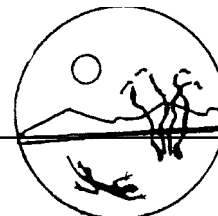


High on the Desert

Cochise County Master Gardener

Newsletter



The University of Arizona and U.S. Department of Agriculture cooperating.

The Enchanted Fairy

Some desert plants request your patience. This year, after four years in the garden, the Fairy Duster has rewarded my patience with a spectacular show. I should probably fess up that I have limited patience and after a pathetic here and there flower last year from this plant I was ready to evict it from the garden.

Calliandra eriophylla is a lovely, thornless shrub with delicate looking pink flowers and graceful, arching branches. *Calliandra* means "beautiful stamen." Stamens are the male parts of a plant and it is the hundreds of pink stamens in every flower head that attracts numerous insect pollinators. Marine Blue butterflies, tiny, tiny native bees, and ants have

been visiting my flowers daily. It's bloom period is spring and fall.

The Fairy Duster belongs to the Leguminosae family which fixes its own nitrogen thus requiring no fertilization, needs no pruning, and thrives in many soil types including poor and rocky soils. The plant is extremely drought tolerant and cold hardy to 20 degrees below zero F. It was doing so poorly last year that I cut off its irrigation and it has responded with increased vigor with the lack of water. A good lesson learned—a failing plant may not indicate an increased need but instead a decrease in water.

Because of its small stature it is best planted in masses in threes, fives, sevens and so on, and it blends beautifully with Agaves, Santa Rita Prickly Pears, and Daleas. Or, if you're the patient type plant a couple, wait for them to mature and

bloom. Pollination will occur and it will set pea pod looking fruits and reseed in the garden. That is if the birds and rodents don't get to the seeds first!

Happy Gardening!

Cheri Melton
Master Gardener



May Reminders

- ✓ Deep water
 - ✓ Plant warm season crops
 - ✓ Check tree ties
 - ✓ Control pests
 - ✓ Control weeds
- (*Controlling Weeds* is a bulletin available from the Cooperative Extension Office)

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Now You See; Now You Don't

Seems like there are a lot of people in Cochise County who don't get along very well with their neighbors. I get requests all the time for information on good barrier plants. Before beginning your search for such plants, sit down, take a deep breath, and decide before you buy exactly what you want these plants to do for you.

First of all, what is the intent of the planting? Do you want a visual barrier, a noise reduction barrier, wind barrier, *etc. etc.* The type of plants you choose and how you plant them will depend on this. If you just want a visual barrier because your neighbor has decided to turn his place into a south-western knock-off of *Sanford & Son*, then all you have to do is determine how much of a visual block you need. It would be a shame indeed that in your attempt to block your view of the schlemiel next door that over time you destroy your view of the majestic Huachucas! Does the planting need only be six feet tall, twelve feet tall, or reach to the heavens? Questions



to ask yourself are: how tall must it be; will I need to install a supplemental watering system to prevent the barrier from looking worse than the visual monstrosity you are trying to mask; how much maintenance will the plantings require; are there community restrictions that might impact on the plants you choose. Careful planning will avoid costly mistakes and possible legal ramifications.

If however a visual barrier is not enough and you want some noise abatement, you will need to increase significantly your plantings. By the time you exhaust your life savings planting your version of the Black Forest on your property line, you may come to the realization that it might have been just as easy to move. A single line of bushes or trees will not do too much for noise abatement. You will need several lines of mixed plantings many yards deep to have any effect on noise emanating from your neighbors.

Wind barriers require very careful planning to be effective. Don't use deciduous plants for wind barriers in Cochise County! They will be bare just at the time you need them most—winter and early spring is when the winds howl across the Apacheria. If you do not site the plantings properly, you can exacerbate the problem rather than ameliorate it! Decide what you want to protect from the wind—is it your home, your garden, *etc.* Then how high will the plants you select grow to be? This will determine how far from the area to be protected the plants must be sited to have the desired effect. If your plants will get 30 feet tall then they must be no more than 45 feet from the protected area (generally wind protection is 1.5 times the

height). Otherwise you risk speeding up the wind force—not a good thing. Here again multiple lines of planting work best to break up the wind and slow it down. Dense evergreens are your best bet set in a triangular pattern.

Some good barrier plants to use are:

Tall—Pinus Eldarica, Pinus Halepensis, Cupressus Arizona

Medium—Juniperus C. Hetzi Glauca, Eleagnus, Photinia, Oleander (great plant if you have severe deer problem), Ligustrum Japonicum

Small—Leucophyllum, various dense juniper species, Ligustrum Texanum, Pittosporum, buxus japonicum

All these plants will need supplemental water to get them started and many will require supplemental water throughout their lifespan. Do you really want to be dragging a hose clear back to the back forty to water your new plants for the foreseeable future?

John Phillips
Master Gardener

Robert E. Call

Robert E. Call
Extension Agent, Horticulture
Carolyn Gruenhagen
Editor

and do not work well with heterogeneous plantings. The best method for the home gardener to use is observation. As mentioned earlier, whenever the water pressure inside a plant drops, the plant wilts, indicating that it is losing more water than it is taking up. A wilted plant needs water. Water is best applied slowly to the soil so that it soaks in rather than ponds or runs off. Any water standing on the surface will rapidly evaporate. This is why drip irrigation systems are so popular. To minimize evaporation losses even more, avoid watering in the heat of the day.

Water deeply and in the right place. Imagine for a second you were God creating a plant. Would you place the main water absorbing organs under the canopy where they would be sheltered from the rain? Of course not. Most water is taken up by a plant by roots at and beyond the drip line of the plant. Applying water inside the drip line is simply not a very efficient way of getting water to the plant. And finally, water to the depth where the roots are. For flowers and other small plants, you need to wet the soil to a depth of only a few inches, but for trees you need to wet the soil to a depth of two or three feet. The best way to determine if you have watered deeply enough is to use a probe. A rod can be easily pushed into the soil to the depth that has been wetted. Cochise County Master Gardeners have probes available at the Sierra Vista Cooperative Extension office.

Gary A. Gruenhagen, Master Gardener
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The Agent's Observations

Q Leaves taken from my pear tree are dry, and blackened around the edges. When they first appear, they seem to be healthy. Then the edges begin to turn brown. The tree gets adequate water. This problem was first noticed last year and now is occurring again. The tree appears to be healthy otherwise and fruit production is not affected. What is causing this?

A When observing black leaves on pear trees it is important to check for the bacterial caused fire blight (*Erwinia amylovora*). Two things and two conditions are needed for fire blight to occur. They are: 1) relative humidity of around 70%; 2) temperatures around 70° F; 3) a vector, usually a pollinating honey-bee; and 4) an opening into the plant, usually a flower. We have not had high relative humidity levels lately to be conducive to the spread of fire blight. The symptoms do not appear to be fire blight. That is good. Fire blight is a bacterial disease which is difficult to manage.

A common problem observed in trees each spring is blackening of young deciduous tree leaves like pear, ash, cottonwood, poplar, willows and many others. This damage can be caused by light frost or wind. The frost damage may have occurred on a night when thermometers registered temperatures above freezing, but the frost may have been localized to small, low-lying areas. Young spring leaves are very tender and subject to damage from spring winds. Temperatures can rise from very pleasant temperatures to rather warm

mid-day temperatures. These warm days following cool nights, when combined with our frequent spring winds, can cause rapid desiccation of the leaves. The leaf margin or edge is the most likely injured part of the leaf. This desiccation can occur even if the soil has adequate moisture. Wind can draw water from the leaves faster than it can be removed from the soil and transported into the leaves. Very young trees may not exhibit symptoms because they are smaller and closer to the ground (protected from the wind) and have less distance to move water through the plant. Newly transplanted trees with a limited root system and young trees with immature root systems are more likely to show symptoms. However, under the right conditions spring winds can cause desiccation injury in mature trees as well.

As long as the tree appears to be healthy and fruit production is normal, there should be little to worry about. The climate of our high deserts can provide some harsh environmental conditions which cause cosmetic defects in many of our landscape and garden plants. One other problem to consider but which did not appear to be a problem in the samples sent, is salt damage. Our soils are often salty, containing sodium and other salts, which can accumulate to excess levels in leaves. Use of poor quality irrigation water, high in dissolved salts, will aggravate the problem unless sufficient water, usually 3-4 times as much as normal, is applied during irrigation every 4-6 weeks to leach excess salts below the root zone of the plants being grown.

Robert E. Call
Extension Agent, Horticulture

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THE VIRTUAL GARDENER—

Summer Proof Your Plants

May and June are the most stressful months of the year for plants in the High Desert of southeastern Arizona. Just at the time when they require the most energy for growth, flowering, and fruit production, they must cope with the highest temperatures, lowest humidities, and least amount of rainfall of the year.

Water is the major constituent by weight in living plant material and plays a variety of roles in the life of a plant. The internal pressure of water keeps the stems erect and leaves flat and exposed to the sun. When water pressure falls, leaves and stems droop leaving the plant in a wilted condition. Water transports minerals and nutrients to cells throughout the plant and carries away waste products, playing much the same role that blood plays in animals except that blood in animals is contained in a closed system while water in plants is not. Water is continually drawn into the plant through the roots and escapes as vapor into the atmosphere through the stomata in the leaves. The evaporation of this water from the surfaces of the leaves also serves to cool the cells and keep them in the proper temperature range for necessary chemical reactions to occur.

The movement of water to the leaves and its evaporation into the atmosphere is called evapotranspiration (ET) and the amount of water lost in evapotranspiration represents the net requirement of the plant for water. Plant scientists at the Arizona Meteorological Network (AZMET) measure nine weather parameters and calculate a

reference value for ET at 26 different stations around the state and report them on an hourly basis for use by the agricultural community. These data are available at the AZMET Web site at

<http://ag.arizona.edu/AZMET/>

The station reporting for Cochise County, called Bonita, is located just north of Willcox.

The value for Reference ET reported by AZMET is measured in millimeters and represents the amount of water in millimeters that would have to be delivered to a plant in order to make up for the water lost to evapotranspiration. Since AZMET also reports rainfall in millimeters, we can subtract the amount of water gained from rainfall from the amount of water lost to evapotranspiration to calculate the amount of supplementary irrigation required to supply the needs of the plant.

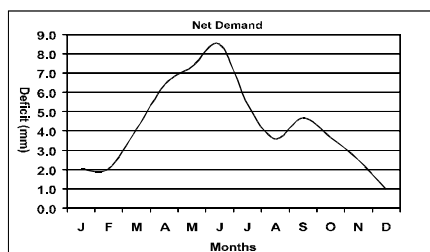


Fig 1. Water Shortfalls by Month

The graph in Figure 1 shows the difference between average daily ET and average daily precipitation by month over a 12 year period at Bonita. The purpose of the graph is to show how demand for water changes on the average for each month. As you can see, the graph

sharply peaks during the months of May and June indicating how dramatically the shortfall of moisture during this period. This means that you will have to be especially careful during this period to assure that your plants are getting enough water.

There are two strategies you can follow to protect your plants during this stressful period. The first is to minimize the loss of soil moisture around the plant to evaporation through the use of mulches. The use of mulches has an additional spin-off benefit of preventing (or at least minimizing) the growth of weeds around your plants. Although many different types of mulches can be used to hold moisture around your plants, I prefer straw mulches because they not only provide a barrier to minimize the escape of moisture from the soil, but their light color also reflects sunlight and lowers soil temperatures. Straw mulches should be at least 4 inches thick and extend out to the drip line of the plant if possible. Avoid placing the mulches directly against the stems or trunks of the plants to minimize the danger of fungal infection of the plant. Other mulches that can be used include compost, rocks, cardboard, carpeting, or landscaping cloth. Avoid using plastic sheeting because it will raise the temperature of the soil around the plant to levels that may be lethal to its roots.

The second strategy is to make sure you are providing enough water to the plant. Although large-scale commercial growers use ET values to directly calculate the amount of water to apply to their crops, the calculations are involved

(continued on next page)

Monsoon Rains Have Hidden Benefits For Plants

The loud crackle and thunderous boom of lightning is a familiar sound when our Monsoon season is in full swing! But have you ever noticed that our summer storms bring more than just much needed rainfall? The desert, and plants in general, just seem greener after a thunderstorm. And the reason: with the rain comes a wealth of life giving plant nutrients.

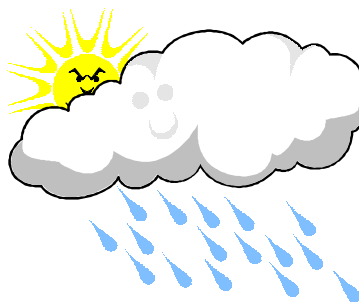
Lightening is a potent fertilizing agent. Every time it strikes nitrogen in the atmosphere is combined with hydrogen or oxygen to form ammonium and nitrate, two forms of nitrogen. The nitrogen then goes into solution in atmospheric moisture and is washed to the ground in rainfall. Plants then absorb nitrogen from the ground and utilize it for growth. Since it is a key constituent in chlorophyll, the green pigment of plants, nitrogen causes a greening of the plant.

Physicists estimate that roughly 250,000 tons of nitrogen are produced by about 1,800 thunderstorms that occur on Earth every day. Our summer thunderstorms can release significant amounts of nitrogen for plant growth here in Tucson. That causes a significant part of the greening of plants we notice after a storm. But other constituents of rain also contribute to this greening!

In theory, rain water is pure. It is formed from evaporation of moisture largely from the ocean, but also from inland bodies of water, the soil, plants, and even animals. Condensation returns it to earth; but not before it picks up some hitch-hikers. Sulfur is one of these. It is possible for rain to provide as

much as 40 pounds of sulfur per acre per year. Less in our desert environment, but still when the rains come so to does the sulfur. Sulfur is an important constituent in the formation of plant amino acids.

Dust is something we have no shortage of here in the Southwest, but dust although a nuisance indoors can be beneficial. Dust is often carried thousands of miles on the upper air currents, and comes down to earth during rain storms. Dust carries with it a number of



mineral nutrients necessary for plant growth. It also contains beneficial micro organisms which enhance plant growth. The solubilized nutrients can quickly influence the color of foliage. Micro organisms aid in the breakdown of organic compounds into plant nutrients. They also create symbiotic relationships with plant roots which aid in the uptake of nutrients. All this translates into a rapid "green-up" of plants!

The level of soil benefiting elements and micro organisms is related to the origin of such dust. Ashes from forest fires contain potash, an essential plant nutrient. Debris from volcanos, which can travel world-wide contains a wealth of essential minerals for plant growth.

The number of thunderstorms we enjoy in the Tucson area are limited, however the beneficial effects of rainstorms can be

bottled; or at least barreled, for later use. Rainwater can easily be trapped and stored for later use. The easiest way is to attach barrels to the down spouts from roof gutters. Large plastic garbage cans work well. Use a dark color, like green or gray, to keep the light out. Keep the lid on tight to keep out light, bugs, and critters. This will keep the water fresh and prevent stagnation from algae and bacteria. Cut a hole in the lid, large enough to put the downspout through and seal the crack with caulking or duct tape. A valved exit pipe at the bottom of the barrel allows you to attach a drip system or hose for irrigating plants. If you want, you can connect several rain barrels to collect more water. PVC piping from the top of one barrel to another will allow water to overflow from the first barrel into the next. You can connect a number of barrels this way. Barrels can be screened with shrubs if appearance is a priority.

During a typical Monsoon season, the roof of an average size house can collect as much as 4,000 gallons of rain water! You can collect as much water as you wish, depending on the number of barrels you use. An overflow pipe well allow the excess to escape. A rule of thumb for the Tucson area is to have one plastic trash container (32 gallon capacity) for each 6 feet length of gutter.

Rainwater does have real benefits for plants. So, if after the next thunderstorm you notice everything looks greener; it's not your imagination! It's just Mother Nature working her special magic.

*John Begeman
Extension Agent, Pima County*

(Editor's note: In addition to his Extension duties, Begeman writes a weekly column for the Arizona Daily Star. This article is reprinted with the author's permission.)

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Gardening Tip #6732

How many times have you found yourself having to water a plant that is not on your current drip system but still needs a little supplementary water? Have I got a tip for you!

You can make a portable drip system that can easily be transported to any location in your yard using a one gallon plastic milk jug, a drip emitter, and a piece of spaghetti

tubing. Poke the emitter into the bottom of the jug (I use a 2 gph emitter and pre-puncture the jug to make the emitter go in easier), add a short piece of spaghetti tubing (24 inches should do the trick) to the emitter, and you're done. To water a plant, elevate the jug on something (I find a 5 gal nursery pot turned upside down works great), place the end of the spaghetti tubing next to the plant, and fill the jug with water.

