High on the Desert Cochise County Master Gardener Newsletter

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The Virtual Gardener—Gardening With a Camera

Digital cameras have revolutionized photography. In the age of film, pictures were expensive; the wait to see the results was measured in days; and the results were either small snapshots on paper or 35mm slides that were best viewed on a screen in a darkened room. With a digital camera the cost per snap has been reduced to the cost of replacing or recharging the batteries in the camera every so often; there is no wait for results; and the pictures can be viewed in glowing color on a computer monitor or television set.

A digital camera has many useful and practical uses for gardeners. Probably the first thing that springs to mind is to record those special times when the garden or a plant is looking its best. We grow *Trichocereus* cacti and are always blown away by their spectacular flowers, which we dutifully photograph. But taking pretty pictures of flowers and plants is not what I'm thinking about today. What are some of the really useful things a gardener can use a camera for? Here are some ideas.

Gardeners have been keeping notebooks for centuries to record what they do and what the results are. Instead of relying solely on verbal descriptions of your gardening activities, why not supplement your descriptions with images? Take pictures of your vegetable garden throughout the growing season to track how things are progressing. If you make sure the date and time are correctly set on the camera (read the manual!), you can always find out when the picture was taken. Most cameras will allow you to record the date and time directly on the image but even if you don't want them to be visible, they are usually recorded in the hidden data that is part of the image file, the so-called EXIF data. To see that data on a Windows PC, right click on the image, select "Properties" from the popup menu; select the "Summary" tab; and click the "Advanced" button. That should display a list of everything you ever wanted to know about the image, including the date and time it was taken (assuming the date and time were correctly set on the camera).

Suppose you walk out in the vegetable garden one day and find a funny-looking bug eating your zucchinis and a strange growth on your roses. You call

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a Master Gardener to find out what they are but have a hard time accurately describing them to him/her. Why not take a picture—it's worth a thousand words, you know—with you when you visit the Cooperative Extension office? Better yet, attach them to an e-mail and send them to the Master Gardener office at: **azccmg@yahoo.com.**

Scott Calhoun in his book *Hot Gardens*, advises his readers to take inspiration from nature when designing their landscapes and suggests a pair of hiking boots and a camera are great landscape design tools. Next time you hike into the desert or mountains, take your camera along and look for design inspirations. Instead of just taking panoramic shots of large vistas, look for small things to record—a cluster of rocks, an arrangement of wildflowers, or an old stump. These can provide ideas for things you can do in your own yard. Check out my review of Scott's book at: **http://ag.arizona.edu/cochise/mg/pdf/Sep09.pdf**

But you don't have to take your inspirations from nature alone. Gardens can also give you ideas, so take your camera with you when you visit other gardens, public or private. One of the best places to get ideas—and pictures—is on the Xeriscape Garden Tours sponsored by the Cochise County Water Wise Program. These tours occur twice a year—once in the spring and once in the fall. The next tour is coming up on September 5th so watch for more information.

In addition to the uses I've already described, I find it useful to use photographs for change detection. Photograph the yard from the same points of view on different dates and seasons. This allows you to see how the landscape is progressing (or regressing!) as time passes. These pictures help me decide where I need to change things to make an attractive year-round landscape. I have even taken pictures of the yard from the roof of the house to get quasi aerial views that help get an overall perspective.

Another use for seasonal photographs is to track the progression of plant development during the seasons. Phenology is the study of how plant and animal life cycle events change with seasonal and annual variations. Project BudBurst (**http://budburst.ucar.edu/**) is a national phenology campaign involving gardeners from around the country to track changes such as beginning of leafing and flowering, end of flowering, first ripening of fruit, *etc*. One of the aims of the project is to get a better handle on climate change. If you join Project BudBurst, you can share your pictures with them, or if you don't want to join, you can use the pictures for your own private phenology study.

On a smaller scale, photos can help you channel water and manage runoff on your property. In *Rainwater Harvesting for Drylands and Beyond, Volume* 2, Brad Lancaster describes how to use the patterns of microdetritus berms created after a rainfall to determine the direction of sheet flow on relatively flat areas (the long axis of the berms is generally perpendicular to the direction flow and bends point downstream). Photographing these berms and taking photos of standing water immediately after a rainfall helps me to channel the water to where I want it to go and manage my RainScape (see photo).

These are just a few ideas for using photographs in the garden. I'm sure you can think of many others.

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener
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Might As Well Laugh

Summer's here. The cucumber beetles are chowing down on the cucumber plants, squash beetles are munching squash and melon leaves, green fig beetles are eating peaches, and corn earworms are feasting on the corn. To top it all off, the other night Tucson Channel 13 Meteorologist, Chuck George, announced that the rest of the monsoon may be a bust! Aaaarrrgghh! All you can do is laugh. To that end, following is a collection of gardening quotes to help you get through the summer with a chuckle.

~ Garden: One of a vast number of free outdoor restaurants operated by charity-minded amateurs in an effort to provide healthful, balanced meals for insects, birds and animals. Henry Beard and Roy McKie, *Gardener's Dictionary*

~ Gardening is a humbling experience. Martha Stewart

~ Gardening adds years to your life and life to your years. Author Unknown

~ To garden is to let optimism get the better of judgment. Eleanor Perenyi

~ A garden is an awful responsibility. You never know what you may be aiding to grow in it. Charles Dudley Warner

~ *The $64 Tomato, How One Man Nearly Lost His Sanity, Spent A Fortune, And Endured An Existential Crisis In His Quest For the Perfect Garden.* Title of a book by William Alexander

~ If you need five tools to solve a problem in the garden, four of them will be easy to find. Author Unknown

~ I consider every plant hardy until I have killed it myself. *Smither's Brown Thumb Dictum*

~ Your first job is to prepare the soil. The best tool for this is your neighbor's motorized garden tiller. If your neighbor does not own a garden tiller, suggest that he buy one. Dave Barry

~ If lightning is the anger of the gods, the gods are mostly concerned with trees. Lao-Tsu

~ Bulb: potential flower buried in Autumn, never to be seen again. Henry Beard

~ You're not a real gardener until you've killed at least a hundred plants. Mike McGrath, WHYY Radio in Philadelphia

~ Gardening requires lots of water - most of it in the form of perspiration. Lou Erickson

~ A man should never plant a garden larger than his wife can take care of. T.H. Everett

~ My husband said that if I buy any more plants he would leave me. Dang! I'm going to miss that man. Author Unknown

~ If a man is alone in the garden and speaks, and there is no woman to hear him, is he still wrong? Author Unknown

~ A true gardener gives away his best produce and keeps the split tomatoes and other deformed and less desirable stuff for himself. Jim Byrum, Cochise County Master Gardener

~ Hoeing: A manual method of severing roots from stems of newly planted flowers and vegetables. Henry Beard

~ A real gardener enjoys the smell of manure better that that of Estee Lauder. Author Unknown

~ Kink-free hoses . . . ain't! Bill Schulze

That's it! I hope the rest of your summer is great and your garden yield is the best ever!

Bill Schulze, Master Gardener

August Reminders

- Keep pulling weeds
- Fertilize
- Prolong annuals
- Plan your spring wildflower garden
- Watch for nutrient deficiencies, sunburn, salt burn, overwatering, and insects
- Plan for cool-season flowers and veggies

In a Desert Garden

Ragged Nettle Spurge—
Jatropha macrorhiza

I just received an e-mail from a dear friend who sent me a photo of a plant she could not identify. This event gave me the idea for another article. I have written about nearly everything in my yard and was running out of material. There are several Spurges native to Southern Arizona and Mexico that appear just around the beginning of the rainy season. Spurges are succulents usually containing a white sap that flows out if a stem is broken and can cause an allergic reaction in some people. The big family of Spurge –*Euphoria* includes known plants such as the Christmas poinsettia and the Gopher plant.

The *Jatropha* genus has around 175 species. It is a plant of the grassy slopes and the clearances in the oaklands and can be found along the washes south of Tucson. In my case it can show up in an urban garden. Unfortunately, I haven't seen it in the last several years.

This is an attractive plant with big green shiny leaves that have serrated edges and look like big hands with six fingers. The flowers are pink with darker centers


Jagropha

and appear in clusters. The plants grow to about 1 1/2 feet and show up in late spring and disappear again after the monsoon. The large fleshy roots have to be considered poisonous. They contain the toxin Curcin, which is similar to Ricin. The most poisonous part is the seeds. Symptoms of acute poisoning are abdominal pain and bloody vomit and diarrhea happening an hour after ingesting.

Jatropha is monoecious, which means that stamens and pistils are found in separate flowers on the same plant. The plant has the typical three-lobed fruits of the Spurge family and when they are ripe, they explode sending the seeds flying several feet away from the mother plant.

Photo by Sherry Harig

Angel Rutherford, Master Gardener

Cuttings 'N' Clippings

❄ The next CCMGA meeting is 5:00 p.m. Thursday, **August 5** in the Public Meeting Room at the University of Arizona South. The speaker is U.S. Army COL (Ret) Bernard "Bernie" Stalmann, an avid hiker. His talk is on *Building the Arizona Trail—A Dream Come True.* He's the Southern Region Steward for the Arizona Scenic National Trail. He's been a leader in building 40 miles of the Arizona Trail in our area in just five years. Come hear his talk about our spectacular Arizona Trail.

❄ The next Water Wise free workshop is scheduled for Saturday, **August 7,** 9:00 a.m.—noon in the Public Meeting Room at the University of Arizona South. Jan Groth will speak on *High Desert Plants and Garden Care.* This workshop will show you many plants that are perfect for Cochise County. She will also discuss the basics of plant care.

❄ On **September 5** the Fall Xeriscape Tour will be held from 1:00—4:00 p.m. This is a free tour sponsored by Water Wise and the Cochise County Master Gardeners. Maps will be available mid-August. Contact the Extension Office for more information.

Robert E. Call

Robert E. Call
Horticulture Educator

Carolyn Gruenhagen
Editor

The Agent's Observations

Q. We have several *Trichocereus* hybrid cactus in our garden. They have been blooming and are spectacular. No matter what type of hybrid or flower color they all seem to bloom at the same time. How does this happen?

A. There are several factors that affect flower bud initiation and blooming in plants. Not all the factors are known or needed in each plant species. This has been an area of much research and has economic considerations. Some of these factors are phytochrome, photoperiodism, tem-

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What's Bugging Me—Part 1

On May 25, 2010 my spouse and I were reaching through a barbed wire fence to pet and spoil our neighbor's horse. As we turned away from the pasture fence, she points down to the ground and asks, "What's that?" She pointed to a two-inch long "worm" that had many body segments and a "horn" on its tail. I had just completed the classroom portion of the Cochise County Master Gardener's course, and I had intently studied Chapter 3, Entomology. Four thoughts flashed through my mind in quick succession: First, "I should know what that is." Second, "I think I KNOW what that is!" Third, "If that's what I think it is, what's it doing here?" And finally, "Why is it here this early in the season?"

I was sure it was either a tomato hornworm or a tobacco hornworm. I knew both "worms" are actually the larva stage of some very large nocturnal moths, and as larva they feed almost exclusively, and most voraciously, on plants in the *Solanaceae* (sol-an-ace-ee) Family. The *Solanaceae* family contains tobacco, tomatoes, potatoes, peppers, eggplant, and so on. Before moving an inch, I looked around. The hornworm was sitting on a patch of low-growing native ground cover, near a mesquite tree, surrounded by lovegrass, and about 110 yards from the nearest "luscious" vegetation, which was our garden area. The garden contained young and just established tomatoes, potatoes, peppers, *etc*. I was happy the thing was out in the middle of pasture land, but puzzled as to why when the garden was 100+ yards away, and why it was present in May when it usually doesn't show up in gardens until there's a lot to eat…somewhere in mid-July time frame.


Tomato Hornworm

Clearly, I needed to do some research. I went inside and turned on the laptop and started searching. Wow! A wealth of information is available on the World Wide Web. At one point I was getting impatient for a gardener's blog in Texas to open as it was so full of photographs that it took almost a minute to open. Then I remembered doing research in college: I would go to the library and search by topic through the card catalog, writing down the names of books that looked promising on a piece of scrap paper provided at the catalog desk for just that purpose. I would wander around in the stacks looking for books, finally finding the location only to find an empty space where someone else had gotten there first. I would haul the books I did find to a table and sit down to read. After thirty minutes of reading and flipping pages in the first book I'd discover that book did not contain

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perature, and perhaps florigen. Phytochrome is a pale blue, proteinaceous pigment associated with the absorption of light. It was first discovered in 1959. It occurs in two stable forms that absorb either red or far-red light. When one type of light is "sensed" the phytochrome changes to the other form, red to far-red or vice versa. This mechanism controls several aspects of plant growth. However, in flowering this process controls photoperiodism. This phenomenon refers to the hours of light a plant receives that initiates flower buds. Thus, plants are categorized as short-day, long-day or day-neutral plants depending on what induces flowering. (Later research showed that it was really night length rather than day length that causes flower initiation, but the term day-length has remained.) Environmental temperatures can overcome photoperiodism and cause plants not to flower. It is believed that plant leaves and/or stems produce something called "florigen" and has an effect on flower initiation. Although this compound has never been isolated, experimental evidence suggests that "something" (florigen?) influences flowering. So, flowering is a complex process that is not completely understood. The plant world still holds mysteries and we all benefit from them daily!

Source: Kingsley R. Stern. 1994. *Introduction to Plant Biology*. Wm. C. Brown Publishers. Pp. 175-78.

Robert E. Call
Horticulture Educator

Did You Know. . .

The City of Sierra Vista reports that since January 2010 over 66 tons of material was diverted per month from the local landfill. There are over 6,700 residents currently registered and participants have recycled over 400 tons of materials, saving over 1,200 cubic yards of landfill space, 4,658 trees, and energy equivalent to 4,688 gallons of gasoline. If you are a resident of Sierra Vista you, too, can participate in recycling with the City of Sierra Vista. Just call 458-5775 or visit online at www.SierraVistaAZ.gov or stop by the Pedro Castro Center to register in person. A blue, 65 gallon recycling bin will be delivered to your home with pickup scheduled once a month.

The Bisbee Bloomers will be holding their 10th Annual Garden Tour on **September 10** from 10:00 a.m.—4:00 p.m. in old Bisbee and Warren. For more information contact Bisbee Visitor Center at 1-520-432-3554, or toll free 1-866-244-7233, or online at **www.discoverbisbee.com** There is a fee for this tour.

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the information for which I was looking. So I'd sigh and open the next book and wonder if I'd get through the stack of books before lunch because the library did not allow food inside.

What a change the Internet has made in our lives. Thirty minutes of initial research on the web revealed the following: The large months emerge in spring from pupa that spent the winter in the ground. They mate and lay small green eggs on the top (sometimes) and underside (usually) of the leaves of *Solanaceae* Family plants. The eggs hatch into small worm/larva/caterpillars which immediately begin to eat the plants. The larva "molt" their skins five times, each molting producing a larger and more voracious larva called an instar. The 5th instar larva are capable of devouring huge amounts of plant leaves and even fruits in a short amount of time, and turning it all into visible piles of black or green "frass." When the larva are 3-4 weeks old, they drop off the plant, burrow into the ground an inch or two, and produce a pupa. Think of the pupa as a miniature Samsonite suitcase with a handle where the larva holes up to make a dramatic change of clothing. The pupa hatches into an adult moth in about two to three weeks and the cycle continues until the weather turns cold at night and the last batch of pupa stay put for the winter.

I discovered that the caterpillars actually start doing damage in the spring, but we tend not to notice them until they reach the 4th or 5th instar larval stage and are doing large amounts of damage over a short time. But it did not answer why the caterpillar was out in the middle of a field and far away from all the *Solanaceae* plants in the garden. Then one of the recommended control measures caught my attention: *"Keep your garden as weed free as possible, to discourage egg laying on Solanaceous weed hosts."* There are *Solanaceous* weeds? More research was needed, and I was HAPPY about it! Research today is easy and FUN!

Continued next month after more research!

Dan Evans
Associate Master Gardener