

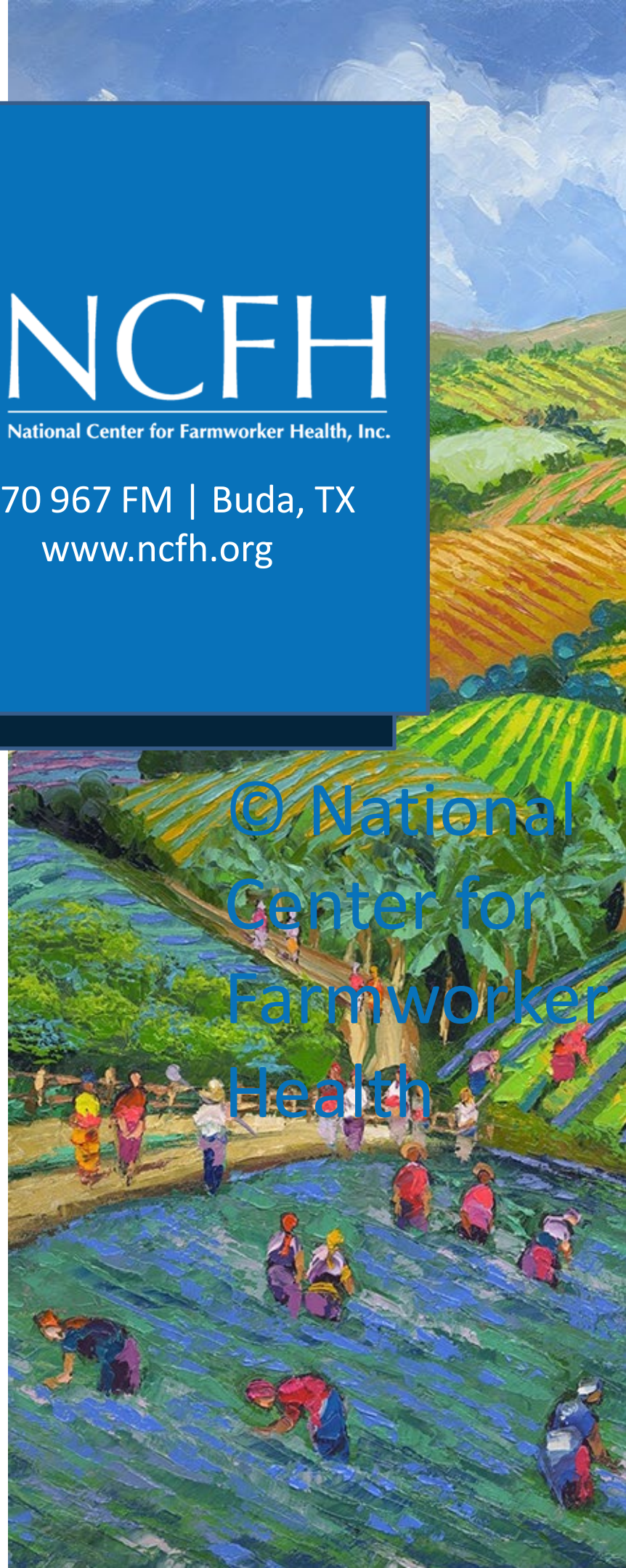


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Avoiding Dehydration for Farmworkers

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Center for
Farmworker
Health

National Center for Farmworker Health
May 2, 2024



Organizer

Organizador



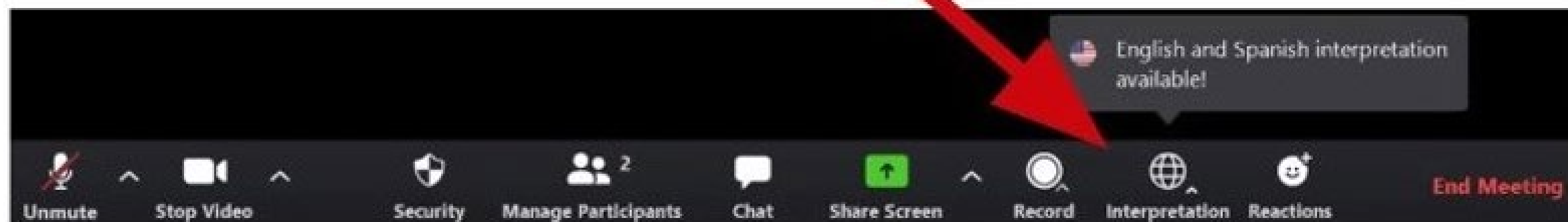
Vanessa N. López
Training Support Coordinator
National Center for Farmworker Health

Interpretation

Interpretación

Spanish interpretation is being provided.
Se está proporcionando interpretación al español.

To select, go to the globe at the bottom of your screen.
Para seleccionar, ve al globo terráqueo en la parte inferior de la pantalla.

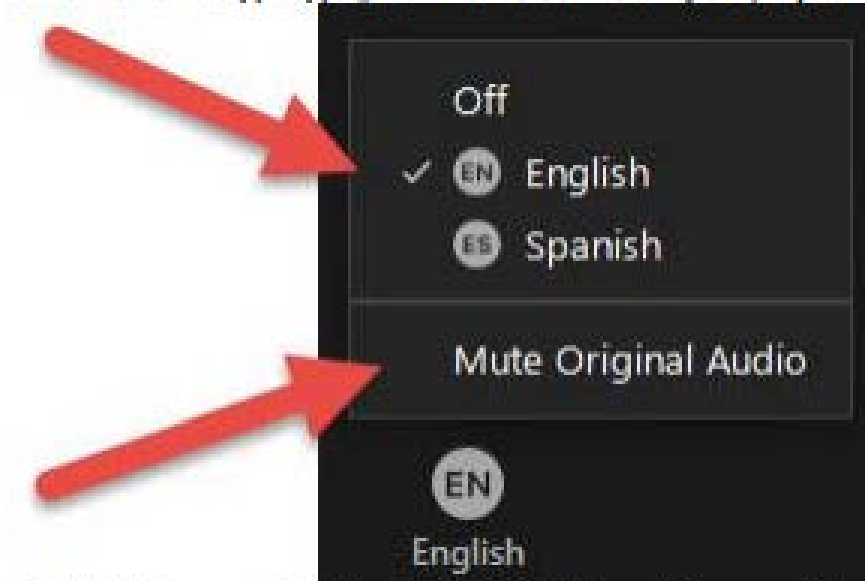


1. Click the **Interpretation globe** icon at the bottom of the screen.



1. Haga clic en el globo de interpretación en la parte inferior de la pantalla.

2. Click the language you want to hear (i.e., Spanish).



2. Haga clic en el idioma que desea escuchar. (es decir. Español)

3. Silencia el audio original para silenciar todos los demás idiomas.

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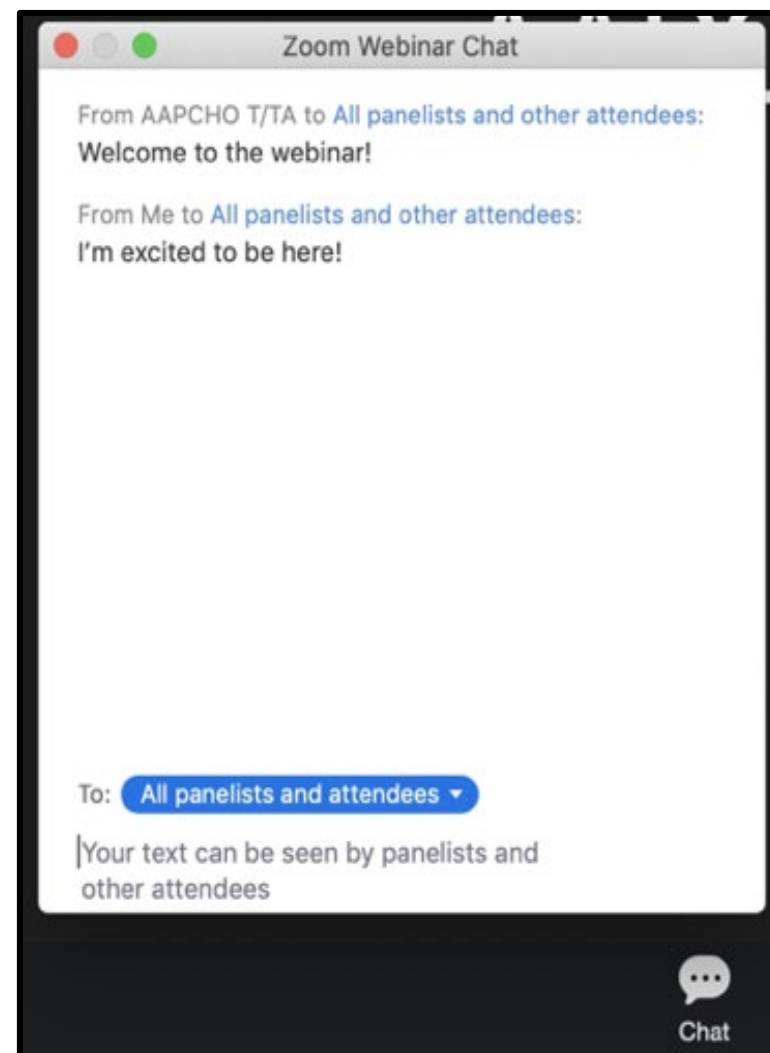
Important Reminders

Recordatorios Importantes

- Avoiding Dehydration webinar will last approximately one hour.
 - This session will be recorded.
 - The recording and electronic copy will be available within 1 week of this webinar.
 - You will receive an email very soon after this session/webinar asking for your evaluation of this training session. Your feedback is greatly appreciated.
- *El Seminario web/Sesión de aprendizaje] durará aproximadamente 1 hora*
 - *Esta sesión será grabada.*
 - *La grabación y la copia electrónica estarán disponibles dentro de una semana de este seminario web*
 - *Recibirá un correo electrónico muy pronto después de esta sesión/ seminario web solicitando su evaluación para esta sesión de*

Zoom Housekeeping

Instrucciones de Zoom

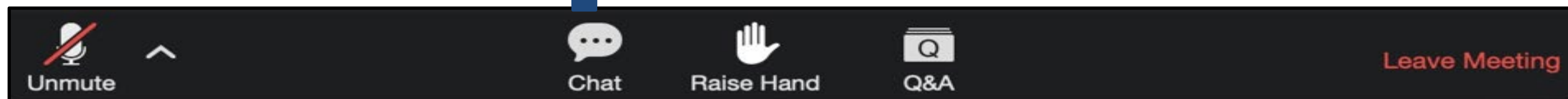


At any time during the webinar, you can ask questions. Please use the chat feature to send your questions to the panelists. At the end of the webinar, we will answer all questions.

Any questions that cannot be addressed during the webinar will be responded to the participants directly via email.

En cualquier momento durante el seminario web/presentación, puede hacer preguntas. Utilice la función de chat para enviar sus preguntas a los panelistas. Al final del seminario web, responderemos a todas las preguntas.

Cualquier pregunta que no pueda abordarse durante el seminario web se responderá a los participantes directamente por correo electrónico.



Zoom Housekeeping

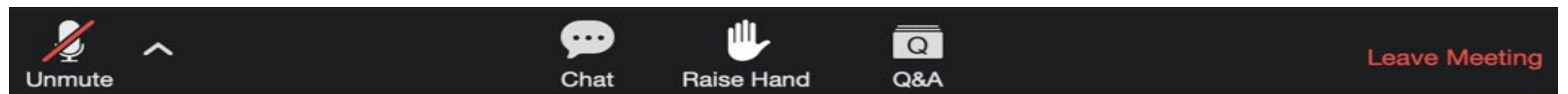
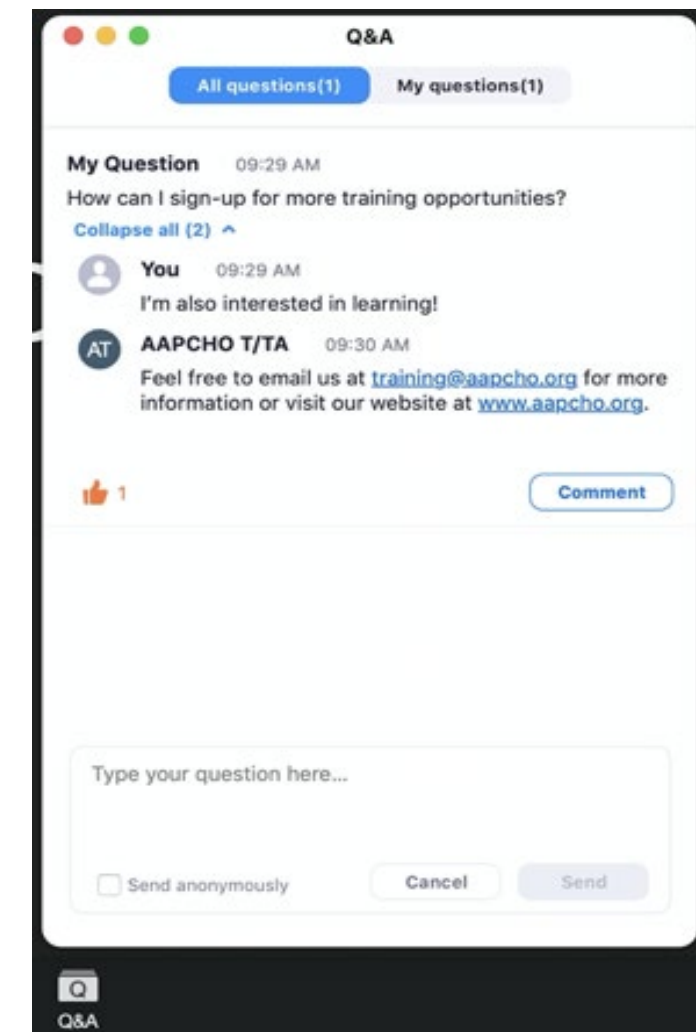
Instrucciones de Zoom

You can also ask questions using the **Q&A** feature and opt to submit them anonymous if you prefer. The Organizer and Speakers will be moderating and answering these questions throughout the presentation.

Any questions that cannot be addressed during the webinar will be responded to the participants directly via email.

También puede hacer preguntas utilizando la función de preguntas y respuestas (Q&A) y optar por enviarlas de forma anónima si lo prefiere. El organizador y los presentadores estarán moderando y respondiendo a estas preguntas a lo largo de la presentación.

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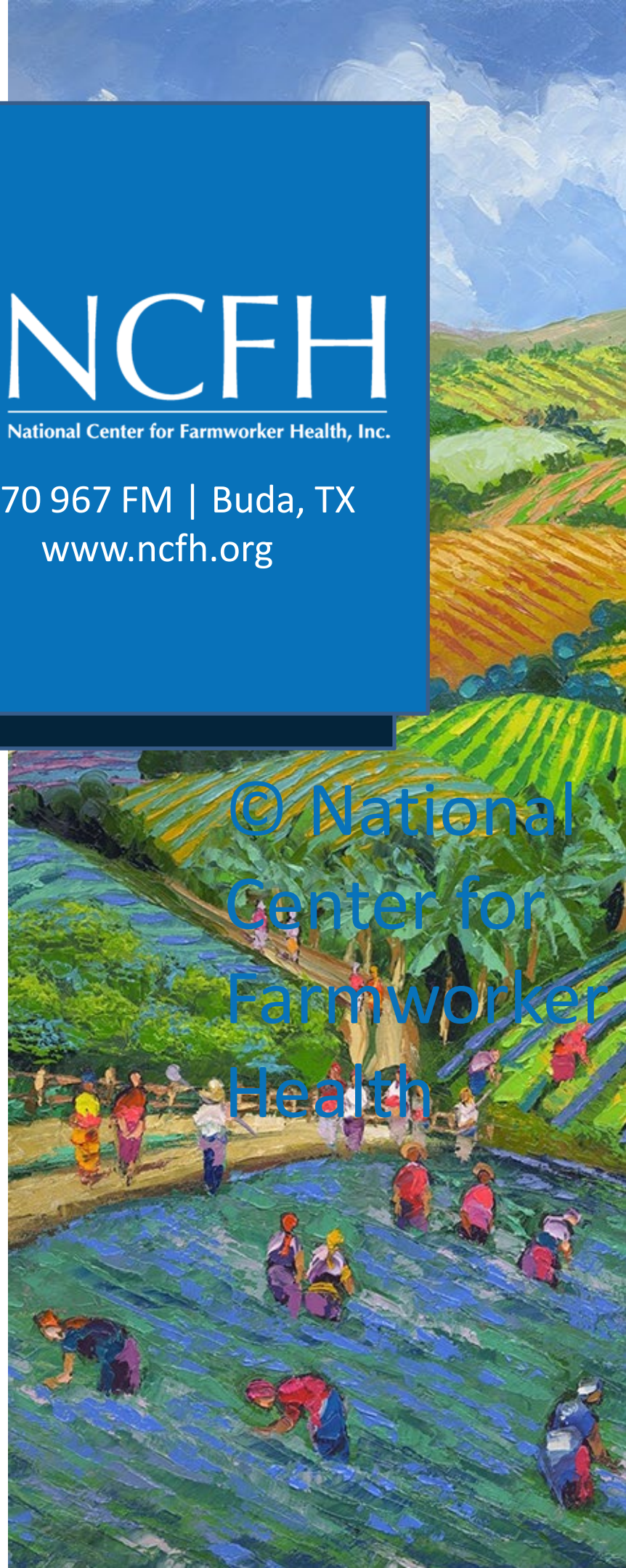


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Today's Speaker

Presentador de Hoy



Bethany Boggess Alcauter, PhD, Director of Research
& Public Health Programs
Directora de Investigación y Programas de Salud
Pública

About National Center for Farmworker Health

- 45 year old non-profit based in Texas
- Work primarily with federally-funded health centers and other farmworker-serving organizations by doing trainings, technical assistance, research, etc.
- Conduct & support outreach to farmworkers across the country
- Collaborate with agricultural employers, other non-profits, universities, government agencies, & farmworkers
- www.ncfh.org

Objectives

- Identify the difference between heat stress and heat stroke (an emergency).
- Understand what prevention measures to advise MSAWS to take to avoid dehydration.
- Describe chronic health issues due to heat stress and dehydration.



Heat-Related Fatalities at Work


- Agriculture, forestry, and fishing workers are 35x more likely to die from heat than other workers
- Men are 32x more likely to die from heat than women
- Age is NOT a significant risk factor - young men can also die
- 34% of heat related deaths occur during July
- Most workers fall ill between 12 PM and 6 PM
- 71% of workers who die from heat exposure die on the day they got sick - these are fast-moving emergencies

A stylized, light blue graphic of a plant with a central stem and several leaves, set against a background of repeating geometric patterns. The patterns consist of nested, overlapping shapes that resemble stylized leaves or arrows pointing outwards.

Basics of Heat- Related Illnesses & Treatment



What is Heat Stress?



Heat stress happens when your body has excess heat it can't get rid of.

Normal body temperature is around 97-99 degrees Fahrenheit.



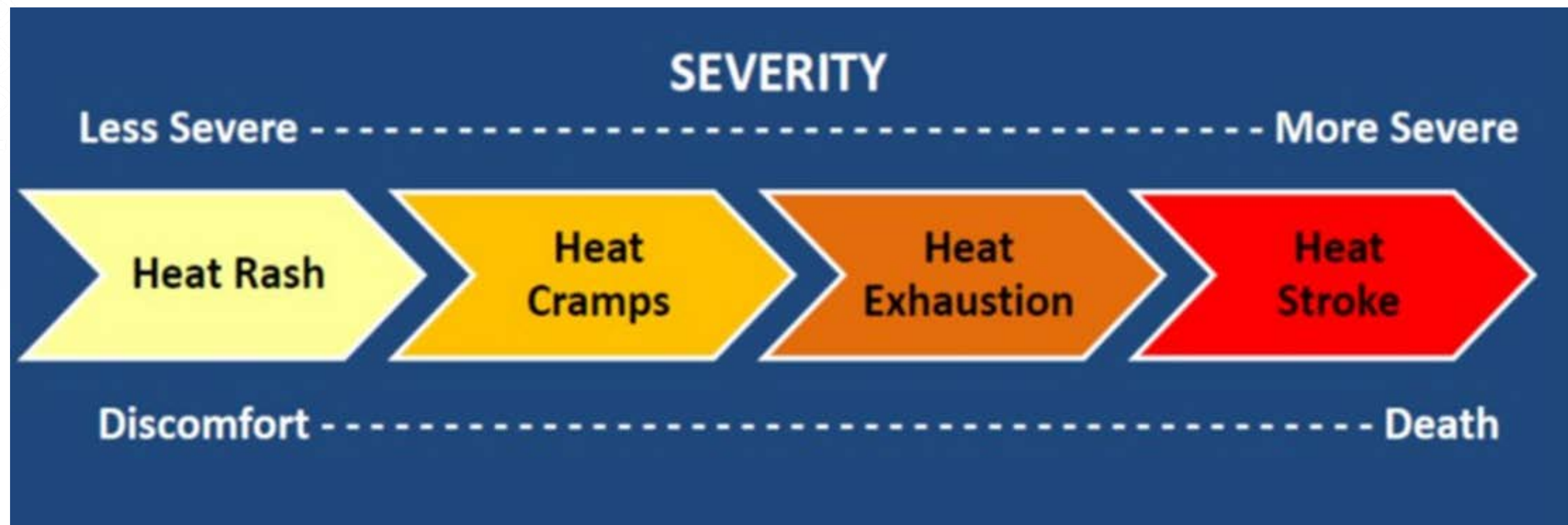
Relationship among heat stress, dehydration, and heat-related illnesses

Worker begins day dehydrated = less able to tolerate heat

Worker is acclimatized to heat = increased sweating = more likely to become dehydrated

Dehydration can cause electrolyte (mineral) imbalance & vice-versa

Heat-Related Illnesses: Phases



[University of Houston at Clear Lake Heat Stress Training](#) (English and Spanish)

[Full list of signs & symptoms](#)

Heat-Related Illnesses: Lower Severity Level

- Heat rash
- Heat cramps



Lower Severity Level Treatment

- Heat rash:
 - Rest in shade
 - Change of clothes to keep skin dry
 - Drink water, electrolyte solutions (watered-down gatorade or "suero" - 1:3 ratio is best)
- Heat cramps:
 - Rest in shade
 - Drink water, electrolyte solutions

*Medical attention if the symptoms don't go away, especially if still having cramps after 1 hour

Heat-Related Illnesses: Increased Severity Level

Includes:

- Dizziness, light-headedness
- Fainting
- Headache
- Nausea, vomiting
- Irritability
- Decreased urination, increased thirst



Increased Severity Level Treatment

Likely needs medical attention, especially if worker has combination of symptoms or has fainted.

- Move worker safely to cooler area in the shade
- Remove unnecessary clothing (jackets, socks and shoes)
- Encourage small sips of water
- Do not leave worker alone

Increased Severity Level Treatment: When to Seek Help?

- In general: **better safe than sorry**
- In general, employers should have a policy to take workers to medical care if they have any of these symptoms. Everyone on the farm needs to understand and follow this policy.
- If worker absolutely refuses medical care, can evaluate after resting in shade and drinking water for 30 min+. Worker should be with a caretaker entire time and if symptoms persist or worsen, must seek medical care.

Heat Stroke: Emergency

Includes:

- Confusion, altered behavior
- Slurred speech
- Loss of consciousness
- High body temperature
- Stopped sweating & skin is dry and hot or sweating profusely





Actions to Take During an Emergency

If worker has any of these symptoms, can quickly become fatal.
Immediately call 911 in this situation. While waiting for paramedics:

- Move worker to shaded cool area.
- Immerse worker (up to neck) in cool water if possible, if there is no risk of drowning.
- If cannot immerse, put ice packs, cold water rags, etc on worker's body and fan vigorously
- Do not leave the worker alone

Temperatures and Risks

- From 2011-2016, median heat index of workplace heat fatalities was 91 F
- Fatalities occurred as low as 83 F
- Heat index was under 91 F in almost half of fatalities
- In WA state, 25% of heat related non-fatal illnesses occurred when the heat index was under 90 F

Acclimation to Climate

- What temperature people are used to working in is big factor
- Example: Men from a cool mountain climate in Mexico, first days working in humid 80 degree Georgia, may need a few days to adjust before they can go 100%

Case of Cruz Beltran

Beltran, 52 years old, died alone in a Nebraska field from heat stroke detasseling corn in 20 18.

He was an experienced farmworker from Arizona.

Was left alone.



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Hydration & Electrolytes

Dehydration and Urine

Workers can be dehydrated without experiencing a heat-related illness.

Urine color is an important indicator:



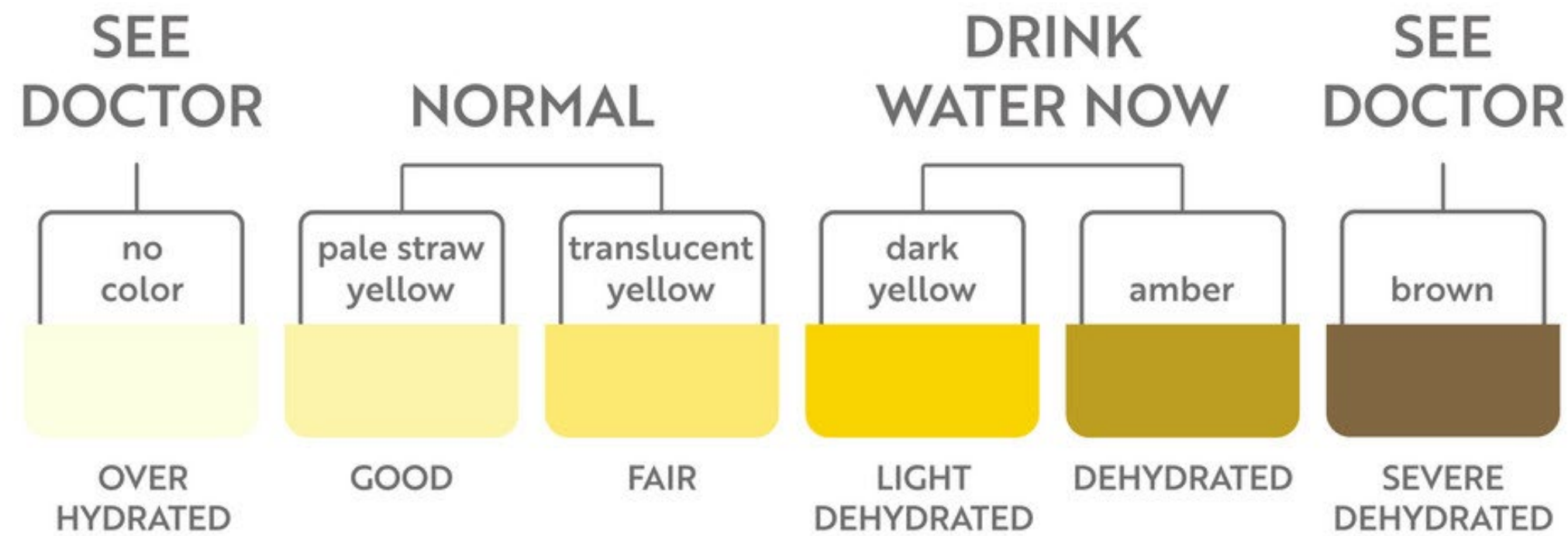
Dehydration

Which urine sample do you think indicates that the worker is severely dehydrated?



Urine Color & Hydration

URINE COLOR CHART



Can also indicate severe condition called rhabdomyolysis

URINE COLOR CHART



clear
You've been drinking too much water. Cut back.

yellowish to amber
Typical, healthy urine.

red or pink
You ate red/dyed things, OR enlarged prostate, kidney stones, or tumors in the bladder. Speak with a doctor.

orange
It could be dehydration, but if combined with light-colored stool, it could mean issues with your bile duct.

blue or green
Very rare. Most likely connected to something you ate. In rare cases, it could mean a bacterial infection.

dark brown
Dehydration, diet-related, OR a side effect of certain medications, porphyria, or liver disease.

cloudy
Dehydration, urinary tract infection (UTI), or a symptom of chronic disease or kidney conditions. Cloudy urine with foam can be serious.

Severe dehydration & kidney injury

- Acute kidney injury
 - If occurs repeatedly, may develop into chronic kidney disease
- Rhabdomyolysis "rhabdo"=occurs your muscles release protein into the blood (result of extreme exertion combined with dehydration and heat stress)

Hydration Tips

- Drink at least half a liter of water before starting work
- Drink around 1 liter per hour but will depend on worker, work, and climate- maybe be between 500 mL to 2-3 L per hour)
- Drink watered down Gatorade (2 parts water, 1 part Gatorade) or homemade Gatorade "suero":
 - 1/4 to 1/2 teaspoon salt
 - 1 tablespoon sugar
 - Stir into 1 liter of water

Electrolytes: Natural and Culturally Appropriate

- "Suero"=watered down Gatorade, homemade Gatorade, and/or coconut water
- Bananas
- Watermelon
- Avocado
- Queso fresco (farmer's cheese)
- Yogurt
- Bone broth



Salt Intake

- People need salt if they're sweating a lot
- Many workers may also have hypertension, diabetes, other chronic conditions
- Work with nutritionists to identify best advice for workers with chronic diseases

Alcohol, caffeine, and hydration

- Alcohol & caffeine dehydrates
- Talk to workers about limiting alcohol or caffeine use during season

A stylized, light blue graphic of a plant with a central stem and several leaves, set against a background of repeating geometric patterns. The patterns consist of nested, chevron-like shapes that create a sense of depth and texture.


Chronic Health Issues from Heat & Dehydration

Chronic Kidney Disease of Non-Traditional Causes (CKDnT)

- Leading cause of death for men in El Salvador & Nicaragua; being identified throughout Central America, Mexico, U.S., and in other continents
- Research still needed but [there is overwhelming evidence that it is related to working in an outdoor occupation](#) that demands physical intensity and has little opportunity for rest or rehydration
- Develops over years of exposure and can lead to different phases of chronic kidney disease, including dialysis, kidney failure, and death

Other Long-Term Effects of Chronic Heat Exposure/Dehydration

- Increased risk of [diabetes](#) and metabolic syndrome (due to higher concentration of glucose in the blood)
 - Metabolic syndrome = some combo of high blood pressure, high blood sugar, high cholesterol, and/or abdominal obesity
- Increased [risk of kidney stones](#) (due to higher concentration of salt & other minerals in the blood)
- Increased risk of obesity ([emerging research](#) about link b/t dehydration, heat stress, and obesity)

A decorative graphic on the left side of the slide, featuring a central vertical stem with several leaves. The leaves are stylized and have a serrated edge. This central element is surrounded by a complex, repeating geometric pattern of nested, overlapping shapes that resemble stylized leaves or arrows, creating a dense, textured effect.

Evidence-Based Prevention Measures

Prevention Measures

- Making water and shade easy to access in the field
 - If above a certain temperature, mandatory rest breaks throughout day
- Buddy system
- Crop row marking system
- All levels of human resources trained on recognizing and responding to heat-related illnesses (HR staff, foreman, supervisors, workers)



Water | Rest | Shade: Access!

It may be on the farm but can workers access it?

- How far do they have to walk to reach shade or water?
- Can they stop working to get there if needed?
- Is crew leader encouraging workers to drink water?
- Will workers lose pay if they rest or drink water?
- Will workers be teased or retaliated against if they rest or stop to drink water?

More Water and Rest, Better Machete=More Productive

Researchers gave workers 3 L Camelbaks to sugarcane workers in Nicaragua, set up shade tents, implemented frequent rest breaks (resting 25% of work day), and provided workers with improved machete

- Symptoms of heat stress decreased, especially serious ones like dizziness and decreased urine output
- Water intake increased 25%
- Workers went from harvesting about 5 tons to 7 tons of sugarcane per day/per worker post-intervention



Buddy System

- All workers are paired up so that someone else is checking on them
- Stay with same partner throughout the season if possible
- That person can recognize when their partner is acting strange
- The partners feel comfortable telling each other when they feel sick, need a break, etc
- Row Marking System
 - If workers are spread out and can't see each other, rows where workers are are marked to keep track of where they are

A large, stylized graphic of a plant with multiple leaves and a central stem, rendered in a light blue color against a darker blue background. The plant is positioned on the left side of the slide.

Practical Issues in the Field

Piece Rate Pay

- Pay structures on farm almost always disincentivize breaks
- Emphasize to workers and employers that proper rest and hydration actually makes workers more productive.

What can health outreach staff do?

- Offering to help farms develop a heat emergency plan
- Encouraging farms/supervisors to make water, rest, and shade more accessible
- Motivational/educational talks with workers






Approaching Workers

Key Points for Workers

- Drink before you're thirsty
- Eat foods that will replace electrolytes
- Check your urine color at night or in the morning
 - Dark yellow = need more water
 - Brown + fatigue = hospital visit
- Use the buddy system, be aware of symptoms, and don't leave anyone alone
- Support each other in asking for drinking water, shade, and rest breaks



Empower Workers

- 
- Encourage: No job is worth their life.
 - Empower: Give them knowledge they can implement & resources if the employer is not supportive (e.g., third-party OSHA reporting)
 - Entrust: Workers are able to stay in tune with their bodies during the day.

Men, Pride, and Health

- Encouraging men to admit they need a break is not easy
- Comparisons to professional athletes can get their attention and be received well
 - "Would your favorite soccer player practice for hours at a time without breaks? Don't teams take timeouts when players are tired?"
- Men can be influenced by their peers/co-workers
- Encourage them to think about long term health and longevity

Trauma & Dissociation

- Workers may lack the tools to stay in tune with their needs, including their physical needs
- Trauma + exploitation can lead to dissociation
- [Dissociation](#) = disconnecting from present moment, often a psychological defense mechanism
 - Is a mental escape; "zoning out"; can lead you to be disconnected from your physical body
 - You can actually feel less pain when you're dissociating
 - Common in survivors with PTSD or complex PTSD

Grounding Techniques

- Note: This is not to replace professional help! Be an advocate for mental health and connect workers to mental health resources.
- What are 5 things you see, 4 things you hear, 3 things you touch, 2 things you smell, 1 thing you taste? (5-4-3-2-1 technique)
- Drink water slowly and describe in your mind how it tastes and feels as it travels down your throat
- Count backwards from 20 , 50 , or 10 0
- Take 10 slow deep breaths, inhaling through the nose and exhaling through the mouth



Approaching Labor Contractors & Employers

Focus on Positive Outcomes

- Workers who are well hydrated, well fed, and rested will feel better & perform better
- Make the athlete comparison:
 - Imagine the coach of your favorite football team believes that his players will perform best by practicing 12 hours per day with little water or rest, 6-7 days a week. Are players going to perform optimally under these conditions?

Educate about Physical Demands of Farm Labor

- An adult doing [8 hours of farm work per day](#) will burn upwards of 2,500 calories, which is about the same as an adult who runs a marathon
- [Latino farmworkers in the midwestern US](#) were found to burn 350 - 540 calories per hour (2,800 - 5,400 per day)
- If you burn 3,000 calories per day, you need to eat about 5,000 calories per day
 - And rest!!

On-Farm Health Talks

- Developing relationships with employers to give heat stress prevention trainings to workers
- Or offering to train supervisors
 - Emphasize being collaborative and it being a win-win for workers and employers
- Getting crew leaders and contractors on board is KEY



Group Exercise: Scenarios



Scenario # 1

What would you do?

You arrive at a farm around 4 PM. A worker is stumbling and his speech is slurred. It's 87 degrees outside - what do you do?



Discussion Question



Best ways to talk to men about their health, and the limits of their bodies?

A large, stylized graphic of a plant with multiple leaves and a central stem, rendered in a light blue color against a darker blue background. The plant is positioned on the left side of the slide.

Worker Health Resources

Stay hydrated in the heat



In the morning
Drink 1 bottle of water (16 ounces or 0.5 liters) about 2 hours before you start work.



During the day
Drink 1-2 bottles of water (0.5 to 1 liters) **every hour** while you work.



In the night
Drink water when you're back home to replace the fluids you lost while sweating at work.

It's also important to replace the minerals you lost while sweating. You can drink coconut water, electrolyte drinks (like suero) and aguas frescas (made of fresh fruits or vegetables). It's best if these drinks are low in sugar.



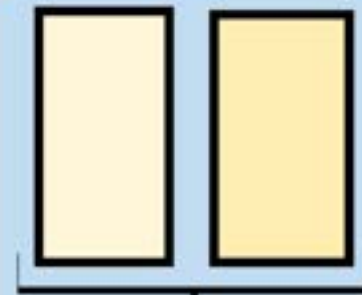
Call the Call for Health Helpline:
1 (800) 377-9968 or WhatsApp at 1 (737) 414-5121

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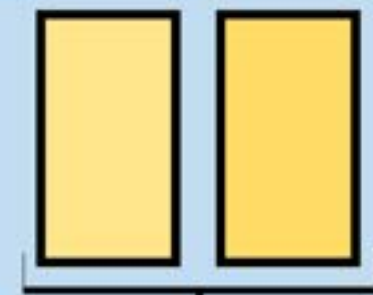
Do I need to drink more water?



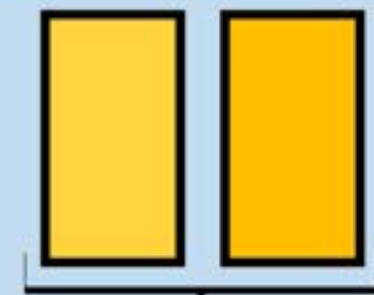
Your urine changes color depending on how hydrated you are. Lighter-colored urine means you are drinking enough water, and darker-colored urine means you need to drink more water.



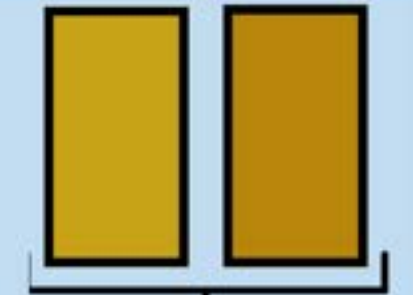
Hydrated
Great job drinking water!



Slightly dehydrated
Drink water soon!



Dehydrated
Drink water now!



Very dehydrated
Drink water now and seek medical care!

Manténgase hidratado en el calor



En la mañana

Tome 1 botella de agua (16 onzas o 0.5 litros) unas 2 horas antes de salir al trabajo.



En el día

Tome 1-2 botellas de agua (0.5 litros hasta 1 litro) **cada hora** mientras trabaja.



En la noche

Tome agua después de llegar a casa para reemplazar la que perdió a través del sudor en el trabajo.

También es importante reemplazar los minerales que pierde sudando. Puede tomar agua de coco, bebidas electrolíticas (como suero) y aguas frescas (hechas de frutas o verduras frescas). Es mejor que estas bebidas sean bajas en azúcar.



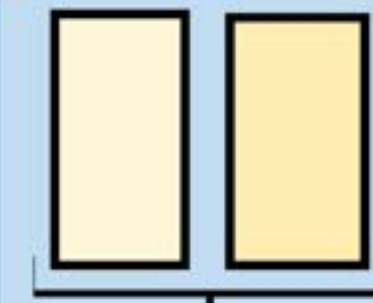
Llame a la línea de ayuda - Una Voz Para la Salud
1 (800) 377-9968 o por WhatsApp al 1 (737) 414-5121

Esta publicación cuenta con el apoyo de la Administración de Recursos y Servicios de Salud (HRSA) del Departamento de Salud y Servicios Humanos de EE. UU. (HHS) como parte de una concesión con un total de \$1,742,242.00 con 0 porcentaje financiado con fuentes no gubernamentales. Los contenidos pertenecen a los autores y no representan necesariamente las opiniones oficiales ni el respaldo de HRSA, HHS o el gobierno de los EE. UU.*

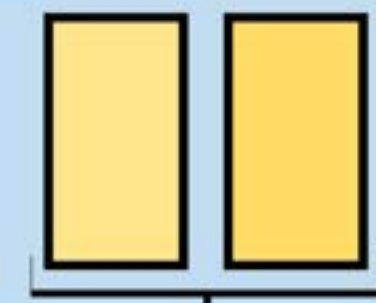
¿Necesito tomar más agua?



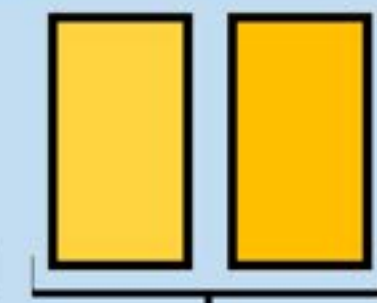
Su orina cambia de color dependiendo de qué tan hidratado esté. La orina de color más claro significa que está tomando suficiente agua y la orina de color más oscuro en general significa que necesita tomar más agua.



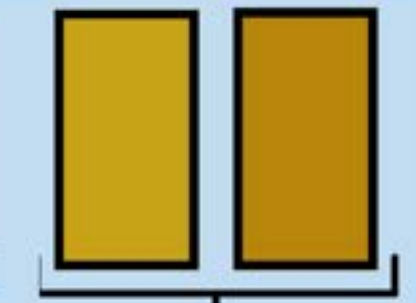
Hidratado
¡Buen trabajo tomando agua!



Un poco deshidratado
¡Tome agua pronto!



Deshidratado
¡Tome agua ahora!



Muy deshidratado
¡Tome agua de inmediato y busque atención médica!

NIOSH (Occupational Safety-Health branch of CDC) Heat Guidance

The National Institute for Occupational Safety and Health (NIOSH)

NIOSH Publications & Products > NIOSH-Issued Publications

 NIOSH Publications & Products

Promoting productive workplaces through safety and health research 

NIOSH-Issued Publications

Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot

Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments

[Print](#)

Other NCFH Heat Safety Resources



FRESKO: Farmworkers Reducing Exposure to Sun and Cooling Off

The FRESKO Program aims to provide community health workers with the skills and knowledge to effectively use the FRESKO materials to encourage farmworkers to make simple, practical, and lasting changes to protect themselves from heat and sun while they work in the field. This kit includes lesson plans, a curriculum and a flipchart that are available for purchase.

Heat Illness

This illustrated handout explains the symptoms of heat illness and what to do if you experience heat illness.

- Heat Illness
- Enfermedad Del Calor



Manténgase hidratado en el calor

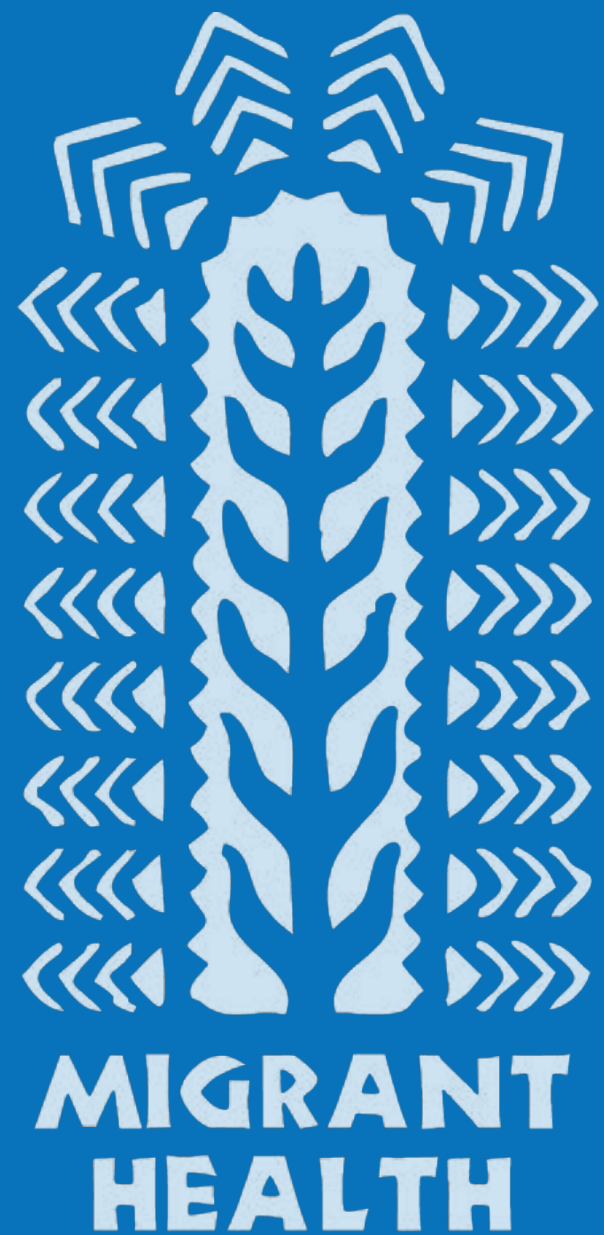
This is a resource with guidelines for immigrant outdoor workers on staying hydrated and replenishing electrolytes while working in the heat. (Available in Spanish)

http://www.ncfh.org/health_education_resources.html#H

Call for Health / Una Voz para la Salud

- Farmworkers can call or text (via regular phone app or WhatsApp) to get information about health care services & support for making appointments
- Can also be connected to legal and social services
- Services in Spanish, can utilize Indigenous language interpretation
- <http://www.ncfh.org/callforhealth.html>
- Teléfono: 1 (800) 377-9968
- WhatsApp: 1 (737) 414-5121
- Facebook: www.facebook.com/UnaVozParalaSalud
- Instagram: www.instagram.com/UnaVozParalaSalud





Thank You!

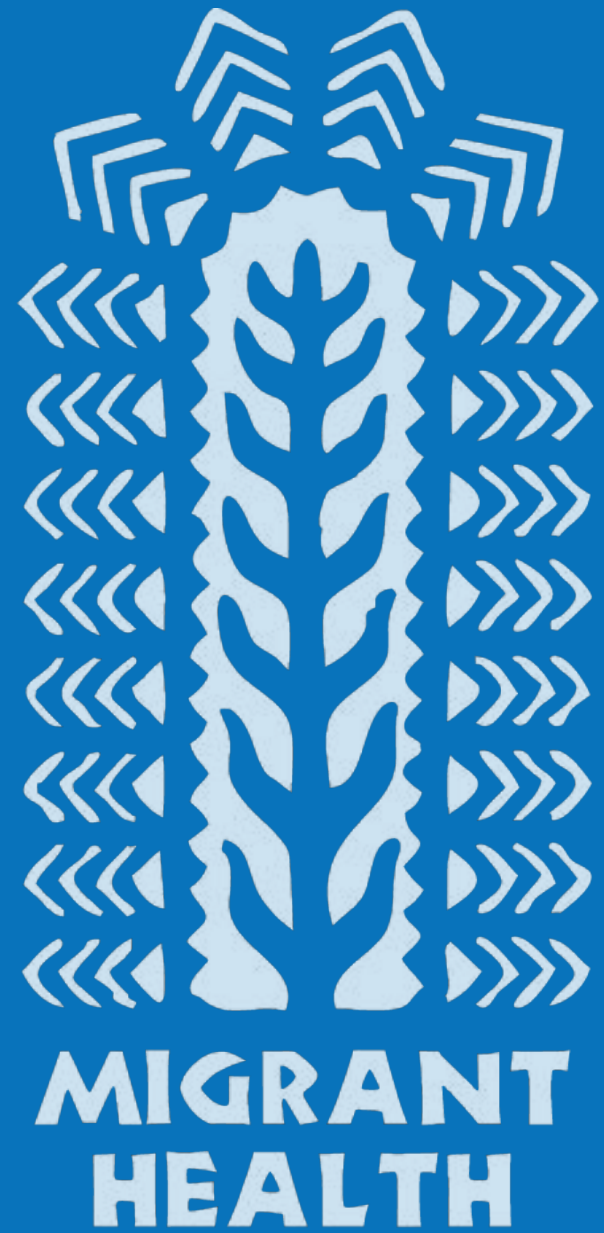
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Learning Session Evaluation

Evaluación de la sesión de aprendizaje



<https://www.surveymonkey.com/r/MGCBVZH>