High on the Desert Cochise County Master Gardener Newsletter

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

The Virtual Gardener—Spider Mites in My Tomatoes

At about the same time the weather really began to heat up and the humidity dropped to near zero, some of my tomatoes began looking wilted, and a few of the leaves had dried brown edges and spots. A casual examination suggested the plants were dehydrated, so I increased the amount of water I was giving them. After several days on extra water, the problem had not gone away and in fact had worsened. A more thorough examination revealed why. My plants were infested with spider mites! If I had taken more time to examine the wilted leaves and had not been so quick to jump to a conclusion, I would have diagnosed the problem much earlier.

The mites themselves are hard to see without a magnifying glass or microscope. They are less than half a millimeter in length, but they also create webs which are easy to spot. Although there are about 1200 species of spider mites world-wide, each with different colors and markings, the ones you are most likely to see on your tomatoes are the twospotted* (AKA red) spider mites (*Tetranychus urticae*). They are arachnids with four pairs of legs and no antennae (see the ***Arizona Master Gardener Manual*** for a line drawing) and are usually straw-colored with red spots on the sides of the body or totally red in color. They love hot, dry conditions and are usually found first on the under sides of mature leaves, but as populations grow they can also be found on the tops of leaves and even on the tomatoes themselves. Spider mites reproduce rapidly. According to a Wikipedia article, eggs can hatch in as little as three days and a female becomes sexually mature in as little as five days, laying up to twenty eggs per day during her 2-4 week lifespan.

** This is the official common name and not a typo.*

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Leaf damage caused by spider mites. Note the webs.

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The mites are "piercing-sucking" insects with mouth parts that can penetrate the epidermis of the leaves and fruit and feed on the sap within. In addition to removing nutrients from the plant, this causes the leaves to curl, become chlorotic, and develop brown spots. Because of their feeding mechanism, spider mites may also become vectors for plant diseases.

Control can be difficult, particularly during the hot, dry months of May and June in the high desert. Keeping the plants well hydrated and spraying them with water a couple of times a day to raise the humidity will help keep the populations down. I have found it effective to insert a water wand near the bottom of the plants and spray upward to wash the undersides of the leaves. Some gardeners suggest spraying the plants with insecticidal soap, but I would try the plain water spray first.

Since spider mites can overwinter in garden litter without feeding and re-emerge in the spring, cleaning up the garden in the fall and disposing of the litter by burning or hot composting is important. Of course planting tomatoes in the same place every year also increases the chances of infestation, so rotating your vegetables in the garden is always a good idea.

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
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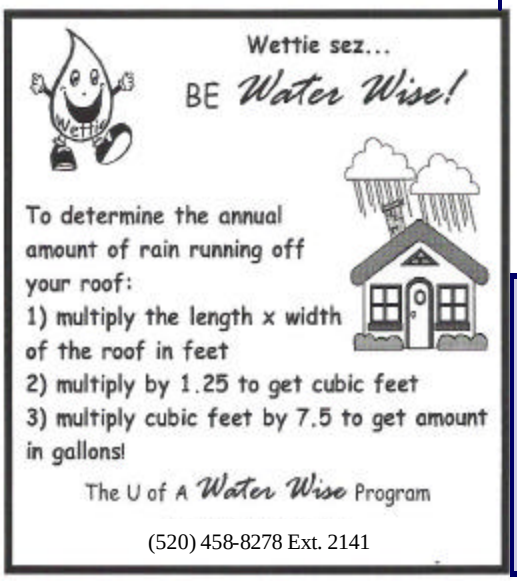

Cuttings 'N' Clippings

❄ There will not be a July CCMGA meeting due to the holiday.

❄ The CCMGA officers for 2013/2014 are:
President: Jody Sharp-Webb
VP: Jan Groth
Secretary: Bill Schulze
Treasurer: Donna Blackburn

❄ The Water Wise schedule for July includes Rainwater Harvesting Tours—July 13 in Sierra Vista and July 20 in Bisbee. See rainwater harvesting systems on these tours. For maps and details call (520) 458-8278, Ext 2141 or contact Joyce at:
j**williams@ag.arizona.edu/**

July Reminders

- *Keep the pests under control*
- *You can still plant something*
- *Keep watering!*

Mycorrhizae, or What's In Your Wallet?

One of my major gardening problems is trying to decipher just what is true and what is false when it comes to how we should take care of our plants. Should we be "organic" or use "chemical" fertilizers and pesticides? Maybe we should avoid all pesticides? Is soil just soil, a combination of weathered minerals with some organic matter added, or is it much more then that? Is the soil in our yards, gardens, pastures, and forests "alive?"

Before addressing some of these issues, a quick detour. In the last few months, I've stumbled into the subject of microorganisms quite a few times lately. In books and gardening radio programs, the world of the tiny has repeatedly cropped up in my life these last few months. Ironically, one of the books was actually about food (Michael Pollan's new book entitled *Cooked*). *Cooked* featured an extensive discussion of fermented foods (think sauerkraut, wine, or cheese) and the role that bacteria play in our guts. Did you know that it is now believed that over 90% of the DNA in our bodies belongs to microorganisms and that our gut contains several pounds of these critters? Another book, *The Wild Life of our Bodies* (discussed in the April 2013 edition of this newsletter), addressed the topic of our relationship with the microscopic world. Radio show gardening programs frequently talk about the microorganisms in our soil and their role in keeping soil healthy. More and more, we are becoming aware of the importance of microorganisms in our bodies and in the world at large.

So, back to gardening and the soil. One of the hottest topics in the discussion of gardening these days is that of fungi in our soils, specifically, mycorrhizal fungi (mycorrhizae). These fungi, of which there are hundreds or even thousands of species, form symbiotic relationships with the roots of most plants. In exchange for a small carbohydrate drip from the plants roots, the "roots" of fungi, called hyphae, extend the effective reach of plants' roots greatly. Estimates are that a single teaspoon of soil contains several meters of hyphae. In return for the food provided by the plant, the fungi provide the plants with many nutrients scrounged by their hyphae. On this, blessedly, everyone seems to agree.

The rub comes in here: we are being encouraged to purchase soil amendments in the form of additions of mycorrhizae spores to routinely add to our soils. Not surprisingly, many of the folks recommending extensive use of mycorrhizae are those who sell them. They aren't cheap. Prices per pound range from $10 to $60 for products I found online. This expense can add up pretty quickly if you have a decent sized garden.

What to do? I mean, good grief, *everyone* says mycorrhizae are beneficial. For dilemmas like this, my go-to guy is Dr. Jeff Gillman of the University of Minnesota. In addition to authoring several popular books on gardening, including *The Truth About Garden Remedies*, *The Truth About Organic Gardening*, and *Decoding Garden Advice* (coauthored by Meleah Maynard), Dr. Gillman was the featured speaker at our Conference last February. So, just what does Jeff say?

First, he says mycoorrhizae are great. He also says most healthy soils already contain plenty of mycorrhizae, and furthermore, these are species that are adapted to the soils and climate in which they live. He also says that improperly stored mycorrhizae are often dead or may contain species not adapted to a particular garden's condition. Studies he's done show no benefit in adding mycorrhizae to healthy soils (emphasis on "healthy").

If your lawn has mushrooms, those mushrooms are the fruiting body of one group of mycorrhizae, and therefore, are visible proof that they are present in your soils. If you've ever seen a grayish "mold" streak when you've dug in your soil, that "mold" is very likely a large mass of fungal hyphae (individual hyphae aren't visible to the naked eye). On the other hand, if your soil is of poor quality and lacking in organic matter, you may be lacking mycorrhizae. The best solution is to add organic matter, which will promote growth of mycorrhizae, plus other beneficial organisms. The bottom line is that mycorrhizae are definitely of value; add them if you wish. They'll do no harm, but there's a good chance that adding them to your soil will have the adverse effect of "de-greening" your wallet with little or no benefit to your plants.

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Master Gardener

Cochise County Master Gardener
Newsletter Editor
Carolyn Gruenhagen

In a Desert Garden

Clematis

I always loved the flowers of clematis and when I lived in the East, I used to grow several varieties with the big showy flowers. I am sure, they will not do well in our climate, and if they survive, it will be with a lot of pampering. Well, I have too much going on in my yard and there would be no time and no water to attempt that. Plants in my yard have to be easy to care for and tough. To my amazement, there are six species of clematis growing in Arizona. Of course, these are the natural species, not hybridized, and they grow in the canyons in the higher elevations.

About ten years ago, friends from the garden club came to visit and brought me a start of their plant, 'White Virgin's Bower'—*Clematis lingusticifolia*. I planted it in front of one of the supports of my ramada which makes a nice trellis, and it has been growing there ever since. I have seen this plant on hikes in the canyons where it can be found at elevations of 3000' to 8000'. It is a perennial evergreen vine that has small white flowers and clings to supports by twisting leaf stems that form tendrils. If it is happy it can grow to 20' tall. Of course, my plant is nowhere near that tall as it has been knocked

back by the deep freeze we had two years ago. This vine has fragile stems that break easily. The flower clusters appear with the monsoon, and later white plumes that contain the seeds will give interest. The leaves are deep green. This is not the only clematis I grow in my little garden. In my rose garden that gets more irrigation, I grow a variety with medium-sized deep reddish purple flowers, Clematis 'Kiviruut.' I planted this one last fall and it still has to establish itself, but so far, so good. My cannas bed that is close to the side wall of my yard has a trumpet vine growing against the wall. I have another clematis growing on an arbor that my son-in-law built for me. This one is Clematis 'Julia Correom,' and has medium-bluish purple flowers and is a spring bloomer. This one has been there for the better part of eight years, and does very well. To grow clematis in our climate, there is one thing that is very important, and that is to keep the roots cool at all times. Most varieties are very cold hardy, but cannot have their roots hot. Clematis loves full sun and doesn't mind taking in our hot sun as long as the roots are in the shade, heavily mulched with an organic mulch like woodchips. It is good to place some big rocks around the plant to keep the roots shaded, also. A good idea is to plant a groundcover with short roots. Planting clematis is very much the same as planting tomatoes. The planting hole needs to be deeper than the container the plant is growing in. This way soil is placed over the crowns which will help with more root growth. Clematis love bone meal, so put a good helping of it into the hole. Finish off with a generous amount of compost and woodchips.

Angel Rutherford. Master Gardener Photographer

Ask a Master Gardener

Cochise County Master Gardeners are available to answer your gardening questions either by telephone call to the Cooperative Extension Office or on-line on our web site at:

www.ag.arizona.edu/cochise/mg

Here are two of the recent inquiries and their answers concerning tomatoes :

Question: My tomatoes started with a water-soaked area on the blossom end. Shortly thereafter, the area darkened and grew into a circle as the tomato began to ripen. Now the area appears dark and shrunken and has a dry, leathery appearance. On some of my tomatoes, almost half the fruit is involved.

Answer: Blossom end rot is a non-parasitic disease of tomato involving up to 50 percent of the fruit. Additionally, secondary microorganisms can grow on the decayed area. Blossom end rot is caused by a lack of calcium in the developing fruit. Irregular soil moisture that leads to a lack of uptake of calcium from the soil is usually the culprit, rather than a lack of calcium in the soil. For more information on blossom end rot, please visit our FAQ's:

http://cals.arizona. edu/cochise/mg/faq#Vegetables

Question: What about drip irrigation of tomatoes in this area?

Answer: Tomatoes do very well when watered with drip irrigation. When watering, tomato plants do best when the soil is soaked to about 6 to 8 inches in depth. Watering tomato plants slowly is important for successful growth. Stay away from a heavy soaking. Watering can be safely done at almost any time of the day. Because mid-day watering will evaporate more quickly, afternoon hours are usually considered the best time to water tomato plants.

At a Glance Box

It's a Bloomin' Cochise County Native Plant of the Month

Plant: "Whitethorn Acacia" commonly refers to *Acacia constricta, A. vernicosa,* and *A. neovernicosa*

Description: 4-10 ft. tall Cochise County native deciduous shrubs with small, fern-like leaves and very fragrant bright yellow flowers clustered in ½ inch balls. Reddish bark. Straight, white thorns approximately ¾ to 1 inch long. Grows on limestone. Leafs-out late spring.

Blooms: June

Use: Sculptural in form and can be used in a landscape away from usable areas. Red bark provides good winter color and contrasts nicely with dormant, straw-colored ornamental grasses. Does not attract bees.

Culture: Plant in poor, well-draining soils. Full sun. Do not put on irrigation.

For an in-depth article on *A. constricta*, see below.

Ms. Cado Daily, M.A.
Water Resources Coordinator, Water Wise Program
University of Arizona Cochise County Cooperative Extension

Have you smelled a heavy, sweet scent in the air lately? Have you seen stands of brilliant yellow balls on twiggy shrubs? If so, you have seen some *Acacia* (pronounced ah-KAY-shah) shrubs in their full glory. These plants are not the Sweet Acacia tree commonly used in landscapes, but are actually three different Cochise County native acacias: *A. constricta* "Whitethorn," *A. neovernicosa* "Viscid acacia" and *A. vernicosa.* Because the three species are hard to distinguish from each other and all are armed with long, straight, white thorns, they are collectively called "whitethorn acacias." As the name implies, they can be the bane of hikers and ranchers (lesson learned – wear pants when hiking!). These acacias dominate limestone areas and are slow to leaf out in the late spring, but it doesn't take long for the deciduous legume shrubs to produce balls composed of hundreds of tiny bright yellow flowers. The flowers are so heavily scented that a close relative of the plant is cultivated in France for perfume! It is interesting to note that very few butterflies and bees are seen visiting the acacia flowers. Apparently the flowers do not provide much nectar or pollen, so pollinators don't waste their time on the tiny flowers. However, enough pollination occurs to produce long, slender, mahogany-colored seed pods.

If you want to try and distinguish the Viscid acacia from the other two, touch the leaves to see if they are, well, viscid or sticky. All three acacias have red bark and in the winter after a rain, are a stunningly, colorful contrast amidst straw-colored grasses. This feature, along with the mahogany seed pods that gently sway in the wind and the scented, bright flowers makes the three "whitethorn" acacias candidates for a landscape. I have heard that the slender stems can be twisted into one stem but if you try this, have a box of band aids nearby!

To learn more about our Cochise County native plants, visit the Cochise County Herbarium located on UA Sierra Vista campus and the website at: www.cochisecountyherbarium.org.

Ms. Cado Daily, M.A.
Water Resources Coordinator

Congratulations to the eleven people who completed the 2013 14-week University of Arizona Cooperative Extension Master Gardener Class. They will now complete 50 volunteer hours to become Master Gardeners.
Front row L-R: Christie Hardwick, Jan Groth, Master Gardener/Instructor, Susan Cheves, Ginger Ryan, Sue Lee, Kim Wyant, Sandy Heusman, Doe Payne
Back row L-R: Eric Lee, Ken Heusman, Mike Fedeli
Not pictured: Anita Wood. [Photo by: Donna Blackburn]

The MG class enjoyed a visit to Elfrida Community Garden on May 21 (See 2013 May MGNL) thanks to Anita Wood and Ginger Ryan, members of the class. Click here for a short video tour.

Did You Know . . . that Arizona is being invaded?

The summer rainy season is about to begin, and with the rains come the weeds. Now might be a good time to refresh our knowledge of the noxious and invasive plants threatening our environment. These plants are not inherently bad. They are good citizens in their native habitats, but like many travelers behave badly when they are away from home. Here, they have no competition from local plants and no predators so they take over, crowding out local plant species. To make matters worse, they often don't even provide food for local fauna.

If you would like to learn more about the invasive plants threatening us, check out *Non-Native Invasive Plants of Arizona*, 2nd Edition, a joint publication of the Conservation Districts of Arizona, the Resource Conservation and Development (RC&D) Areas of Arizona, and the University of Arizona Cooperative Extension. Here you will find descriptions and pictures of 34 invasive plants, including six grasses, 16 forbs, six woody plants, and six aquatic/riparian/wetland plants. The common name, genus and species, and family name of each plant is listed along with a description of the plant, its region of origin, and distribution within Arizona. The full color pictures of each plant include a general view as well as a detailed picture of the flowers, seed heads, or fruits. There is also a reporting form to use when you spot one of the plants on the invasive list. In addition to the online version, the document comes in a hard copy version that is sized to fit in your pocket. It can be obtained from any NRCS office, Conservation District in Arizona, or the Coronado RC&D.

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Buffelgrass