



SUMMER STRESS IN THE DESERT

STARNOTE 135
June 2009

The top four causes and some cures

Desert climates can be very hostile to most plants. The combination of extreme temperatures (hot or cold), low humidity, strong winds and poor soil means special precautions are needed to protect them. Understanding how summer stress affects your plants, and what you can do about it, will help you garden successfully. Here are the top four causes and cures.

WARNING: Don't prune sunburned foliage from tops of plants in summer. These damaged leaves provide protection for the rest of the leaves. Prune when the weather cools.

IMPROPER PLANT SELECTION

When choosing a plant at the Nursery, keep in mind where you intend to place it. Some plants do quite well in full sun, maybe even reflected sun. Other plants however do not! Then there are many plants, especially flowering plants that require quite a bit of direct sun. To provide these with too much shade will result in poor to no flowering. If it is a fruit tree, remember that flowers are required to produce fruit.

It should be noted that the "plant care instructions" provided by the Grower, are often not appropriate for the Desert Southwest. If the plant is grown in California, the instructions will be directed to a "California climate". Please observe the signs that we have for each plant. If the wording indicates that the plants prefers some shade, then make certain the location you intend has AFTERNOON shade, and no reflected sun. If the sign indicates that the plant will take full sun, this does not imply that it will not do well with a little shade. If you are uncertain about the plant you desire and the location that it will be placed in, please ask one of our trained Nursery Advisors to assist in making the right choice.

IMPROPER PLANT LOCATION

Symptoms: Burned leaves, usually on one area of the plant; discolored or cracked bark, often with oozing sap; sunken, papery areas in leaves; repeated lanky, soft growth which slowly dies.

Causes: Putting the wrong plant in the wrong place. Many plants are very sensitive to the exposure they receive in the desert. Some plants which are otherwise sun-loving may burn when placed by a light colored wall or reflective glass surface which faces south or west. This can also happen next to an area of paving or rock-filled landscape. Be careful of reflected sun from your pool!

Fruit trees and many species of willow also have a problem with trunk sunburn, usually on the southwest side of the trunk. Sunburned areas then ooze sap that can attract ants, green beetles and borers. Conversely, sun-loving plants often fail to grow well when given too much shade. Expect weak, droopy, pale growth that may slowly shrivel and die.

Cures: 1) Mulch the area around the plant. A good quality completely composted mulch like PAYDIRT® will help cool the roots and preserve moisture. Usually a 1 to 2 inch layer will do the job. See Star Note # 620 "Mulching for Healthier Plants" for additional information. If the plant is surrounded by rock, consider using bark or mulch in a "ring" around the plant. The heat reflected from the rock adds significantly to plant stress.

2) Relocating the plant is a good idea, but during the stress of summer heat, the timing could be very bad. If the plant is not frost sensitive, transplant it during October. If it is frost tender, transplant it the following March, just after our last frost. But, what can you do for now?

3) Protect your plant. Just as you can shield plants from frost damage by covering them in the winter, you can provide some sort of temporary shade for the balance of summer. Draping nylon screening material over the plant will allow enough sunlight while protecting it against any more scorching. Do not cover with burlap during the summer.

You can protect the trunk of sun sensitive tree with white latex, or Tree Paint (available at Star Nursery). Clean sap and debris from a sunburned trunk before painting. Many plants increase in sun tolerance as they age and become established. It's worth pampering them while they're young.

IMPROPER WATERING

Symptoms: Wilting, scorched leaves with brown edges, new leaves yellowish to off-white with green veins, sudden death with a freeze-dried plant appearance.

Causes:

Often a plant is in stress due to improper irrigation, and emitter placement. Too often, our watering practice is frequent and short in time. The SNWA watering guide recommends 4 minute watering, but ONLY for grass! Shrubs and trees are different. Shallow watering produces shallow roots which are vulnerable to hot spells.

Over watering or under watering. These are opposite problems with much the same appearance. The reason is simple. When under watered, the plant collapses from lack of water. When over watered, the water drives oxygen out of the soil, killing roots, keeping the plant from getting enough water and causing it to collapse. In desert climates, watering too often is the number one cause of plant death. Most area soils are heavy, alkaline clays with layers of calcium carbonate (caliche) and poor drainage. When over watered, they become "bathtubs" full of salty water. High alkalinity, kept in constant solution by watering too often, causes nutrients to become unavailable to the plant, even if supplements are provided. The result is commonly seen "chlorosis," often misdiagnosed as an iron deficiency. Plants forced to use this salty, alkaline water will dispose of the salts as far away from the roots as possible. This causes the tips of the leaves to burn and become brown and crispy with the salts sometimes visible on the leaf surface.

Over watering a lawn, or watering in the evening is likely to cause a fungus. This disease will leave your lawn with brown spots, potentially causing you to believe it needs even more water.

Cures:

Trees and Shrubs

Deep infrequent watering produces deep roots that do not tend to dry out so quickly in the heat.

Emitter placement must be modified as the plant matures. Do not leave the emitters at the base of the plant as it matures. The plant needs a root system that expands just as the plant expands. Add more drippers, use laser soakers. One or two emitters at the base is ASKING FOR TROUBLE!

Five Points for Good Shrub Watering

1) Water deeply and infrequently, especially if you have clay or caliche soil. Deep, infrequent water lets oxygen return to the soil, pushes salts away from the roots, allows nutrient flow and encourages deep rooting. Run drip systems overnight or bubblers for several hours (not 10 minutes). This will push the water deep into the soil. These are SLOW RATE drips. You will not be using excessive water. Running your system 2 or three times a day for 5 or 10 minutes is wrong and will cause you much trouble in the long run. Infrequent water is never "every day". It will depend on your soil, the plant and the temperatures for the decision of "how often". Check Star Note # 900A "How Much Should You Water Your Shrubs and Trees?" and StarNote 905, *Understanding Drip Systems*, for additional information on watering.

2) If you are lucky enough to have very good drainage, you'll water more frequently than those with slow draining soils. You may need to use a moisture meter to determine how often to water.

3) If your trees and shrubs are on the same irrigation cycle as your lawn, separate them. Our irrigation consultants can help you.

4) For bubbler systems (flow rates in excess of 10 gph), run at least 10-15 minutes for good coverage.

5) A layer of surface mulch helps tremendously by conserving moisture, cooling the soil and enriching it. If you have salt buildup, shown by a white crust on the soil, flush the area twice a year. Use an acidic product like Con-Gro to lower pH and improve soil porosity.

Recommendations for Lawns

Lawns and flowerbeds generally will need more frequent watering. These, by nature have shallow roots. If your lawn has brown patches and a generally washed-out, unhealthy appearance, the first step is to make sure your sprinkler system is working properly. Be sure you water at the right time of day (never between hours of 7 PM and 2 AM). Read Star Note # 900B "How to Water Your Lawn". Or better yet, let our plant specialists help you troubleshoot, and make the right choices.

IMPROPER FERTILIZATION

Do not utilize high nitrogen fertilizers during the summer. They promote plant growth, which adds to plant stress. If the plant actually needs fertilizer use a low nitrogen product like Dr Q's Rose Food, or Flower Food. These 5% nitrogen fertilizers will provide vital signaling molecules to your plants root system, add some phosphorous for flowers, potassium for heat stress, and avoid stimulating growth.

Over & Under Fertilization Symptoms:

Over - Blackened or scorched leaves, excessive leaf drop, general unhealthy appearance, even with proper watering. Too much fertilizer can also cause overly lush, top-heavy growth leading to wind damage and increased insect and fungus attack.

Under - General yellowing of plant, especially on older leaves; small, stunted leaves on tips of branches; weak, spindly growth; little or no yield on fruit and vegetable plants.

Causes: Too much fertilizer; the wrong fertilizer; not enough fertilizer.

Cures: It's easy to over fertilize, especially in hot weather. On the other hand, plants which are undernourished are unhealthy looking and prone to other summer ills like windburn and chlorosis. Make sure you have the right fertilizer for your plants at the right time of year and always follow package directions. A word of advice--if you're not sure, it's better to use too little than too much, especially in desert climates. You can always add a little more, but you may kill your plants if you apply too much. If plants show signs of over fertilizing, flood water the plant 2 times, one week apart to remove fertilizer from the root zone and cross your fingers.

Pay attention to what time of year a specific fertilizer should be applied. Bag instructions should specify if temperature is a consideration. Some fertilizers release their nutrients much faster in hot weather that increases potential for damage. Other kinds won't release in cold weather at all. See StarNote 600, *Fertilizer Basics*, for a description of fertilizer types.

OTHER SUMMER PROBLEMS

Wind Damage: Don't plant brittle trees in high wind areas. Be sure to properly stake your trees. Improperly staked trees can be damaged by breakage or rubbing bark against stakes. When the hot dry wind blows, and blow it will, plants use more water. Extra watering might help, especially on broad leafed and newly planted specimens.

Pests: Fungi and insects can and do attack in hot weather. Proper and complete diagnosis of the problem(s) is vital to an effective cure. Good troubleshooting will require examining many aspects of the plant and its' care. Our Certified Advisors can help you. You may need to return to your yard to find all the answers. When all the culprits are identified, treat with insecticides or fungicides as needed.

PREVENTING SUMMER PLANT STRESS IN THE FUTURE

Learn the needs and tolerances of your plants. Don't be fooled by a grower labels. Do some research. Each Spring, check out your irrigation system. Read Star Note #910 "Irrigation Tune Up." Help expand your plants root systems by adding drips further away from the plants base. Use Mulch! Do proper fertilization; a healthy plant can withstand much more heat stress than a weakened plant. Consult a Star Nursery Advisor if you have any questions.

Use of proper planting techniques helps a great deal. See StarNote 001, *Planting Guide*, for some ideas on how to get your new plants off to the right start.

Grow fruit trees and willows with low branches that shade the trunk. Paint exposed trunks of young trees with a white, water-base paint.

Additional reading: *Plants for Dry Climates*, by Duffield & Jones is a good source; the *Sunset Western Garden Book* is another. StarNote 530, *Reliable Plants for Hot Dry Climates*, will give you some good ideas.