



MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND FORESTRY
EXPERIMENT STATION

MAFES DAWG TRACKS

Yep, the hot weather is here, and this week is forecasted with higher heat indexes than last week. But there are workers that have no choice but to be outside. Animals still have to be fed, crops tended to, grass mowed, and many maintenance items waiting that cannot be ignored. **We are thankful for those with the sweat-soaked shirts who are still getting it done. Here are heat survival secrets and tips several of these folks have shared...**

North MS stations:

- ✓ Come in earlier, right at sunrise, so get started and finished before hottest part of the day.
- ✓ Keep the water cooler handy!
- ✓ Light-colored, loose-fitting shirt & a floppy hat.

Central MS stations:

- ✓ Drink a Gatorade for every two bottles of water.
- ✓ If in heat from early morning into the day, it's not as bad as going straight into the heat mid-day. Do labor intensive work in the morning, then tractor/office work in afternoon.
- ✓ Watch out for each other. When 1 person feels like needs a break, all take one.
- ✓ Soak cooling rags in cold water & wear under hat.
- ✓ Watermelon, popsicles and a swamp fan.

Coastal MS stations:

- ✓ Freeze water bottles then carry around to drink or put on you to cool off.
- ✓ Frogg Togg towels for neck that you soak in cold water then wear to cool off.
- ✓ Drink consistently; don't wait until you are thirsty.
- ✓ Eat something, even if it's just a protein bar.
- ✓ Don't push it! When your body tells you to take a break to cool off, do it. An attempt to "push through it" will result in heat stroke where days will be needed for recovery instead of that 30-minute break.

Animal & Dairy Sciences:

- ✓ New medicines you have been prescribed can cause sweating more than you used to; may have to supplement with more electrolytes & other foods to avoid dehydration or even leg cramps at night.
- ✓ Liquid I.V. & Propel electrolyte pack are cheap and really help when sweat a lot or get tired of drinking straight water.

Plant & Soil Sciences:

- ✓ Lay off the carbonated drinks.
- ✓ Plan to do the hardest work first thing in the morning, then lighter work or work inside as the day goes.

Biochem, Mol Biology, Entomology & Plant Path:

- ✓ Drink water BEFORE work; start out already hydrated.
- ✓ Wear hat with a brim all the way around, not a ball cap.

Poultry Science:

- ✓ Having several student workers that rotate in/out and helps spread the workload through day.
- ✓ Big hats in day & recuperate at night with plenty of fluids.

Forest Operations:

- ✓ Over half your body's heat escapes through you head. Wear a well-ventilated hat and a cool bandana to help draw heat away.

North Farm:

- ✓ The more intense the work, the longer the breaks should be.
- ✓ Work calmly! Trying to rush, so can get it done usually causes more aggravation, then makes the job more intense and just plain hotter.
- ✓ Don't let working and competing with the "be tuf and take it" guy cloud good judgement...no shame in retreating to the truck cab a/c for a break when needed.

Attached is a Heat Stress Work/Rest Schedule to use as a guide. Remember to account for sun & humidity adjustment as explained on pg2, which makes a big difference around here.

Sources:

Our MSU hot weather experienced, heat surviving employees.

For more info contact:
Leslie Woolington
MAFES/MSU-ES Risk Mgmt.
LHW4@msstate.edu 662-325-3204

HEAT STRESS Work/Rest Schedules

Using work/rest schedules can decrease the risk of heat illness

Sample Work/Rest Schedule for Workers Wearing Normal Clothing*

The NIOSH work/rest schedule is based on air temperature, with adjustments for direct sunlight and humidity. It may not be applicable to all worksites. Other work/rest schedules are available, some of which are based on Wet Bulb Globe Temperature.

See reverse for temperature adjustments for the NIOSH work/rest schedule and examples of light, moderate, and heavy work.

Temperature (°F)	Light Work Minutes Work/Rest	Moderate Work Minutes Work/Rest	Heavy Work Minutes Work/Rest
90	Normal	Normal	Normal
91	Normal	Normal	Normal
92	Normal	Normal	Normal
93	Normal	Normal	Normal
94	Normal	Normal	Normal
95	Normal	Normal	45/15
96	Normal	Normal	45/15
97	Normal	Normal	40/20
98	Normal	Normal	35/25
99	Normal	Normal	35/25
100	Normal	45/15	30/30
101	Normal	40/20	30/30
102	Normal	35/25	25/35
103	Normal	30/30	20/40
104	Normal	30/30	20/40
105	Normal	25/35	15/45
106	45/15	20/40	Caution
107	40/20	15/45	Caution
108	35/25	Caution	Caution
109	30/30	Caution	Caution
110	15/45	Caution	Caution
111	Caution	Caution	Caution
112	Caution	Caution	Caution

Things you need to know:

- Continuous work in the heat is not advisable—you must take rest breaks periodically to allow your body to cool down.
- A variety of work/rest schedules are available that can be adapted to your worksite. Relying on self-pacing alone may not be sufficient.

Example

A worker performing heavy work in 104 °F temperatures should work for 20 minutes and rest for 40 minutes.

Example

A worker performing moderate work at 108 °F should use extreme caution! The risk for heat injury is high in this situation.

* From NIOSH Criteria for a Recommended Standard, Occupational Exposure to Heat and Hot Environments, <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf>. Assumptions: workers are physically fit, well-rested, fully hydrated, under age 40, and environment has 30% humidity and perceptible air movement.

HEAT STRESS Work/Rest Schedules

Temperature Adjustments for this Work/Rest Schedule

Adjust the temperature in the table based on:

Environmental conditions

- Full sun (no clouds): Add 13 °F
- Partly cloudy/overcast: Add 7 °F
- No shadows visible, in the shade, or at night: No adjustment

AND

Humidity

- 40% humidity: Add 3 °F
- 50% humidity: Add 6 °F
- 60% humidity or more: Add 9 °F

Example Adjustment

Conditions at a mine are 90 °F, with partly cloudy skies and 50% humidity. Adjust the table as follows:

Add 7 °F for partly cloudy skies and 6 °F for 50% humidity, to arrive at 103 °F.



Examples of Work at Different Intensity Levels

Light work

- Operating equipment
- Inspection work
- Walking on flat, level ground
- Using light hand tools (wrench, pliers, etc.). However, this may be moderate work depending on the task
- Travel by conveyance

Moderate work

- Jack-leg drilling
- Installing ground support
- Loading explosives
- Carrying equipment/supplies weighing 20–40 pounds
- Using hand tools (shovel, fin-hoe, scaling bar) for short periods

Heavy work

- Climbing
- Carrying equipment/supplies weighing 40 pounds or more
- Installing utilities
- Using hand tools (shovel, fin-hoe, scaling bar) for extended periods

Case Study: Use of Work/Rest Schedule

A crew was shoveling ore out from under the primary conveyor at a surface mine in Arizona in August. The high temperature that day was 113 °F. The crew was rotating in 10-minute shifts and hydrating between shifts. Coworkers noticed signs of heat illness in two employees, and they were transferred to the medical station for evaluation. From there they were sent to the hospital, where they were given IV saline and released home. Both employees recovered after rehydration at the hospital.

Lessons Learned

In extreme heat, even a work/rest schedule may not eliminate the risk of heat illness. In this case, use of work/rest schedules, frequent hydration, and team monitoring helped keep this situation from becoming even more serious. Without those safety precautions the workers could have potentially suffered more severe heat illness, possibly including heat stroke, which is life threatening.