

Luminaries at Relay for Life



One of the more dramatic parts of the Relay for Life is when the lights are turned off and people light the luminaries for the people who have fought cancer and won and those that lost the battle. Gaylene Shank (far left) with the help of Destiny Brashear set up luminaries and Karen Gillihan (above) turns the light on in a luminary after the lights were turned off. Shank was a member of the Teacher for Life team and Gillihan was part of the Skybox Ladies team.

Photos by Pat Schiefen/The Goodland Star-News

Ways to help plants cope with high heat

The best way a plant owner can protect trees and shrubs against heat stress and related injury is to help the plants do a better job cooling themselves.

"They only problem with that is: Heat isn't the only problem," said Jason Griffin, director of Kansas State Research and Extension's John C. Pair Horticulture Center.

Temperature does affect almost every physiological and biochemical process, he said. Each plant grows best in a particular temperature range. It also has a high and a low threshold for survival.

But, heat nearly always has partners in crime, Griffin said. Moisture, wind, cloud cover and plant species can be just as important. Like heat, all four affect how well plants' cooling system works.

"Another factor this year is that many central U.S. landscape plants are unusually vulnerable to any kind of damage," Griffin said. "They're still trying to recover from 1022's heat and drought."

Still, plant owners can take measures to help ornamentals through summer's searing days.

"You can directly affect the tem-

perature of a plant by shading it. Obviously, this is labor-intensive step. But, I've seen people use everything from bed sheets to screening to umbrellas, in order to reduce the temperature of leaves. And, as ridiculous as this sounds... it's worked," he said.

Misting foliage during the afternoon can also help.

"Nurseries with overhead irrigation sometimes turn on the water for five minutes per hour through the day's peak heat. This lowers the air temperature surrounding the plants without overwatering," Griffin said.

Monitoring soil moisture is always a critical step.

"A plant can't cool itself without adequate soil moisture," he said. "At the same time, overwatering can shut down plants' cooling system... Not enough and too much are both bad."

At the research center Griffin directs, Kansas States test everything from shade and ornamental trees to bedding and medicinal plants.

"When seasonal temperatures rise in Kansas, rain totals tend to drop," Griffin said. "Last year,

though, they'd almost disappeared by August. Plus, the Kansas wind machine got fired up, drying things out and reducing our cloud cover.

"That four-part whammy greatly reduced plants' ability to tolerate the high temperatures..."

The main way plants cope with heat is a process called transpiration, he said. Roots absorb water from the soil and send it up through their plant. Some of that water then evaporates from the leaves through tiny pores, called stomata. The evaporating water cools each leaf much live evaporating sweat

cools skin.

Griffin said, however, a variety of factors can limit or disrupt the transpiration process.

- Dry soil reduces water and signals the stomata to close.

- Wind shakes branches and leaves, causing stomata to close. Plus, wind blows away the thin layer of cool air around each leaf and scatters cloud cover.

- Intense sunlight plays a role in stomata closure and sends leaves' internal temperature above the surrounding air temperature.

"Each of those factors can take

part in a complete breakdown of leaf cells. We may call the result 'heat scorch,' but it's a lot more than that," Griffin said.

Excessive heat makes things worse by upsetting the normal functions of internal plant cells. One of the first processes affected is photosynthesis - the way the plants make food.

"Many plants can recover from this upset overnight," Griffin said. "That only happens ... if nighttime temperatures cool off...."

"I've seen well-established, well-acclimated plants make some

amazing recoveries from extreme weather events. Hot weather that hangs on, however, can be ... insidious. Its impacts can build and then linger. So, you can't afford to let things slide when it comes to helping your most valuable trees and shrubs..."

For the longer term, he recommended that homeowners shop for plants with good heat- and drought-resistance, plus take advantage of any microclimates in their yard that could provide wind and sun protection for more sensitive plants.


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