

Heat stress solutions

How should gardeners avoid becoming a safety threat to themselves and others when it's hot? Start by evaluating potential risk of heat stress relative to the individual factors listed above. Someone who is older, overweight, in poor physical condition, taking allergy medication, or not used to being out in the heat is at far greater risk than someone who is young, trim, on a regular exercise program, and used to the heat.

Become a weather watcher. Set up a small weather station (with a high/low thermometer, rain gauge, etc.) to monitor not only the temperature, rainfall, etc., relative to plant growth, but also relative to personal safety. Watch or listen to the weather forecast each morning and noon to know in advance when stressful environmental conditions may occur. Plan activities for cooler time of day or season.

Evaluate work tasks and the time of day during which they must or can be done. Tasks that occur outdoors in sunny areas should be done in early morning or late afternoon whenever possible, not during the midday heat. Most watering, pruning, dead heading, etc., is better for plants when done in early morning. Many chemicals, especially insecticides, are better applied late in the day when the wind is down and beneficial insects are not present. Also, many chemicals volatilize quickly in the heat, losing their effectiveness and possibly causing harmful reactions to the applicator.

Allow yourself to acclimate to the heat slowly. Over a period of a week or two, gradually increase the amount of time spent in hot, still areas or in direct sun. Don't save hours of hoeing weeds from garden beds for the first day it goes over 90°F. Avoid work-

ing on surfaces such as asphalt, or near items such as metal, that may become very hot.

Be sure to stay hydrated, drinking as many liquids as possible. Don't wait until you are thirsty to have a drink, as thirst is an indicator that your body is already dehydrated. Water is preferred, except when heat cramps occur (then drink a lightly salted beverage like a sports drink). The water's temperature should be cool, not cold. Flavored beverages, such as fruit juices, iced tea and lemonade, as long as their sugar and salt content is low, are good water substitutes if they encourage large quantity consumption.

Perhaps one of the easiest ways to reduce heat stress is to dress appropriately. Though tempting, do not work in the yard in a tank top or without a shirt due to the potential for sunburn and skin cancer. Wear loose fitting, light colored clothes. Keep the fabric content high in cotton to aid sweat evaporation. Neckbands, headbands, wristbands, visors, and hats can increase evaporation to keep the body cool.

Lastly, take frequent breaks to reduce the amount of time spent in the sun or heat. After working for an hour, take a break to cool down and have a drink in the shade to reduce the build up of heat stress on your body.

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Obviously hot weather has adverse effects on plants, but what about the adverse effects on gardeners? Is human heat stress not of equal or greater importance?

To understand how to reduce or minimize heat stress or heat-related illnesses, one must first understand what causes heat stress and when it is most likely to occur. Heat stress occurs when the body is unable to get rid of excess body heat by its normal exhaust methods - either from sweat evaporation, or from increased blood circulation to the skin surface where body heat can escape through radiation.

Environmental Conditions and Individual Factors

The four major environmental conditions that affect heat stress are air temperature, humidity, wind velocity, and radiant heat. Combine these with individual factors such as age, gender, weight, physical and medical conditions, and a person's degree of heat acclimation, and you can begin to predict how well a person might hold up in a hot, humid, still environment.

Heat-related illnesses

The majority of heat-related illnesses - early heat illness or fainting, heat cramps, heat rash, and heat exhaustion - are considered minor. Just because these illnesses are considered minor doesn't mean that they aren't important to recognize, and to try to avoid or minimize. For ill or frail individuals these illnesses may require medical attention.

The one heat-related illness considered major is heat stroke. Someone suffering from heat stroke can be in a life-or-death situation to which the first response should always be a 911 phone call.

Heat-related illnesses

The following are just some of the signs, symptoms, causes and treatments of these illnesses - consult medical references for additional information:

Early heat illness or fainting -

Signs and symptoms - dizziness, fatigue and irritability; difficulty concentrating or making decisions

Cause - reduced blood flow to brain

Treatments - drink water; loosen clothes; rest in shade

Heat cramps -

Signs and symptoms - painful arm, leg or stomach muscle spasms; thirst and heavy sweating; (may not occur until after gardening activities)

Cause - body salt loss due to sweating

Treatments - drink water, and avoid drinks with alcohol or caffeine; remove hat and loosen clothes; rest; lightly stretch muscles in a cool location

Heat rash ("prickly heat") -

Signs and symptoms - pricking sensation and tiny, blister-like red skin spots usually on body areas covered by clothes

Cause - plugged and inflamed sweat glands

Treatments - wear loose clothes; wash skin; apply talcum powder

Heat exhaustion -

Signs and symptoms - early heat illness signs, plus: loss of coordination; collapse; heavy sweating; cool, moist, pale skin; dry mouth with excessive thirst; fast pulse; low to normal temperature

Causes - reduced blood circulation and flow to brain; dehydration

Treatments - if conscious, give cool water to drink (do NOT give beverages containing caffeine or alcohol)— make sure they drink slowly by giving a half glass of cool water every 15 minutes; rest lying down in a cooler, shaded area; loosen or remove clothing and hat; splash cold water on body and massage arms and legs

Heat stroke -

(May occur suddenly and is life-threatening. According to the American Red Cross. Follow the following recommendation.)

Signs and symptoms - dizziness, confusion, headaches, irrational behavior, coma; reduced or no sweating; fast pulse; rapid breathing; convulsions, nausea, vomiting

Causes - dehydration; sustained exertion; reduced blood flow to brain, heart, etc.; body unable to cool itself; overexposure to high temperatures even without exertion

Treatments - call 911; move to shaded area; remove shoes and outer clothing, wrap in wet cloth/pour water on/fan rapidly; elevate legs; clear vomit to prevent choking; if victim refuses water, is vomiting, or there are changes in level of consciousness, do not give anything to eat or drink.