

# How to handle worker heat stress



By Amir  
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**H**eat stress happens when the body is exposed to extreme heat in a hot environment. Heat-related illnesses include heat stroke, heat exhaustion, heat cramps and heat rashes. Other signs of heat stress include sweaty palms, fogged-up safety glasses and dizziness.

Agricultural workers are at risk of heat stress. Those who are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications may be at greater risk of heat stress.

## HEAT STROKE

The most serious heat-related illness is heat stroke. When a worker is exposed to very hot and humid conditions, the body is unable to control its temperature. The body's temperature can rise rapidly to 106 degrees or higher within 10 to 15 minutes. The sweating mechanism fails, and the body is unable to cool down. Heat stroke can result in coma or death.

### Signs and symptoms of heat stroke include:

- Seizures
- Very high body temperature
- Fatal if treatment delayed
- Hot and dry skin or profuse sweating
- Loss of consciousness (coma)
- Confusion, altered mental status and slurred speech

### What to do:

- Call 911 immediately for emergency medical care.
- Move the worker to a cooler environment and remove outer clothing.
- Stay with the victim until emergency medical services arrive.
- Cool the worker quickly with cold water or an ice bath.
- Circulate the air around the worker using a fan.
- Apply a cold wet cloth or ice on the head, neck and armpits

## HEAT EXHAUSTION

Heat exhaustion occurs when the body loses too much water and salt, usually through excessive sweating. Workers who are elderly, have high blood pressure and work in a hot environment are at higher risk of heat exhaustion.

### Signs and symptoms of heat exhaustion include:

- Heavy sweating
- Headache
- Weakness
- Irritability
- Thirst
- Elevated body temperature
- Dizziness
- Decreased urine output

### What to do:

- Move the victim to a cool area.
- Call 911 or take the worker to an emergency room.
- Stay with the worker until help arrives.
- Remove unnecessary clothing, including socks and shoes.
- Provide cold water for the worker to slowly sip.

## HEAT CRAMPS

Heat cramps are painful muscle spasms that affect workers who sweat a lot during strenuous activity. They occur when sweating depletes the body's salt and water levels. Low salt levels in muscles result in painful cramps. Heat exhaustion may cause heat cramps.

### Signs and symptoms of heat cramps include:

- Muscle cramps or spasms
- Spasms in the abdomen, arms or legs

### What to do:

- Drink an electrolyte solution (sports drink).
- Avoid salt tablets.
- If the cramps are severe or do not subside within one hour, get medical help.

## HEAT RASH

Heat rash is a skin irritation caused by excessive sweating during hot and humid weather when sweat cannot evaporate. The rash may cover a large area of the skin or become infected and result in an uncomfortable condition for the worker.

### Signs and symptoms of heat rash include:

- Red cluster of pimples or small blisters
- Irritation and itching
- Appears on the neck, upper chest, groin, under the breast and in elbow creases

### What to do:

- Move the worker to a cooler and less humid environment.
- Keep the rash area dry.
- Do not use ointments and creams.

## PREVENTATIVE TIPS

In most cases, heat stress can be prevented, or the risk of developing heat stress can be reduced. Workers should follow these tips to help prevent heat stress:

- **Clothing:** Wear light-colored, loose-fitting, lightweight clothing such as cotton to allow sweat to evaporate. Clothes with light colors absorb less heat than dark colors. When working outdoors, wear a hat to keep the sun off your head and face.
- **Drinking:** Drink water frequently to replace fluids lost from sweating. Avoid drinking coffee because it is a diuretic that causes increased urination.
- **Work schedule:** If possible, avoid working during the warmer parts of the day. Minimize the amount of time working if the temperature humidity index is between 84 and 93. 🍌



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# The Big Reset

By Rick Dantzer, CRDF chief operating officer



In previous columns, I have shared the “Pathway to a Sustainable Florida Citrus Industry” document. It represents the Citrus Research and Development Foundation’s (CRDF) analysis of where we are in our research and where we believe we should go. It was done for three reasons: 1) to take an honest assessment of where we were, 2) to put down in writing our plan for going forward and 3) to show funders we have a strategy for how we spend our funding.

I had another reason, too. My hope was that the work outlined in the document would create the “Big Reset,” a time when our sick trees would recover enough to get our industry back to where we were before it crashed, perhaps in the 2014–2015 timeframe when production was approximately 100 million boxes of fruit. I believe we can sell this much product, so long as we maintain quality, and that it is enough production to hold the infrastructure of our industry together until a tree comes along that is sufficiently HLB-tolerant or even resistant to sustain us in perpetuity.

So, how can we get production to this level? CRDF is funding research that will provide incremental gains. Strategic use of 2,4-D, gibberellic acid, brassinosteroids, peptides and zinc can reduce drop and/or increase production. Impacts on quality are less certain, but with brassinosteroids and peptides I am confident that we can achieve at least a temporary spike in quality soon after application, enabling growers to calibrate spikes with harvesting. However, I believe it is unlikely that these incremental gains alone will be enough to achieve the Big Reset. That will require a gamechanger, and the only one I see on the short-term horizon is a controversial one: injecting oxytetracycline (OTC).

From the limited data I have seen and the trees I have observed, I believe injecting OTC will work. Novel formulations have increased uptake, injection devices are becoming more precise and less expensive, and the labor costs of injecting will become more bearable as production increases and quality improves. Other caretaking costs — like the number of fertilizer applications — should come down, too.

Are there alternatives, like sufficiently greening-tolerant or even resistant trees in the plant breeding pipeline? Perhaps. The Donaldson tree and others give me hope, but these solutions are still years away, and growers have told me they are out of time and money.

Therefore, CRDF will aggressively fund research on injecting OTC so a smart decision can be made. We will continue meeting with industry partners to seek input and consult with regulators to impress upon them the urgency of our situation and the need for decisions to be made quickly. We will be transparent, open and truthful about our discoveries.

The industry may soon have a big decision to make. The metrics that matter the most — production, acreage and the number of citrus growers — are still going in the wrong direction. Let us not let fear of the unknown dissuade us from bold decisions.



Column sponsored by the Citrus Research and Development Foundation