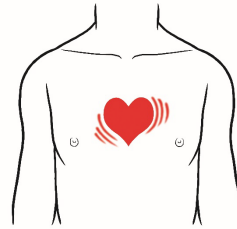
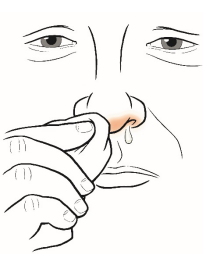
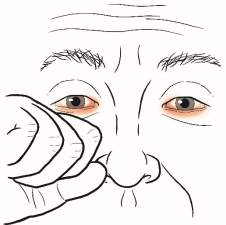
Difficulty breathing

Rapid heartbeat

Headache

Wheezing

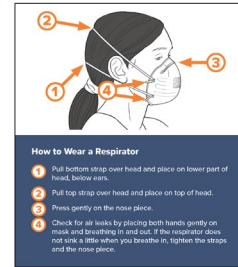
Dizziness



Long-term effects

- ▶ Exacerbation of pre-existing cardiorespiratory problems
 - Asthma
 - Chronic obstructive pulmonary disease (COPD)
 - Cardiovascular dysfunction
- ▶ Chronic bronchitis
- ▶ Heart failure
- ▶ Premature death

- ▷ Research
- ▷ Trainings — online and in person
- ▷ Farmworker safety messages
- ▷ Training guides





COVID-19

Farmworkers & COVID-19

- ▷ Agriculture never stopped
- ▷ Varying implementation of preventative measures early in the pandemic
- ▷ 1 million ag worker COVID-19 cases
- ▷ COVID-19 exacerbated existing vulnerabilities
- ▷ Fear and mistrust limit vaccine uptake

Statewide Agriculture & Farmworker Education Program (SAFE)

13

partner orgs

540,000

SAFE contacts

8,500

outreach hours



Material Creation & Distribution



730,000

training guides and
safety information

660,000

safety resources (masks,
hand sanitizer, etc.)

95

videos in

22

languages

Print & Digital Resources for Training & Outreach

How COVID-19 Spreads

6 feet / 2 meters

maintain distance

COVID-19 Symptom

fever or chills

cough

shortness of breath or difficulty breathing

fatigue

new loss of taste or smell

sore throat

congestion or runny nose

trouble breathing

persistent pain or pressure in the chest

new confusion, inability to wake or stay awake

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COVID-19 Agricultural Employer Training Guide

COVID-19 introduction: Spread and Symptoms pages 1 and 2 of the poster

This guide, in conjunction with the training poster, will help you to provide training on COVID-19 to your workers. The training is designed to be in compliance with Section 3209, "COVID-19 Prevention," effective November 30, 2020.

Introduce the topic

Say: Today we are going to talk about COVID-19, how it spreads, symptoms, how you can stay safe, and how we will keep you safe at work.

Discuss how COVID-19 spreads (page 1 of the poster)

Ask: As you know, COVID-19 is a disease that is caused by a virus that is very infectious.

Say: You may have heard about how COVID-19 is spread by the virus that causes the flu, coughs, or sneezes. However, they release droplets containing the virus that can be breathed in by others. These droplets are larger than 6 feet and 2 meters and these droplets are larger than the virus that causes the flu. These droplets are larger than the virus that causes the flu. These droplets are larger than the virus that causes the flu.

Discuss the symptoms of COVID-19 and when to seek medical help (page 2 of the poster)

Say: COVID-19 is a disease that affects people differently. You probably know how some people experience severe symptoms and others may have no symptoms at all. These people are called asymptomatic.

Ask: Do you think a person who is asymptomatic can still spread the virus that causes COVID-19? What for asymptomatic?

Say: Yes, some people who don't have symptoms can spread the virus. That is why it is important to always use the safety measures we are about to discuss, even if you don't feel sick.

Ask: If someone does develop symptoms, how long does it usually take for them to develop after being exposed to the virus? What for symptoms?

Say: Symptoms may develop within 2-14 days after you've been exposed to the virus.

Ask: What are some of the common symptoms of COVID-19 that you have heard of? What for symptoms?

Say: Common symptoms of COVID-19 often include fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, issues or vomiting, and diarrhea.

Ask: If you suspect that you might have COVID-19, it is important to contact your healthcare provider. What for symptoms?

Say: If you suspect that you might have COVID-19, it is important to contact your healthcare provider. What for symptoms?

Ask: In relation to the symptoms we just mentioned, there are some symptoms that are very serious and as soon as you experience them you should seek medical attention immediately. What symptoms do you think can be serious?

Say: You should seek emergency medical care immediately if you have trouble breathing, persistent pain or pressure in the chest, new confusion, or inability to wake or stay awake.

Ask: If you develop any symptoms or test positive for COVID-19, what do you do? What for symptoms?

Say: If you develop any symptoms or test positive for COVID-19, what do you do? What for symptoms?

Ask: It's important to remember that people of all ages and levels of health can get COVID-19. People with underlying conditions, such as heart conditions, diabetes, those with compromised immune systems, and other chronic.

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1 of 4

Vacunas contra el COVID-19

Las vacunas contra el COVID-19 han mostrado ser seguras y eficaces, incluyendo para las personas con diabetes, presión alta, y otras condiciones crónicas.

Las vacunas son gratuitas para todos sin importar su estatus migratorio. Su información personal no será compartida con el gobierno federal.

Aunque haya tenido COVID-19, debe vacunarse porque la vacuna le da mayor protección, incluyendo contra variantes del virus.

Para más información llame al 1-833-422-4255 o visite myucra.ca.gov

Llame al 911 si tiene estos síntomas

La evaluación médica y pruebas son gratuitas sin importar su estatus migratorio.

Pacientes sin seguro, llame a la línea Medi-Nurse 24/7: 1-877-409-9052

Busque un sitio de prueba: 1-833-422-4255

Dolor o presión en el pecho o dificultad para respirar

Cara o labios hinchados

Confusión y/o dificultad para despertarse

Did you receive the Johnson & Johnson vaccine?

You are eligible for a booster 2 months after your shot if you are 18 years or older.

Pfizer-BioNTech or Moderna boosters are recommended in most situations.

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Funded by CA Labor and Workforce Development Agency 18004

¿Recibió la vacuna de Johnson & Johnson?

Es elegible para un refuerzo 2 meses después la inyección si tiene 18 años o más.

Los refuerzos de Pfizer-BioNTech o Moderna se recomiendan en la mayoría de las situaciones.

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Pesticide Exposure

Pesticide exposure in farmworkers

- ▶ One of the greatest concerns we hear about from farmworkers
- ▶ Pesticides can enter the body through the skin, mouth, eyes, or lungs as you breathe
- ▶ Pesticides can cause acute and chronic health effects
 - Ex. Research shows links between gestational pesticide exposures and neurodevelopmental disorders

Pesticide exposure

- ▶ 323 farmworkers sickened by exposure to pesticides in CA in 2017, up from 135 in 2016
- ▶ Pesticide use can affect family members and surrounding communities

WCAHS response: Pesticide exposure

- ▷ Research: biosolarization as an alternative to fumigation
- ▷ Training
- ▷ Promoting to farmers



CROPS > TREE NUTS

**Almond grower adding value
back to orchards through
biosolarization**

California almond grower Rory Crowley conducted a biosolarization field trial this summer in an orchard scheduled for planting next year to learn how adding hulls



All-terrain vehicles (ATVs)

ATV use in agriculture

- ▶ ATVs are commonly used on farms to apply fertilizers and chemicals, inspect livestock and crops, supervise workers, and carry and tow implements.
- ▶ Estimated 2 million ATVs used in US agriculture.



ATV accidents are common

- ▶ Death rate is **100 times higher** in ag industry than other industries.
- ▶ Crashes are the **second-leading cause of injuries and deaths** in US agriculture.
- ▶ Factors influencing safety: use of sprayer (liquid movement and changing center of gravity); pulling equipment; surface irregularities (slope, bumps).

WCAHS response: ATV safety

- ▶ Current research focused on crush protection devices and towing attachments
- ▶ ATV safety checklist
- ▶ Upcoming ATV safety symposium



Other Hazards

Other occupational hazards in ag

- ▷ Musculoskeletal disorders (MSDs)
- ▷ Pathogen exposure
- ▷ Sexual harassment
- ▷ Mental health



Compounding Hazards & Worker Vulnerabilities

It is rarely just one

- ▷ Heat + Pesticides
- ▷ Heat + Smoke
- ▷ Smoke + COVID-19



Photo Credit: Brent Stirton/Getty Images

Overview

- ▶ Agriculture is an essential and dangerous occupation
- ▶ Factors make farmworkers more prone to injury and illness
- ▶ Policy, regulation, interventions, research, and outreach are needed to reduce incidence of injuries and illness

Connect with WCAHS

aghealth.ucdavis.edu



Newsletters

[aghealth.ucdavis.edu/
form/newsletter-sign-up](http://aghealth.ucdavis.edu/form/newsletter-sign-up)



Social Media

[@AgHealthUCD](https://twitter.com/AgHealthUCD)



Seminar Series

[aghealth.ucdavis.edu/
events](http://aghealth.ucdavis.edu/events)



Request Resources

[aghealth.ucdavis.edu/
educational-materials](http://aghealth.ucdavis.edu/educational-materials)

Thank you

aghealth.ucdavis.edu

Heather E. Riden, Program Director

heriden@ucdavis.edu

Kent E. Pinkerton, Center Director

kepinkerton@ucdavis.edu