When Indoor Plants Lose Their Leaves

When an indoor plant is selected and displayed for its rich, luxuriant foliage, any leaf loss can be cause for concern.

Indoor plants play an important role in creating restful, pleasant indoor living spaces. The color and texture of the foliage provide eye-catching backdrop, accent and screening for living and work spaces. In order for these plants to do their job, they must continue to have good health. Here are a few tips to help counteract, and preferably prevent, the discoloration and loss of indoor plant leaves.

Leaf drop is a specific response of plants that allows them to adjust themselves to unfavorable conditions. In older plants it is a normal result of advancing age. In other situations, leaf loss is caused by a reaction of the plant to its growing environment. Changes in temperature, water or sunlight are often to blame and these are situations where good management can make a difference.

The thinning of mature leaves comes about as older leaves complete their life span and the plant begins to extract nutrients and other materials for transport to other parts of the plant. This gradual decline of older leaves allows the plant to effectively prune itself to prevent undue stress. Leaf loss in these cases should be seen as normal and desirable.

Normal leaf loss is usually sporadic, meaning that it does not happen frequently and usually affects only the older leaves. It is usually a simple matter to simply clip these leaves at their point of attachment when the discoloration begins to seriously detract from the plant’s appearance. Often the leaf will prune itself by forming an abscission layer, a layer of thin-walled cells in the petiole. This layer becomes so fragile that the weight of the leaf itself causes the leaf to break off and fall.

Abnormal leaf loss on the other hand, can be quite devastating to the health and appearance of decorative plants. Unfortunately, this happens far too often. A large number of leaf loss cases seen in indoor plants can often be attributed to improper care and to stress placed upon the plant by the conditions of its environment. These conditions limit the plant’s flexibility to properly adapt to that particular environment. The result is usually discoloration and decline of leaves. In these cases, with special care, leaf drop can often be postponed, if not eliminated.

In This Issue:

| WHEN INDOOR PLANTS LOSE THEIR LEAVES | 1 |
| SCHEDULING GARDEN AND LANDSCAPE IRRIGATIONS | 3 |
| UNDERSTANDING THE GIANT SAGUARO | 5 |
| SCAREY ARACHNIDS OF THE DESERT | 7 |
Unhealthy stress can come from improper watering, temperature fluctuations, pest attacks and soil and nutrition problems which put the plant in a situation where good growth and development is difficult. In these types of situations, it is important to identify the stress and find a way to eliminate it from the plant’s environment. This is especially true during the growth phase when the plant is using water and nutrients heavily. Proper care is the first step in keeping an indoor plant attractive and healthy.

Premature or unhealthy leaf loss, unlike the loss of older leaves, is often random throughout the leaf canopy. Younger, middle-aged and older leaves can all be affected.

To prevent this type of loss, check the plant regularly for pest infestations and make sure that irrigations and fertilizations occur at the proper times. Sporadic irrigation and poor soil drainage will make early casualties of older leaves. Try to avoid over watering or under watering.

Many house plants require specific light intensities. Placing a plant that has a high light requirement in a low light situation or a plant with a low light intensity requirement in a sunny location is a sure way to cause problems. Make sure that the plant is evenly bathed in light from top to bottom with the proper intensity of light. Lower leaves languishing in dim light ultimately die and drop off.

Dry air is a major cause of lower leaf drop. Central heating and air conditioning makes this a difficult problem to control. Placing plant pots on water-filled pebble trays and massing plants together will help increase humidity. If there is a possibility that the plant is pot-bound, has reached maximum root capacity for its container, transplanting to a larger container may be critical. Restrictive rooting can be a cause of general plant decline.

Some houseplants that branch easily can be rejuvenated simply by pinching off the tip growth at the top of the plant and at the ends of the most barren branches. This selective pruning enables the plant to reroute its growth efforts to bring new leaves to bare stems.

When the inevitable, irreplaceable leaf loss finally occurs, the naked stem can be masked by cosmetic cover-ups. Potting a leggy specimen in a tall, cylindrical container, for example, will hide most of the bare, lower stem. It is important, however, not to fill the soil up to the rim of the pot. Position the plant at the normal soil level.

Masking can also be done by planting smaller plants or climbing vines at the base of a larger plant. Arranging plants in groupings with large, leggy specimens toward the back and shorter, bushy specimens in front will also obscure bare trunks and create a bold effect.

When dealing with leaf loss in indoor plants, remember that it is a reaction to its environment. It is important to be able to tell the difference between an indoor plant’s natural tendency to shed older leaves and situations where good management might make a difference. If the leaf loss is due to older, worn out leaves, help the plant mature gracefully, but if the leaf loss is due to unfavorable growing conditions, be ready to take immediate action. With special care, premature shedding of leaves can often be prevented.
With hot weather temperatures right around the corner, now is a good time to review the basic rules of irrigation.

Good irrigation practices can make the difference between healthy plants and dead plants, especially as we enter the most difficult of gardening seasons. Without water, plants will die. Even if they manage to limp along in survival mode, they will never do their best. Healthy gardens and landscapes require the proper application of irrigation water. Let’s take a look at the basic rules of irrigation.

The first rule of proper irrigation is this: as the weather cools and temperatures go down, plants will need and use less water, and as it warms, they will need and use more. You would not believe how many times in our gardens and landscapes I have seen violations of this basic rule. In the winter time we often over irrigate leading to root rot conditions best described by the presence of mushy brown or black roots. In the summer time, we often irrigate too little leading to wilted, yellowing leaves. In either case, the plants suffer and often die.

If you are using a drip irrigation system, it is important that you change your irrigation delivery program as the seasons change. If the system is set the same way all year long, there is a high risk of either over irrigating in the winter if it is set on a summer program, or under irrigating in the summer if it is set on a winter program. Either way, the plants are at risk.

The second rule of proper irrigation tells us that water should be supplied according to the needs of the plant. It is important to know that each plant has its own particular water need. For simplicity, we group all of landscape plants into one of three basic water use categories: high, medium, and low water use plants; but there is some variability even within these three broad categories. In Pinal County, we generally recommend low water use plants for desert landscapes because it helps us protect our precious water resources, but plants from the other two groups are available.

To properly irrigate plants, it is important to know the water use category of each plant. You would not want to put a low water use saguaro cactus on the same irrigation schedule as a moderate to high demand Arizona ash, for example. The water requirements of most landscape plants are known and can be found in most horticultural references. If you have questions, our Master Gardener volunteers can help you.

The next rule is to know the status of water reserves within the root zone of your plants before you irrigate. We do this by digging down about six inches into the soil, taking a handful of soil, and squeezing it in our hand. If there is sufficient water, the soil will form a tight ball and leave a moist film on the hand. Don’t irrigate until the soil is only slightly moist and the ball easily crumbles and falls apart when you move your fingers. Never let the soil reach the blow sand-dry stage.

Yes, I know. You want to know how many days you should wait before you irrigate again. It is hard to answer that question because each soil is different in its characteristics. Sandy soils tend to dry out before clay soils, which means that we need to talk about soil texture.

Soil texture is a measure of the different size of the particles making up the soil. The largest particles are called sand, and feel gritty between the fingers. Clay particles are the smallest and feel smooth, like modeling clay. Intermediate in size are the particles of silt. If a soil has a majority of particles that are large enough to be classified as sand, it has a sandy texture and we call it a sandy soil. If it has a majority of clay particles, it is a clay soil, and if it has a majority of silt-sized particles, it is a silty soil. A fairly uniform mixture of two or more of the three categories makes it a loam soil.

Sandy soils typically cannot hold as much water as silty or clay soils and will have to be irrigated more frequently. If you have a silt or clay soil, irrigations can be more spread out over time. To answer your question about how long you can go between irrigations, feel the soil. It will tell you what you need to know; but remember, plants use more water.

\[ \text{Scheduling Garden and Landscape Irrigations} \]
during hot periods than cool periods. What irrigation frequency works during the winter will not work during the summer, so test regularly.

One danger of over irrigating plants growing in clay soils is water-logging. Too much water prevents the entry of air, a necessary component of any healthy soil, and creates an environment that encourages the little water mold fungi in the soil that feed on roots. We spoke earlier about root rot. It is the work of these common little critters that cause the problem. They do their best work in sloppy wet conditions. Don’t let them get a toe hold in your landscape. Do not over irrigate!

The take home message from this discussion of soil texture is this: if you have a sandy soil you will have to irrigate more frequently than if you have a soil that is predominantly silt or clay, but, again, always test the soil before you irrigate to make sure that your schedule is correct.

The final rule of irrigation tells us how long to run the water: fill the entire root zone. All plants have a normal root zone, the depth and horizontal spread of the roots. Trees typically send their roots deeper into the soil than a shrub, and a shrub deeper than a bedding plant. So, to properly irrigate a garden or landscape plant, we often use the “1, 2, 3 Rule” which gives us a good estimation of how deep our water should penetrate into the soil to support and sustain garden and landscape plants.

Most vegetable, flower, and groundcover plants will do just fine as long as the top one foot of soil, or twelve inches, is filled with water during an irrigation event. Shrubs should be irrigated to a depth of two feet, or twenty-four inches, and trees need to be irrigated to a depth of thirty-six inches, or three feet. If we do not provide enough water for plants, the roots will not grow to a sufficient depth and spread to properly anchor the plant in the ground nor pick up enough water and nutrients to support plant growth and development.

To allow irrigation water to penetrate to the proper depth, we need to let the water run until that depth is reached. A good soil probe or long screwdriver will help you decide when it has reached the correct depth. Depth of irrigation is critical to irrigation scheduling because shallow irrigated plants tend to use up the available water quicker than those that are deep irrigated.

All garden and landscape plants in Southern Arizona need to be irrigated. There simply is not enough rain at the right time to support good growth and development. Even our native desert plants require water above and beyond our normal rainfall patterns to keep them green and healthy, especially in times of drought. Good irrigation scheduling can help us preserve the beauty and value of our valuable plants.

---

Trade names used in this publication are for identification only and do not imply endorsement of products named or criticism of similar products not mentioned.
There have been a number of questions recently about the saguaro cactus and some of the problems that can affect the health of this interesting plant.

As most know, the saguaro is native to the Sonoran Desert of Southern Arizona and Northern Mexico. Oh, there are a few over in California on the west bank of the Colorado River but, for the most part the plant only grows in our neck of the woods. Tall and stately, it occupies a unique place on our landscaping artist’s palette and has been used in a variety of ways to create a southwestern feel in desert landscapes. Before we look at the potential problems, let’s review some facts about the plant itself.

The saguaro flowers and produces fruit in the late spring and early summer. Its creamy white flowers on the tops of saguaro branches create a spectacular show in late May and early June. Those flowers soon will be gracing the tips of the main trunk and arms of the cactus. Pollinated by bats, birds, and insects, the flowers will develop into an edible, dark-colored fruit that has been collected and used for millennia by Native American people in this area.

Saguaro growing in the wild will average about two inches of growth each year once they have reached a height of about two feet. Many of the taller saguaros growing in the desert are well over a hundred years old.

Young saguaros are not well protected by spines early on and seedlings that have germinated in the open often do not survive. They seem to be prized by small mammals, including mice, ground squirrels and rabbits. Most saguaros that survive have been fortunate to germinate and begin life within the protective canopy of trees or underneath other protecting structures like over hanging rocks. It is quite common to see saguaro cacti growing up through the canopy of larger trees and shrubs. Because of their protective role, they are often called “nurse trees” and may often coexist with the saguaros for many years. Young saguaro seedlings are said to have about a twenty million to one chance of growing to maturity.

Now, let’s take a look at some of the problems that a saguaro in a landscape setting might encounter. The first, woodpeckers excavating holes in the saguaro, should probably not be seen as a problem at all. Most saguaros of any size can have one or more holes dug out by these interesting animals and the process of creating these nests for their young does not seem to do long term damage to the cactus. The saguaro quickly forms a hard, corky layer around the perimeter of the cavity which seals off the soft, moist interior of the plant to the harsh outside environment.

Many saguaros have so many bird nests in them that they look like a bird apartment complex. There are those who would prefer to have no nesting holes in their saguaro and would like to know how to prevent the damage. Quite frankly, it is very difficult to dissuade a determined Gila woodpecker from doing what its relatives have done since time immemorial. They can be pretty persistent in their efforts. While some have tried to use predator images to drive them away, these have been relatively ineffective. It may be less of a hassle simply to let them do their thing since it has no long term adverse effect on the plant.

A naturally occurring disease that can be quite deadly is the necrosis of the giant saguaro. It mainly affects older plants but can also be seen in younger specimens occasionally as well. The disease is caused by an *Erwinia* bacterium, which causes a soft-rot symptom in the saguaro. It also been found in rotting cholla, prickly-pear, barrel, and organ-pipe cacti. It has been isolated from naturally infected plants from Texas and Mexico, as well as Arizona.

The symptoms may appear at one or more positions on the trunk or branches of saguaros at any time during the year. The first external indicators of bacterial necrosis are usually circular darkening and softening spots on the plant tissue surface. In time, the infected area usually enlarges, becomes purplish-black, and splits open. If such an opening...
occurs, a dark, odorous material will frequently “leak” from the plant. At other times, the soft areas dry and crack, revealing the dark, dry remains of diseased tissues.

If conditions are favorable, the plant can confine the disease to a “pocket” by forming a barrier of protective tissue around the affected area. If this tissue does not rapidly form or if it is breached in some way, the infection will spread and could end in the death of the entire plant.

It is somewhat difficult for the owner of a giant saguaro to treat a diseased cactus once the symptoms have begun to spread. At early stages, it is possible to remove the diseased tissue and disinfect the area with a weak bleach solution, but there is much danger of spreading the disease to other parts of the plant unless the person applying the treatment takes great care. Personally, I do not like to recommend this procedure because of the danger of unintended damage to the plant.

While the land owner is justifiably saddened by the loss of a giant saguaro, it may be of some consolation to view the rot as a natural part of the desert environment. The active rot is a wet spot in a dry place and many desert dwellers depend upon these diseased plants for moisture. In addition, calloused over dry-rot pockets in surviving saguaros can offer places of refuge for birds and other animals.

Over watering saguaro cacti can also kill the plant. The soft inner tissue swells with the storage of water inside of the plant and contracts as the plant uses the stored water in times of drought. It is possible for the saguaro to store more water than it can safely hold and sometimes will split open like a ripe watermelon when it over engorges itself. Protect the plant by ensuring it does not receive more water than it actually needs. A good way to test whether or not the plant may need an irrigation is to squeeze the tissue covering one of the ribs of the plant between the thumb and forefinger. If the tissue is soft, the cactus could use a good watering, but if it is hard, it has sufficient water stored.

Saguaro do not need fertilization. Those growing in the wild survive quite well on what little bit nature provides. In addition, they possess a metabolism different from other plants which gives them the ability to survive without assistance in these harsh conditions.

These great sentinels of the desert have their own list of special problems, but being quite hardy and well-adapted to desert conditions, they are able to pretty much fend for themselves as long as people do not spoil them with kindness.

For additional information related to cacti, please see:
https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1399.pdf
With the return of warm weather, we can also expect increased sightings of animals native to the deserts of Central Arizona. Let’s take a look at four desert arachnids, all spider relatives, whose very names create feelings of concern and even fear in the minds of those who come in contact with them.

Two of them, the black widow spider and Arizona brown spider, are well deserving of respect. The other two are actually quite harmless; only their appearance gives them a hard reputation. Here are some answers to commonly asked questions about these interesting animals.

**Black Widow Spiders.** The adult black widow spider female is colored glossy-black with a bright orange to red hourglass-shaped marking on the underside of the abdomen. The body of the female is about one-half inch long and, with legs extended, may be up to 2 inches long. The males also have the red hourglass on the underside of their abdomen, but are cream and tan in color and much smaller in size. Newly hatched black widows are white with black spots on their abdomen with a cream-colored hourglass. Later, as they mature, they become cream and brown-striped. All stages of both sexes are venomous. Even the egg sacs contain poison, and should be carefully removed and crushed.

Webs made by black widow spiders are irregularly shaped with strands running in many directions. The somewhat stiff webs are said to appear “messy”, meaning that they have no particular pattern. The spiders hide during the day, and hang upside down in their webs at night. When mature, the female mates and lays several hundred eggs. She then wraps the eggs in a silken cocoon called the “egg sac”. Female black widows guard the sac until the eggs hatch. During this time she is most likely to bite when threatened. Egg sacs are most frequently encountered from May to October.

Black widow spiders do not aggressively hunt humans, but will bite to defend themselves. Be cautious when picking up or moving objects, particularly in outbuildings such as sheds or garages, or in shady, undisturbed areas such as under parked cars or in flower pots. Although they are not commonly found indoors, it is always a good idea to shake out and check clothing before dressing.

Black widow venom is a nerve toxin, which means that as it acts on the nervous system, it causes progressive muscle pain and can sometimes cause difficulty in breathing. The initial bite has been described as anywhere between a pin prick and a sharp stabbing pain, but some people do not even realize that they have been bitten. Although bites are generally not fatal, they should be considered dangerous. Contact the Poison Control Center, 1-800-222-1222, immediately for information about treatment and care if someone is bitten.

**Sun Spiders.** Sun spiders may be up the three inches long, and are usually tan or light brown in color. Although they are not scorpions, sun spiders are sometimes called wind scorpions because they can move very quickly. Scientists call them solpugids, which is based on their scientific name.

Although they may appear grotesque to someone who has never seen one before, they are relatively harmless. Sun spiders have the ability to bite, but it is more like a pinch and they have little or no venom. They do not have a stinger so they can not sting. In fact, sun spiders can be considered to be beneficial because they eat pest insects. Because sun spiders do not pose a health risk to humans, they do not require chemical control.

Sun spiders are common residents of hot, arid regions. Over one hundred species are found here in the Southwest. They hide under rocks and stones during the day and hunt for insects and other invertebrates at night. They often come to outdoor lights to feed on the insects the lights attract.

Occasionally sun spiders may enter homes where they might become a nuisance. Most can be captured, then removed to the outdoors and set free. Sun spiders which find their way inside and, for one reason or another must be killed, are easily dispatched with a vacuum cleaner or fly swatter. To discourage sun spiders from coming indoors, turn off outdoor lights as much as possible. Make sure screens and doors fit snugly, and fill or cover all cracks or holes in exterior walls and foundations.
Arizona Brown Spiders. Arizona brown spiders are often mistaken for the brown recluse spider, which is not a normal resident of Arizona. The only brown recluse spiders found here are the ones who have been brought into the state in luggage or belongings of persons who recently come from regions where it does occur. This hitch hiking, fortunately, does not happen frequently. However, because these spiders are so closely related and because the venom of each causes similar symptoms, they are often treated, and feared, as one in the same.

The two species of brown spiders in Arizona closely resembling the brown recluse spider have a dark brown marking on the front portion of their body which resembles a lyre or violin. They appear two-toned, with a tan front and gray rear body region. These spiders have three pairs of eyes in a crescent shape across the top, rather than the four pairs of most other spiders. Arizona brown spiders are small. Including legs, their total size is only about the area of a nickel. The body region of adults is one-third inch long.

Arizona brown spiders normally nest in protected areas, such as under wood or dead cacti in the desert, their native habitat. They can be found in urban areas, but it usually is because they have been brought in from the desert on firewood or pieces of cactus skeleton acquired for landscape purposes. They build a loose web of white silk where they stay during the daylight hours. As with the black widow, Arizona brown spiders are active at night.

Once again, these spiders are normally quite timid and only bite when trapped. Persons bitten apparently at first feel no discomfort, but as time progresses a blister forms, which may become an open ulcer. Other symptoms include fever and nausea. Persons bitten should make every attempt to capture the spider for identification and call their local Poison Control Center immediately.

Tarantulas. Tarantulas are the largest spider found in this region, up to six inches in diameter. They are hairy and are often black with red markings.

Despite their large size, tarantulas are not aggressive, and they rarely bite. If they are harassed into biting, the bite is not considered dangerous. There is little lasting pain or subsequent serious health problems. However, as with many other biting and stinging creatures, if an individual is allergic to the venom, they may have a more serious reaction and should seek medical attention immediately.

Believe it or not, the tarantulas’ hairs can be more harmful than their bite. When threatened, tarantulas stroke the back of their abdomen with their hind legs and “kick” off fine, barbed hairs. These hairs introduce a toxin into the skin that can cause burning and itching, and may result in a serious skin rash.

While it is true that some Arizona spiders are truly venomous, there are many more that either have no venom or are not a serious threat to humans. By being aware of which are and which are not a credible threat, we can learn to enjoy the desert creatures and protect ourselves as well.

If you have questions about this newsletter, have any plant related problems, or wish to have a publication sent to you, please call (520) 836-5221 x204 or (520) 374-6263 and leave a message. If you have a plant problem and are able to email a picture, please send a picture with any information you can provide about the plant, and your contact information to our diagnostic team at macmastergardener@gmail.com and a Master Gardener will contact you.

This newsletter is available to view on our website at: http://extension.arizona.edu/pinal

Richard D. Gibson
Extension Agent, Agriculture

RDG/te/sh/aw
59 mailed copies
262 emailed
Have a sick plant or just questions about caring for your plants?

Visit our Plant Diagnosis Clinic held every third Thursday of month from 9:00 am til noon

U of A Cooperative Extension
820 E. Cottonwood Lane, Bldg. C
Casa Grande, AZ 85122
(In the county complex just west of Safeway)

How to connect with Rick Gibson online...

Blog: Booming Deserts
ricksgardenspot.blogspot.com

Facebook: https://www.facebook.com/PinalCountyGardenandLandscapeProgram

Twitter: https://twitter.com/RickGibson4