



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—To Prune or Not to Prune

Tomato plants come in two types—determinate and indeterminate. Determinate, or “bush” type, tomatoes do not need pruning but indeterminate ones do. Determinate plants will grow to a limited size, produce all their fruit at one time, and die. They do not need pruning. *Roma* is a common variety of determinate type, but most of the plants you are likely to grow in the garden will be indeterminate.

Indeterminate tomato plants, as the name implies, will keep on growing (and producing fruit) until something (usually frost) kills them. In order to get the best fruits from indeterminate plants, they should be both staked and pruned. Staking them will keep the fruits off the ground and make them less vulnerable to insect damage and disease. Pruning them will reduce the total number of fruits produced but will increase the size of each fruit by allowing more energy to

flow into them than into vegetative (leaf and stem) growth.

Tomato plants are commonly pruned so that they have from one to four main stems. Side branches (suckers) are removed from the main stems based on the location of the first flower clusters on the stem. There are two techniques for pruning. Simple pruning is to remove the entire side stem by cutting it off at the base and Missouri pruning, which is to pinch off the tip of the stem leaving only one or two leaves on the stem. Probably the best description of the reasons for pruning and the pruning techniques to use as well as discussions of staking and tying tomato vines can be found at:

<http://www.taunton.com/finegardening/how-to/articles/pruning-tomatoes.aspx>

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener
virtualgardener@cox.net

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How are the upside down tomatoes doing? They're still hanging in there. The biggest advantage I see to growing tomatoes upside down is that you don't have to worry about trellising them. Other than that, they seem to be producing about the same as the tomatoes planted right side up and look pretty healthy. The small size of the containers they're growing in means I have to be very careful to keep them well watered as they dry out pretty quickly. I usually water them in the mornings and evenings. One day I forgot the evening watering and the next morning they looked pretty unhappy. Fortunately they're pretty easy to please. They perked up again after the morning watering. (See May 2008 Newsletter for original article, *Hang Ups.*) VG

Cochise County Cooperative Extension

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Mulch: A Simple and Effective Tool Part I

Kevlar for your Garden

Often underutilized, mulch is one of the simplest and most powerful ways for you to maintain the health of your plants. This means fewer diseases and pests, and most importantly, fewer problems and work for you. This is of special importance in Cochise County with its withering arsenal of hot sun, high winds, variable temperatures and heavy monsoon rains. Mulch is a strong ally in defending your plants against these potential enemies.

Mulch provides four main functions in this battle. It reduces or eliminates (1) weed growth, (2) water evaporation, (3) soil temperature variability, and (4) undesirable soil effects such as erosion, compaction, and splattering. Additionally, mulch helps in other ways such as preventing mower/weed-eater blight and making plant maintenance easier overall.

Much in the same way that clothing protects humans from the elements, mulch helps to protect your plants and to maintain their health. For you, that means saving time and resources. You will not need to water as frequently and you can reduce the strain on your back due to weeding less.

Mulch Ado about Nothing

So, which type of mulch should you use? Some of the characteristics of different mulches will be outlined next month. But, there's no need to fret. Choosing the right mulch is as easy as 1-2-3.

The first consideration is your personal taste. Most mulches do what a mulch is supposed to do, so you should choose a mulch that makes you happy. If aesthetics are

important, pick a mulch that fits or mulches that fit in with the layout and color scheme of your garden. If convenience is paramount, you can pick a long-lasting mulch such as decomposed granite.

Secondly, you will want to consider the obvious factors of availability and cost. You may dream of using black rhyolitic tuff from Icelandic volcanoes, but unless you can afford it, it will just remain a dream. Rice hulls make excellent mulch, but you'll be hard pressed to find rice fields in Southeastern Arizona. So, you go with what can be readily obtained and what meets your budget.

The third factor is landscaping. Do you live in town or in the country? Will yours be a highly 'manicured' garden or one that mimics local nature? Do you have inclines that require erosion control? Answering these questions will help you in determining which type of mulch is right for your circumstances.

Part II next month!

Bret Galloway, Master Gardener



**High Desert Gardening
& Landscaping Conference
February 12 & 13, 2009**

Cuttings 'N' Clippings

* The next CCMGA meeting is 5:00 p.m. Thursday, July 10 at the University of Arizona South campus Public Meeting Room. The speakers will be Master Gardeners on *Summerizing Your Garden*.

* The 2008/2009 officers of CCMGA are:

President: Carolyn Gruenhagen
V. President: Sarah Turan
Secretary: Eleanor Templeman
Treasurer: Anita Gollwitzer

* There will not be a July *Water Wise* workshop, however on July 12 a Rainwater Harvesting Tour will be held. See Page 4 of this newsletter for details.

* A 6-week course entitled *Learn to Identify Plants* will be taught by Cecile Lumer, Ph.D. The class will meet Friday mornings, 10:00 a.m.—Noon on August 15-September 19 at Cochise College. Class dates are 8/15, 8/22, 8/29, 9/5, 9/12, 9/19. There is a fee which will go to support the Cochise County Herbarium. Enrollment is limited to 20 people and a deposit will reserve a place in the class. For more information call Cecile Lumer at 432-4294, email:

cecilelumer@gmail.com or call Joyce at the Cooperative Extension at 458-8278 ext.2141

Robert E. Call
Extension Agent, Horticulture

Carolyn Gruenhagen
Editor

Thoughts on the MG Program

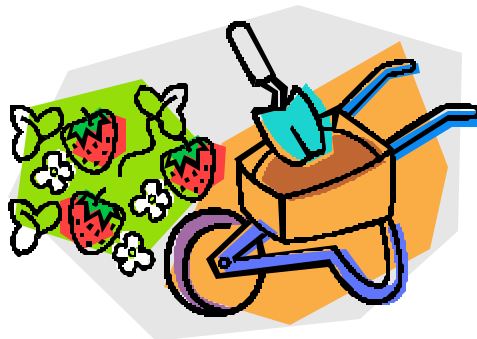
Since moving to Cochise County in 1982, I have dabbled with gardening here and there and admired many gardens in Bisbee and around Cochise County. My employment through the years has taken me to many homes throughout the county and then I run home to plant something new, mostly without success. The Master Gardener program has given me an excellent basis to which I may approach my yard, and now that my boys are somewhat past the booby-trap stage of life and the dog is lightening up on the digging, it is my turn to take over the yard. Once I approached this task with a “head to toe” assessment (much like my occupation) I found myself treating each plant as a patient with “xyz” and how to treat it. Of course, having a better understanding of how to treat injuries and diseases of plants was right up my alley and I am now in the process of stocking my “Garden Medicine Chest.”

Identifying the soil in my yard was a HUGE light bulb going off. The Arizona Master Gardener Manual at:

www.ag.arizona.edu/pubs/mg gives me the knowledge of how to treat, amend, or do whatever needs to be done to prepare the soil for future gardens.

The *WaterWise* Program was also a tremendous help on how to recover rain water and future watering techniques. You can request a free water audit by calling 520-458-8278, Ext. 2141.

I think back on past attempts of gardening and how I unknowingly “murdered” those poor plants! The only thing that I wish I could extract out of the Arizona Master Gardener Manual is the patience



for the garden to come to fruition. I hope in a couple of years I can be proud of a wonderful yard and have a garden, as Mr. Welton so affectionately calls “Mr. McGregors” garden.

Jan Dillon, Master Gardener Associate



Remember to Rotate

Because space is at a premium and great demands are made on the soil in a raised bed garden, crop rotation is very important. In succeeding seasons, heavy feeders such as corn and tomatoes should be followed up with light feeders such as beans, carrots, beets, radishes, turnips, and rutabagas.

Keep in mind that legumes such as beans and peas manufacture nitrogen and even contribute some to the soil for succeeding crops to use. Leaf crops like lettuce consume a lot of nitrogen while root crops use a great amount of potash. So, you shouldn't follow turnips with carrots, for example, but with spinach or another leafy crop.

Ric Yordani, Master Gardener Associate

In a Desert Garden

Mexican Hat – *Ratiba columnaris (Asteraceae)*

I love the Sunflower family; it contains so many interesting plants suited for our conditions. One of them is the Mexican hat, also called prairie coneflower or yellow coneflower. While its cousin the purple coneflower—*Echinacea purpurea (Asteraceae)* doesn't like my soil and is short lived in my heavy clay soil, the Mexican hat endures. Two of my plants are around ten years old. In my front yard, I planted a yellow beauty on my elevated island as these plants like good drainage. Here it looks so pretty with its green clefted leaves and its flowers with the drooping yellow rays and the

cone-shaped centerpiece. This plant also has a long flowering season starting in early spring and lasting into the monsoon with some dead-heading continuing until October.

The plant I have in my back yard is a little taller and grows more vigorous but also tends to flop over and needs to be staked with a cage. I cut a tomato cage in half and use the wider half for it. Here the plant grows next to a Firethorn—*Pyracantha*. Over the years, the falling leaves of the Firethorn have enriched the soil and the Mexican hat gets too much fertilizer. In my back yard the plant has self-seeded itself into a leaner section of my

(Continued on back page)

Rainwater Harvesting Tour

Do you have your rain catchers ready to harvest the liquid gold that is on its way? If you need some inspiration, mark Saturday, July 12th on your calendars to attend the *WaterWise* Rainwater Harvesting Tour. This year there will be four locations on the tour, each with its own unique system(s).

The Rainwater Tour works a bit differently than the Xeriscape Landscape Tour. Because rainwater harvesting systems need explanation, there are two specific times to visit the sites. The sessions begin at the first site at 8:30 or 9:15 a.m. The entire tour takes 2¾ hours. Visitors can visit all or some of the sites as they wish.

The first site is an in-town residence with a hand dug 2,500 gallon buried cistern. Three years ago, the 73 year old owner decided he wanted to collect rainwater for his apricot and peach trees. Additional water could be used for the lawn and landscape plants. Out came the shovel and many buckets of dirt later, much to the delight of his toddler grandson, grandpa had dug an eight foot square, six foot deep pit. The pit was lined with concrete block and sealed. Now the cistern fulfills its function by pumping rainwater through a drip and sprinkler irrigation system. Talk about an inspiration!

The second site is on the University of Arizona South campus. Here you will see a different kind of 2,500 gallon system. The tank is painted with a colorful horned lizard and through gravity the collected rainwater waters a landscaped area. The 2,500

gallon cistern incorporates a “first flush” system which discards the first 5 gallons from the Herbarium roof before allowing the cleaner water to enter the cistern. The site also contains a 55 gallon barrel system composed of a three barrel series. Visitors will also see an example of passive water harvesting.

The third site is at the San Pedro House on Hwy 90 down by the river. The Bureau of Land Management and the Friends of the San Pedro River collaborated on a grant to install an above ground active rainwater collection system that is solar powered. Water from the 1,500 gallon tank is pumped by a solar charged battery through a drip irrigation system for newly planted Xeric plants. There are also two 100 gallon decorative rain collecting containers for manually watering plants. Landscape plants (installed with the assistance of Cochise County Master Gardeners!) will also be featured at this site.

The fourth site is off the grid (solar, no well) and is a full house rainwater system. The owners do not drink their rainwater, but the two -3,000 gallon tanks supply rainwater to the shower, kitchen, and bathroom sinks. Laundry is done off-site and the toilet is a SunMar composter. Outdoor water use includes a rainwater supported small vegetable garden and fruit tree; and gray water supported landscape plants. Because there is not a washing machine on-site, the owners do not generate much gray water. Despite low winter rainfall the system is still half full!

As you can see, there are plenty of inspirational examples of rainwater collection to get you motivated to start a system of your own. For a map and details, contact jwilliam@ag.arizona.edu or call the University of Arizona Cooperative Extension office at 458-8278 x 2141.

Cado Daily, WaterWise Educator



The Agent's Observations

Q I have heard about different 'Bt' insecticides. What are they? Are they effective against a broad spectrum of insects?

A 'Bt' or *Bacillus thuringiensis* formulations typically represent an excellent choice of a biological control. They are naturally occurring soil bacteria discovered in Thuringa, Germany. There are several strains of 'Bt.' Affected insects stop feeding within hours of exposure, eventually dying of starvation because the 'Bt' essentially paralyzes their digestive system. The most commonly used strain – *kurstaki* – is used as a spray primarily to control caterpillars on vegetable crops. It will kill only leaf- and needle-feeding caterpillars of moths and butterflies. Other strains have been developed that control certain types of fly larvae. These are widely used against larvae of mosquitoes, black flies, and fungus gnats. More recently, strains have been developed with activity against some leaf beetle larvae. It's important to remember that insecticidal activity is specific. Strains developed for mosquito larvae don't affect caterpillars, for example, but that is a good thing. A person needs only to choose the correct formulation for the job at hand. Since 'Bt' formulations don't have a broad spectrum of activity,

they don't kill beneficial insects. This includes the natural enemies of insects as well as beneficial pollinators such as honeybees. This means 'Bt' works well with other natural controls. Perhaps the major advantage is that 'Bt' formulations are essentially nontoxic to people, pets, and wildlife. This is a key safety benefit for food crops and other sensitive sites where insecticide use can cause adverse effects. Unfortunately, 'Bt' formulations do not have a tremendous residual capacity because they break down in ultraviolet light, and like many insecticides, are susceptible to washing off in the rain. In addition, 'Bt' formulations must be eaten to be effective, and application coverage must be thorough. This can limit effectiveness against pests that are susceptible to 'Bt' formulations but rarely have the opportunity to eat them in the field, such as the codling moth or corn earworm that tunnel into fruit. Since 'Bt' doesn't kill rapidly, a person might incorrectly assume it is ineffective a day or two after treatment. However, this often is just a perceptual problem because affected insects eat little or nothing before they die. Many, but not all, formulations are exempt from pesticide tolerance restrictions and may be used right up to harvest time on a wide variety of crops. This makes 'Bt' formulations useful in applica-

tions where pesticide drift into non-target garden areas is likely to occur, such as when a homeowner treats trees and shrubs. The exceptional safety of 'Bt' products also makes them useful where exposure to pesticides is likely during the mixing and application phases.

Below is a list of available 'Bt's' and the insect larvae they control:

- ◆ *B. t. kurstaki*—larva of moths and butterflies;
- ◆ *B. t. israelensis*—larva of mosquitoes, fungus or soil gnats, black flies;
- ◆ *B. t. san diego*—larva of beetles.

Read the small print of the active ingredients on the label to know which type of 'Bt' is being purchased. The name of the product can be whatever the manufacturer or packager wants to call it. Some common trade names for 'Bt' insecticides are "Dipel," "Worm Getter," or "Bio-Worm Killer." **Be sure to read and follow all the label directions for best results.**

Robert E. Call
Extension Agent, Horticulture

July Reminders

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

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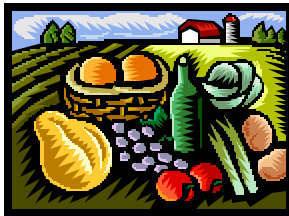
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Cochise County Fair

Sept. 25-28

Douglas, AZ



Ratiba columnaris (Asteraceae)

(Continued from page 3)

garden. Here it is smaller but the stems are firm and erect. This tells me that the Mexican hat prefers a lean soil with only a little irrigation on the hottest days and no additional fertilizer. In the ten years these plants have been growing in my yard, I have never fertilized them. At planting time I added a spoonful of slow release fertilizer to give them a good start and that was it. These plants is native to the higher elevations of Arizona. Unfortunately the Mexican hat is not easily located in our local nurseries, but watch for it as occasionally it is available.

Angel Rutherford, Master Gardener