



**COLLEGE OF AGRICULTURE  
AND LIFE SCIENCES**  
**COOPERATIVE EXTENSION**  
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**Newsletter**

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## ERYIOPHID MITES

If you have a landscape plant with a “witches broom” symptom, you may have an eriophyid infestation.

If you understood that first line, you likely either have had experience with eriophyid mite damage or you are a trained entomologist. For those who may have questions, let me give a little background.

For the past few years, Extension offices throughout Arizona and in other states have seen an increase in the number of mite cases. In fact, the incidents went from fairly rare to now pretty regular. We see the symptoms in an increasing variety of plants and evident throughout much of the year. I personally have seen the symptoms on a variety of landscape trees and shrubs including the palo verde branch that is currently here in my office. I have even seen it on oleander. “Oleander?” you ask, “Nothing affects oleander.” We used to think that until a specimen came into the office for identification. If you do not have eriophyid mites affecting your plants right now, you may soon.

Let me describe the chief symptom that we have been seeing, and then I will describe the critter. While eriophyid mites can cause a wide variety of plant symptoms, the most common characteristic that we have seen is the symptom of witches broom.

Witches broom symptoms result when many different growth shoots emerge from the stem nodes or buds resembling the business end of a broom. Sometimes the abnormal growth is small, like a marble; sometimes it is larger. The symptom can be caused by nutritional deficiencies, such as in zinc deficiencies in pecan; by disease organisms; by insects; or, in this case, by mites. The photo included here is a classic example of a witches broom type of growth.

Now, what is an eriophyid mite? They are somewhat difficult to describe because you cannot see them without the help of a microscope or powerful hand lens. It takes a 20X magnifier to be able to see them. However, I can assure you that they exist.

Mites are eight-legged animals that are different in many ways from insects. Insects, you will recall, have six legs and a completely different body structure from mites. Mites are closely related to ticks and kind of act like them. Their feeding, usually in the spring of the year, can cause the witches broom of which we have been speaking, plus galls, leave discoloration, and other deformities of the plant parts. For some really good pictures, go to your web search browser and type in “eryiophid utah state.” Utah State University is the land grant university in that state and they

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## ERIOPHYID MITES... CONTINUED FROM PAGE 1

have a really good fact sheet on eriophyid mites that will come up as part of your search. Other land grant universities in the west and across the country also have some useful bulletins.

Both the male and female mites spend the winter weeks under the coverings of the buds on susceptible stems. When the bud breaks for spring growth, the females come out of hiding, already to lay eggs, and begin the life cycle anew. For this reason, many of the damage that we see is on or near these growth areas. Reproduction can occur throughout the year.

So, what is the best way to control eriophyid mite damage? We are still learning about the mite and its life cycle here in Arizona. There is no hard and fast rule about control because there is danger in upsetting the balance of nature that exists in these communities. For example, the eriophyid mite can be a valuable food source for predatory mites, that is, mites that feed on other mites for their sustenance. These predatory mites are often our major line of defense against other plant feeding mites, like spider mites in particular. If we interrupt the food sources for these helpers, then their population may drop and free up the harmful mites to increase in numbers and cause major damage to the plant. This natural control is one of the reasons that we do not see more mite damage than we do.

Another reason for concern is the affect of control applications on pollinator insects, honey bees in particular. Mite populations seem to be most susceptible during the early spring season when the buds are popping open and new growth begins. In many plants, this initiation of growth also is synonymous with flower production. Applications of insecticides during the flowering time frame may kill these essential and hard-working insects while they are working the flowers. For obvious reasons, we try not to do that.

What can we do? My philosophy has always been to start with the easiest and least environmentally harsh control options first. The least harsh treatment and our first line of defense is simply to cut off the parts of the plant showing the symptoms. This generally works when there are only a few of the buds affected. See a witches broom showing on a plant? Snip it off and discard it so that the critters cannot climb back on the plant. We did this once on a small pomegranate tree. Cleaned it right up.

If there are too many affected areas to nip off without destroying the plants, I would recommend an application of insecticidal soap solutions. Product formulations can be found in most nursery outlets. Pay special attention to the growth points on the plant and follow label directions carefully.

Some will recommend horticultural oil applications or sulfur-based insecticides. The oils have to be applied while the tree is dormant and without leaves. It is a little too late this year for that. Sulfur sprays are also recommended but these must be terminated when the temperatures reach 90 degrees F because of the leaf burning that occur at these higher temperatures.

There are various commercial insecticide and miticide products on the market. Some are sprayed onto the surface of the plant and some are systemics that are absorbed to do their work inside the plant. These make me a little nervous because of their potential effect on pollinators. However, by following the directions and cautions on the label, these can help clean up severe infestations.

The eriophyid mite can be a serious challenge in the landscape because of the unsightly growth that they cause. If you can tolerate, that would be my recommendation, but if not, there are ways to bring peace back to your garden.

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## SPRING WILDFLOWERS

Our last spring wildflower season of note was two years ago and here we are in the midst of another wonderful year. Let me share some information to consider as you go out in search of desert color. Some of these tips come from a similar article back in 2015.

Wild flowers are one of the great joys of the desert. When ample and timely winter rains begin in November and then come regularly during the winters months, there are usually flowers to see, photograph, and enjoy. In a truly spectacular year, the flanks of Picacho Peak along Interstate 10 in the southern part of Pinal County will be awash in golds, yellows, and blues. While 2017 may not reach that intensity, it is a year that you will not want to miss. You will not be disappointed.

You will not need to go very far to see the colors of the desert. Pinal County is a great place to see desert wildflowers, but I have also this year seen pretty good displays along the Beeline Highway between Mesa and to Payson. Look for wildflowers on the slopes of rocky hillsides and along paved roads. Rocks, pebbles, and gravel help mulch the desert soils and slow evaporation. Paved roads shed water to the sides and irrigate young seedlings. The extra moisture works to the advantage of the wildflowers which need regular moisture to carry them through to maturity.

In Pinal County, Highway 79 from Florence Junction to Oracle Junction is usually is a good place to see wildflowers. You sometimes can also find a decent display along US 60 from Apache Junction to Superior, and along most other paved roads in the county for that matter. Boyce Thompson Arboretum in Superior and Picacho Peak State Park between Eloy and Redrock are great places to see the flowers up close and personal. As the weather warms, we will see more flowers at the higher elevations. If you are planning to head out, let me give you a few tips to better enjoy the beautiful but fleeting displays.

First, make the experience more enjoyable by learning the names and a little basic information about the flowers you see. Unless you are really into botany, it will be hard to know them all, but start with the more common flowers and work from there. Take some kind of a reference book with you to help you identify and learn about that particular flower. A good field guide, preferably with color pictures, will prove to be an invaluable friend. Botanical gardens and arboreta often have educational displays that describe these plants. They might even have sections on display where nameplates identify wildflower plants. Another choice would be to join in on a tag-along tour guided by a native plant expert. I like to learn as much about the plant as I can.

Second, don't just look at color alone. Be aware also of the various arrays of textures, the interaction of the flowers with the natural environment and how the various colors intermingle with one another to present a full, broad picture. Look also at the structure of the flower; how the petals are arranged and if they have more than one color in the bloom. Artists have long known that to truly replicate the scene on canvas, they have to pay attention to the way light filters through the plant parts, particularly the petals. Wildflower blooms are often intricate mixtures of colors and textures that often go unnoticed when we focus on only one piece of the puzzle.

For added enjoyment, I recommend that you also pay attention to how the flower fits into its native environment. Why did it attract your attention?. What is it that made you look at it, and how did you feel when you did? For example, a desert marigold along the side of a road attracts the eye, gives a sense of color and fits into a larger plant community. A single desert marigold growing next to a large granite boulder may give a totally different feel or view. Your first thought may be one of isolation, or solitude and quiet. A pocket notebook is a handy place to jot down your observations so that you can go back during the heat of the summer and remember a great Arizona experience.

Finally, learn a new flower each time you go out. Over one hundred different species of wildflowers have been identified in our area alone and the search is always on for new and different varieties. Many flower enthusiasts keep a record of the species that they see each year. They consider this as part of the fun of searching for and identifying

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## **SPRING WILDFLOWERS. . . CONTINUED FROM PG.3**

these beautiful plants. They compare their lists from year to year to see what has changed and then share what they have found with friends and acquaintances. This interchange of ideas from season to season not only makes for good conversation, it also helps to truly begin to understand the fragile, intricate web of life in the desert.

Of the many species that can be found locally, some become old friends because they are seen just about every year. Others may be new acquaintances. The more common varieties include the gold-colored California poppy, the deep-blue lupine, the yellow desert marigold, the lavender filaree and the orange globemallow. We expect to see these flowers whenever there is even a hint of effective moisture. However, it is fun to also look for the less common species like the rock purslane, evening primrose, and scarlet pimpernel.

Many people capture the beauty of the desert in their own yards by planting wildflowers in desert landscapes and then giving them extra water during dry winters to ensure that the flowers will germinate, grow and produce seed for the next year. There are many yards that have spectacular displays even during the driest of years.

Most wildflowers can be planted from seed and are fairly easy to grow. They do not need fertilizer or special care other than regular and frequent irrigations. Seed of some of the more common varieties, such as the California poppy, can be purchased from nurseries, but it is too late this year to plant them. Wildflower mixes are usually planted in November for a spring bloom.

Some seed companies specialize in native plants. Seed for individual species as well blends can be ordered through their catalogues. Again, extra irrigation, beginning in the late fall and continuing through the flower season, will produce a bumper crop even in low rainfall years.

Wildflowers are fleeting, at best. As soon as the rains stop and the summer heat returns, the desert will return to its summer dormant state and the displays will be finished until the next time the winter rains come early and frequent. No one can predict when that will be. Now is the time to soak in the sights and tuck away the memories while the displays last.

## IRRIGATION TIPS FOR THE SUMMER MONTHS

In the desert Southwest, garden and landscape plants cannot survive without water. Now that the weather is warming, and the spring garden season is upon us, let's review the basics of proper irrigation.

Do I really need to water my plants outdoors? The answer is yes, if you want them to survive. Some require more than others, but every plant, even native plants, require water from somewhere. The process by which we artificially give water to plants is called irrigation. Proper irrigation requires correct timing and delivery.

The delivery of irrigation water can be achieved in various ways. One way is to simply drag a hose from plant to plant and let the water run long enough to fill the entire root zone. The challenge is that sometimes we want to be gone for a period of time and if we do not have someone selected to carry on for us, the plants often suffer.

A more popular way to irrigate gardens and landscapes is to use some type of irrigation system. It can be a drip, sprinkler, or bubbler system, but in each case, there is some type of tube running from the water source to the plant, some kind of way to let water to escape at strategic places around the plant, and a timer to turn the water flow on and off. These types of systems take a lot of the hassle out of irrigation, but they still need to be maintained properly. A common question I often ask is this, "How is the irrigation system going for your?" The answer invariably, especially if the system is older, is this: "It is working okay but it requires a lot of work to keep it running."

Some people have more problems than others with irrigation systems of course, and we are not just talking about mechanical skills. Salty water can quickly clog delivery systems. Parts and pieces can break down. Rodents or time can chew through or weaken plastic tubing. Emitter devices can pop out, and the list goes on. Unless we are checking the system regularly, the system can, and does often let us down.

No matter how we do it, whether we drag a hose or use some type of system, it is important to do it right. So, the first tip for proper irrigation is to have a good plan, both for water delivery, and for system maintenance.

What are the rules for ensuring proper water delivery? Good irrigation generally boils down to getting enough water to the entire root zone at the proper time. Let's consider the structure of a plant.

All plants have a top and a bottom. The leaves, branches, and stems or trunks make up the top of the plant, and the roots are the bottom. The catch is that the rules of botany say there has to be a balance of energy between the top of the plant and the bottom of the plant. A plant unbalanced is one that is for sure going to struggle. Yes, water is essential for maintaining good plant health, and it does in many ways, but more specifically it is the medium that allows the plant not only to move nutrients from the roots to the leaves, but also to stay in proper balance by moving captured sunlight energy from the leaves down to the roots. Proper delivery of water, then, is a key management task to ensure healthy, balanced plants. It requires that we focus on both timing and depth of penetration.

Timing of irrigations is best decided by carefully monitoring the moisture level in the soil. Water disappears from the soil after an irrigation in two main ways: evaporation from the surface of the soil and absorption by the root systems of plants. The soil moisture content then can range from completely wet right after an irrigation to bone dry if we wait too long to apply the next irrigation. We do not want the soil to stay sloppy wet all time nor ever go bone dry. It is not good for plant health. For these reasons it is important to regularly monitor the soil moisture content of your soil. How is that done?

I like to dig down six inches into the soil with a hand trowel or shovel. I test the soil moisture level by feeling the soil sample with my hand and determining whether it leaves a wet outline on my hand or feels on the dry side. I then try to form a ball by firmly squeezing a handful of the soil. The final step is to make a ribbon of soil by pressing the soil between the thumb and forefinger and seeing if it holds together, kind of like what would happen if I were working with modeling clay.

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## **IRRIGATION TIPS - CONTINUED FROM PAGE 5**

With the previous information, I can make a decision as to when to irrigate. For sandy or coarse soils, I irrigate when the soil tends to stick together slightly but will not form a ball when it is squeezed in the hand. For silty soils, I choose to irrigate when a ball forms but its strength is weak and its appearance is crumbly. In clay soils, I irrigate when the soil is pliable, will form a ball, but is too dry to form a ribbon easily.

Water placement is also important. The entire root zone needs to be moistened to a depth as deep as the roots go down into the ground. If water penetration is too shallow, that is, if it does not go down below the lowest roots, a salt layer could develop at the outside edge of the wetted pattern. Think of the white ring that forms around irrigated plants in some soils. It is not just a ring though, it is also cup-shaped and goes from one side of the plant to the other. Proper irrigation keeps that ring out from and below the root zone.

Another effect of poor placement is shallow-rooted plants. Since roots tend not to grow into dry ground, shallow irrigations can keep the root system close to the surface of the soil and prone to health issues. In trees, shallow-rooted plants tend to blow over in a storm. To prevent these problems, make sure that the water surrounds the plant on all sides and reaches out to at least the edge of the canopy where most of the roots are located. I like to use a long screwdriver for this purpose. The probe slides easily into wet soil but gets progressively more difficult as the soil dries. Most trees need to be wetted at each irrigation down to a depth of about thirty-six inches or more. Shrubs can get by with an irrigation that reaches eighteen to twenty-four inches, and bedding plants are happy with a root zone of twelve inches.

Proper maintenance of systems will also be critical. It is important to regularly check the water emitters to make sure that they are not clogged up with sand or salt. It is also important to check for leaks and broken or worn tubing on a regular basis. If you are using a battery powered scheduling device, check to make sure the battery is not dead. I know that sounds silly, but really, come on, it happens.

Another key task when operating an irrigation system is to change the clock to match the water demand of the season. When the temperatures are cooler and the air more humid, such as what we experience in the cooler months, the demand for water will decrease sharply and the length of time between irrigations can be extended out. As the weather warms and the air dries, the demand will increase and the frequency of irrigations will have to increase. Plants receiving the amount of water necessary for good health in January will be severely stressed if the frequency of irrigations is not increased in July. Similarly, plants receiving in January the amount of water needed in July will be seriously over irrigated.

Irrigation is a critical step in growing healthy plants. Getting to know your soils and their capacity to hold water, along with mastering your irrigation system, are important tasks as we approach the summer months.

## ***FICUS BENJAMINA***

If you have space for a large potted plant indoors, you might want to consider *Ficus benjamina*, or as it is commonly known, the benjamin tree.

Benjamin tree, weeping fig, or benjamin fig are common names for a tropical plant that, in its native environment can reach ninety feet tall. Outdoors in Southern Arizona and Southern California, according to the Sunset Western Garden Book, it can reach half that size. Of course, being a tropical plant, it is sensitive to frost and cold damage so, unless you live in a warm, frost-free area, planting it outside may not be such a good idea.

Now, I know as I write this that somewhere out there, one or more of you have the benjamin tree successfully, even spectacularly, growing outdoors. All I am saying is that it is usually pretty tough to do. There are always exceptions, of course, and someone with a green thumb sometimes can make the exceptions work for them, even under the worst of conditions. For most of us however, we will just have to settle for growing this plant indoors in a container filled with well-drained, organic-based potting soil.

One of the most spectacular uses of this tree is in large, well lit entry way areas, usually with a barrel roof that will give it plenty of room to grow. It can also be placed in a sunny spot next to a large window.

The plant is in the same family and Genus as the edible fig but rarely fruits in containers. At least, I have not see it do so. Like most figs, it tends to have a drooping growth habit, which makes it good in some areas as a clipped hedge plant. Again, in our area, I do not think you will get much satisfaction from this kind of usage. The long, two- to five-inch, shiny leaves make this plant eye-catching and is one of the reasons it is so prized as a decorative plant.

It is possible to propagate new plants from an old, existing plant. The window of opportunity, late spring to early summer, is fast coming upon us. Here are a few tips that might help along the way.

First, assemble all of your tools and supplies. You will need a clean propagating container or tray. Do not reuse old containers since they might be contaminated with disease. Fill the pots with perlite and then soak the medium until moist. You will also need a set of sharp clippers and either a pencil or wooden dowel. Also needed will be a clear plastic bag that will fit over the container, and some twine to close and seal the plastic bag around the container. This will form a seal to keep humidity constant inside your mini greenhouse.

Second, make the cutting. *Ficus* plants propagate best from semihard wood that has grown during the current season, but has been on the plant long enough to develop some strength. Sufficiently mature wood will snap when bent sharply. If it just bends, it is too immature. The length of the cutting should be three- to four-inches long and contain at least two nodes. Nodes are the bumps on the stem from which leaves grow. I like to cut the stems straight across just below a node on the bottom end that will go into the potting medium. On the end nearest to the tip of the branch from which cuttings are being made, I cut at a forty-five degree angle. In this manner, I cannot become confused as to which is the top and which is the bottom of the cutting.

Third, I dip the lower end of the cutting in rooting hormone powder and then, with a pencil or wooden dowel, poke holes into the medium. The cutting is then inserted into the hole and the medium firmed up around the cutting. One node should be placed into the potting medium and one node exposed to the air. Additional cuttings can be placed in the same container, but should not be crowded together. Leave at least two inches between each future plant so that when they are removed from the medium there will be minimal damage to the roots of the adjoining plants.

Finally, cover the container and cuttings with the plastic bag and tie it off so that air cannot enter. Once a day open the bag for two or three minutes to allow in fresh air and then reseal it. Once you see new growth popping out from the above ground portion, the new plant can be moved to its own container with standard potting mix.

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## **FICUS BENJAMINA.** . . CONTINUED FROM PAGE 7

There are several challenges to keeping benjamin figs happy. They are somewhat finicky about being moved to new locations once they have acclimatized to a given location. They are also susceptible to a shortage of water and sometimes to scale insects.

Loss of leaves is a common symptom manifest when a plant is moved to a new location. If you can, try to avoid unnecessary moves. If it does become essential to move the plant and leaf loss occurs, the plant will usually replace them after a period of time.

If the plant has not been moved recently and leaves start falling, the color of the leaves may give a hint of the problem. Green leaves that fall from the plant are usually a symptom of too little water. Ficus plants do best when they receive water at regular intervals and sufficient enough to keep the soil moist but not sloppy wet. If the fallen leaves are yellow, it may be a sign of too much water.

Scale insects are small, stationary insects that produce a white protective covering. Rubbing them off with the fingers, or with a soft pad saturated with rubbing alcohol is a quick method of getting rid of these pests. There are also insecticide products for house plants if you choose to go that way.

The tree is susceptible to salt injury. Because of the levels of dissolved salts in most culinary water supplies, these natural chemicals can build up to hazardous levels within the plant container. Many choose to water their indoor house plants with water that has been deionized, or is low in dissolved solids for this reason. The other alternative is to irrigate with enough water to allow excess drainage, and then to remove the drainage water from the catch tray under the container so that it will not be reabsorbed back into the root zone.

Ficus is not particularly fussy about fertilization, but an application of an indoor plant fertilizer can be helpful. Be sure to follow the directions on the product label.

The benjamin fig can be a spectacular container plant that brings a sense of the tropics indoors. If you do not have one already, you may want to give it a try.

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](mailto:macmastergardener@gmail.com) and a Master Gardener will contact you.



Richard D. Gibson

Extension Agent, Agriculture

RDG/te/sh/aw

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**Spring Plant Sale**  
**March 3, 2018**  
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**Variety of plants include:**

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**COLLEGE OF AGRICULTURE  
AND LIFE SCIENCES**  
COOPERATIVE EXTENSION  
Pinal County

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 to noon at the U of A Cooperative Extension 820 E. Cottonwood Lane, Bldg. C Casa Grande, AZ 85122

Or you may call the Maricopa Agricultural Center at (520) 374-6263 to speak to a Master Gardener.

If you are able to email a picture, please send it with any information you can provide about the plant, and your contact information to the diagnostic team at [macmastergardener@gmail.com](mailto:macmastergardener@gmail.com) and a Master Gardener will contact you.

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