



Pinal County Cooperative Extension Garden & Landscape Newsletter May 2009



WHEN INDOOR PLANTS LOSE 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.

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

—INDOOR PLANTS... Continued on Page 6

IN THIS ISSUE:

WHEN INDOOR PLANTS LOSE LEAVES	1
LOW WATER USE LANDSCAPING PROTECTS A VALUABLE RESOUC	2
BENEFICIAL INSECTS	3
PREPARE FOR HOT WEATHER	4

LOW WATER USE LANDSCAPING PROTECTS A VALUABLE RESOURCE

Do you want to enjoy a lush, beautiful yard and still lower your water bill? Here are some tips to help cut water use, protect a vital natural resource and create a relaxing outdoor living space.

In the desert, we know that every drop of water falling from the sky is a precious and critical resource, a resource that must be wisely used. One way that we can use water wisely is to plan and install low water use landscapes.

Low water use landscapes can be lush and beautiful, and, at the same time, be relatively labor free. In order for this to happen, three elements must be incorporated into every landscape design. First, there must be a selection of correct plants that are desert adapted and can survive on small amounts of water. Second, the landscape, where necessary, must be supported with a drip irrigation system that is correctly designed and functions correctly. Finally, our limited amounts of water falling as precipitation must be captured and used effectively.

Most landscapes are designed around five different types of plants: trees, shrubs, groundcover, vines and annual flowers. Each of these types of plants have a specific purpose in the landscape, and fill a certain need. By using low use plants in a landscape design, beauty can still be maintained while lowering our total water consumption.

Trees provide shade, help screen out unsightly views and serve as a "ceiling" for outdoor living areas. Popular low water use trees include blue palo verde, desert willow, foothill palo verde, Chilean mesquite, Mediterranean fan palm and the Afghan pine.

Shrubs hide foundations, separate different areas within the landscape and form the "walls" of outdoor rooms. Frequently planted in desert landscapes are Baja fairy duster, red bird of paradise, brittlebush, Mexican honeysuckle and the Arizona rosewood.

Low-growing plants that lay flat on the surface of the soil are groundcover plants and provide a visual carpet for outdoor areas. Favorite choices for desert landscapes include the red spike ice plant, trailing dalea, trailing lantana, trailing rosemary and Saltillo primrose.

Vines help cover walls and define space when they are trained to a trellis or arbor. Good vines to consider are the Lady Bank's rose, bougainvillea, lilac vine, pink trumpet vine and grape ivy.

Annual flowers and bedding plants add color and can be swapped out regularly for a nice change of pace depending upon the season. The Mexican gold poppy, desert bluebell, desert marigold, desert zinnia and the chaparral sage are popular annual flowers that will grow on very little water.

These plants, of course, are only a very few of the plants available that can fit into a hardy, low water use landscape. We invite you to study some of the many resources that can help you identify the right plant for your needs. Plan to visit museums and botanical gardens that specialize in drought tolerant plant displays, such as the Boyce Thompson Arboretum near Superior, to see these plants first hand. Look for the plants of your choice in local nurseries where you can get first hand information that will help you correctly design, install and care for your new landscape. In this manner you can become well versed in the proper use and care of low water use plants and avoid many problems that might otherwise occur.

In the garden or landscape, a serviceable drip irrigation system, properly designed, assembled and managed, is a wonderful tool to help conserve water.

Tailor-made for desert living, drip irrigation saves work, as well as water, and is economical and easy to use. The idea isn't new, but bolstering a rising interest in this irrigation technology the steady is improvement and convenience of today's systems, backed by the reality of the limited supply and rising cost of water.

There are many different variations of drip systems now operating throughout the area. Generally, the systems focus on drip, trickle, or ooze types of delivery; but can also include misting, spraying and sprinkling. Many stores carry a wide variety of components to design and assemble whatever kind of system that meets your particular situation. If you are thinking about installing a low water use drip system, we encourage you to visit with trained professionals. We also invite you to stop by our office to pick up a free bulletin or two. These will help you successfully plan, install and manage a drip irrigation system.

Another way to save on the water bill is to effectively use the rainfall that does fall from our desert skies. Each year during the winter wet season and the summer monsoons, many gallons of water fall onto hard surfaces like roofs, carport driveways and patios. A water catchment system to harvest this often wasted water is a good way to save money on the water bill. It also helps us be good stewards of a very precious resource.

BENEFICIAL INSECTS

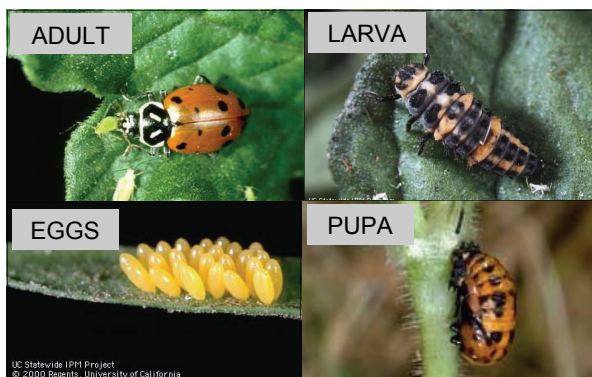
Many people believe that the only “good bug is a dead bug”, but in the garden, this old axiom is definitely not true.

There are a great many “good” insects that fight on our side against destructive insect pests. These allies and partners of the insect wars are called “beneficial insects”. Many times it is only through their assistance that the tide of battle turns our way.

This spring, aphid populations have been heavy in many gardens because conditions have been right for their growth. Many of you have wondered what could be done to minimize the damage caused by these insects without using large amounts of pesticide. If we are good stewards and protect the beneficial insects, they will help us maintain the overall health of our vegetable and flower gardens.

Beneficial insects work in two different ways. Predators feed outright on the bodies of insects that eat the tissue or suck the juice of plants. These helpful insects are generally much larger than their prey which gives them an edge as they attack. Lady beetles, lacewing larvae, and assassin bugs are examples of predator insects.

Other beneficial insects lay their eggs on or within the bodies of their prey. Once the egg hatches, it is the larva, or young of the beneficial insect that uses the host insect for food. Insects that complete their life cycle in this manner are called parasites. Adult parasite insects are often much smaller and weaker than their prey and rely on their agility to provide the edge needed for success. Parasitic wasps and flies are included in this group of beneficial insects.



One of the best known predators is the ladybeetle. These rounded beetles come in many sizes and colors. The most common species found in Arizona is the convergent ladybeetle, named for the two converging white stripes behind the head. The beetles are brightly colored with red front wings speckled with black markings. The adults lay orange egg clusters on plants near groups of aphids. The eggs hatch into tiny black and orange larvae which feed on aphids in great numbers. As the larvae grow, they resemble tiny beaded dragons. Once they reach maturity, they form a rounded black and orange-marked pupa attached to the plant. The pupae is often mistaken for bird droppings.

The green lacewing is another outstanding example of a predator insect. Adult lacewings are delicate, pale green insects about one-half to three-fourths of an inch long. Their wings have many veins, which gives them the netlike or “lace” appearance. They are attracted to lights at night and may be mistaken for moths except they have a characteristic fluttering flight when disturbed. Lacewings lay their pale green eggs on the tips of threadlike stalks on the underside of leaves. The immature lacewings hatch within a few days. They are no longer than one-eighth inch and are light brown in color. Their shape resembles that of an alligator and have large, sickle-shaped mandibles with which they suck the juices from insect eggs and small prey. They are ferocious feeders, and consume large numbers of aphids and other insect pests. When the larvae mature they form a yellow silken cocoon in which to pupate.

There are also two species of lacewings that are brown as adults. They also feed on small insects and insect eggs in the larval stage.

The praying mantis is among the best known of the predator insects. It sits and waits on plants until another insect crosses its path, and then it captures its victim with its spiny front legs. Female praying mantises lay their eggs in one to two inch long “cases” made of a dark brownish-gray papery material with numerous compartments. The egg cases are glued to twigs or branches, and are commonly found attached to the underside of boards. Praying mantis young emerge from the cases in the spring. They look like miniature adults.

PREPARE FOR HOT WEATHER

The sky-high temperatures and dry heat of summer are just around the corner. Are you and your garden and landscape plants ready for this critical and often deadly time?

Every year we address this topic, and every year somebody doesn't get the word. For the lack of good care, many garden and landscape plants do not survive the summer. Let's take a few minutes and review the basics of plant care during the hot months of summer.

First, always provide sufficient water to meet the particular demands of the plant. Chilean mesquite trees, for example, will generally need less water than a bed of Vinca. Cacti need only an occasional irrigation, while a mulberry tree will need to be watered every three or four days during the hot season. Always know, and provide, the relative amount of water needed by specific plants.

Second, be sure to place the water exactly where it is needed. Providing water only near the trunk of a large tree will not do the tree any good. Most of the feeder roots that collect water and nutrients are out at the extreme edges, or the "drip line", of the tree. For irrigation water to provide maximum benefit, it needs to be placed where the plant can make best use of the moisture.

Third, understand that water is critical for cooling plants. Most water absorbed by plant roots is used for transpiration, the loss of water vapor through the leaves. At the end of its trip through the plant, water enters open spaces between the cells of the leaves where it evaporates and exits the plant through tiny holes in the leaf called stomata. This movement of water vapor out of the plant acts much like an evaporative cooler by removing excess heat and leaving the leaf tissue cool to the touch. Supplying enough water to keep the transpiration process going is a critical step in protecting landscape plants in the desert. Insufficient water at any time during the growing season can seriously damage plants.

Fourth, schedule irrigations carefully. Even though a particular plant may need a certain amount of water through the summer months, just about all plants will require their roots to be exposed to air at least some of the time. Water-logged, always-wet soils often lead to water mold

root rot problems that can also seriously damage plants. When scheduling irrigations, be sure to allow the soil to dry somewhat so that air can return to the soil and give roots a chance to breathe.

Fifth, check all equipment on a regular basis. If you have a sprinkler or drip irrigation system, it is important to check each part every so often, to make sure it is functioning properly. Check for clogged or misdirected sprinkler heads. Are drip emitters working correctly or do they need to be removed and cleaned? Sometimes plastic tubing or PVC pipe will develop leaks or sustain damage from animals or soil tillage. All repairs should be made as promptly as possible to avoid water stress to plants and to save money.

Sixth, control salts in the soil. All soils and waters in Arizona contain at least some dissolved salts with some being more salty than others. In the Casa Grande Valley, most water supplies are fairly good, but if care is not taken, salt can build up within the root zones of all plants no matter where they are located and cause major damage, depending upon the susceptibility of the plant and the overall concentration of salts.

Control salts by adding enough water to the soil to move the lower edge of the wetted pattern deep enough to reach beyond the lower roots. If you suspect that sodium may be a problem, an application of gypsum may be in order. With a drip system, irrigations may have to occur more frequently, perhaps every other day or so depending upon the type of emitters used, but water applied to the soil should still be deep and wide enough to leach extra salt from the root zone of plants.

Finally, check the soil moisture level frequently until you know the pattern for wetting and drying during the course of the irrigation cycle. Different soils require different amounts of water and one soil that can absorb large amounts of water, like sandy soils, may not hold true for other soils like clays that cannot absorb water quickly. Testing the soil is one way to know exactly what the moisture level is and to make good decisions about when and for how long to irrigate.

—HOT WEATHER...Continued on Page 5

-BENEFICIAL INSECTS... Continued from Page 3

Other predators include the descriptively named assassin bugs and ambush bugs. There are also damsel bugs, big-eyed bugs, minute pirate bugs, syrphid flies, wasps, and dragonflies. Altogether, they make a formidable array of defense working to help maintain the balance of nature.

Beneficial insects that act as parasites include some wasps, flies and beetles. The adult form lives outside of the host insect but lay their eggs on or within a living host. After the eggs hatch, it is the young which feed on host tissues until the host is killed. Immature parasites complete their development in only one host. Because they are extremely specialized, they often only attack one or a few closely related species of insect. Parasites of insects do not in any way harm humans or their pets.

A fascinating example of a parasite is the eucharitid wasp which attacks ants. This particular wasp lays her eggs on the leaves of trees. The eggs hatch into mobile immature larvae that are able to crawl about on the leaf surface. In the spring, worker ants climb into the trees in search of aphids and other insects for food. The parasite larva attaches itself to any worker ant that comes close and hitches a ride back to the nest when the worker ant goes home. Once in the nest, the parasite drops off and attaches itself to a larval ant. The wasp larva feeds on the ant larva, eventually killing the ant. After emergence from the pupa, the adult wasp flies out of the ant nest to lay her eggs on leaves once more.

Other types of parasitic insects control aphids, whiteflies, grasshoppers, beetles, moths, bees and insects. Even though they are often not seen by the average person, they are definitely there and doing their job.

In the fight for control of the garden, the predator and parasitic beneficial insects are the little known heroes of the garden. Both types destroy many insects every day that would otherwise damage or kill our tender garden plants. Some work quickly and produce dramatic results; others work so slow that their efforts are rarely recognized in the garden. Both, however, are critical to maintaining the balance of nature in the plant's favor. They deserve our respect and appreciation.

-HOT WEATHER...Continued from Page 4

The best way to determine irrigation frequency, which is influenced by the temperature, type of soil and the evaporation rate of water from the soil surface, is to dig down about six inches into the ground and pick up a handful of soil. If the soil remains in a hard ball after it has been squeezed, it probably is still moist enough to support plant growth. If, however, the ball begins to crumble when the hand is opened or if the soil is starting to feel dry, it is time to water.

With this one quick and simple test, anyone can properly determine the correct irrigation frequency for the specific conditions in their own yard. Don't forget that the irrigation frequency that supports proper plant growth in the winter and spring will probably not be sufficient in the summer when temperatures go up dramatically.

The importance of maintaining good soil moisture in the root systems of all plants cannot be overstated. Throughout the county, there are far too many incidences of needless heat-injury to garden and landscape plants. It is needless because the severe injury of high temperatures could be avoided by following good plant care practices.

Hot weather can indeed be devastating to water-stressed plants, and, if we are not careful, plants can get stressed for water quickly in the dry heat of Arizona. With careful planning and by paying close attention to the conditions of our outdoor plants, summer damage can be held to a minimum.

-INDOOR PLANTS...Continued from Page 1

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.

-LOW WATER USE, Continued from Page 2

In Pinal County, annual rainfall averages between 8 and 12 inches annually, starting from the west side of the county and working east. Casa Grande averages 8.2 inches a year, Florence 9.8, and the San Pedro Valley between 10 and 12 depending upon the elevation. In general, the higher the elevation, the higher the annual average precipitation. In drought years, rainfall may be much less across the county.

Water harvesting systems capture water in three principal ways. These are water-spreading systems, diversion/terrace systems, and micro catchment systems. Each of these tools can be useful in urban settings.

The amount of water that can be collected depends upon the amount of rainfall received and the square footage of hard surfaces. There are many factors to be considered, including the influence of wind on how the rain falls and the pitch of a roof but a good rule of thumb is to expect about 0.623 gallons of water per square foot of hard surface during a one inch rain.

Using this conversion factor, a flat roof 1000 feet square could collect 623 gallons of rain water during a rainfall event of one inch. This would be enough to irrigate a line of plants along a well prepared drainage channel in a desert landscape. If a drip irrigation system with a good filter and a gravity pressure system working off of a micro catchment system were available, it could irrigate a larger area.

By correctly selecting low water use plants, irrigating them appropriately with a carefully designed and maintained delivery system and making use of the rainfall that does come, it is possible to enjoy a beautiful, lush landscape and still protect our precious water resources.

If you have questions, you can reach one of the Master Gardeners Volunteers at the Cooperative Extension office, 820 E. Cottonwood Lane, Building C, in Casa Grande. The telephone is (520) 836-5221 x204. The author's email address is gibsonrd@aq.arizona.edu

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