

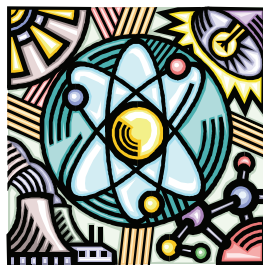


## The Virtual Gardener—Alkaline Soils

As I attempt to dig planting holes on my property at this time of year I am reminded once again of just how poor my soil is—at least “poor” in comparison with those beautiful rich, fluffy loams I see in gardening magazines and on television. This prompted me to see what I could dig up about soils on the Internet. My search took me to the chapter on soils and pH in the *Arizona Master Gardener Manual*:

<http://ag.arizona.edu/pubs/garden/mg/soils/ph.html#ph>

Water, as most of us know, is made up of hydrogen and oxygen in a ratio of two parts hydrogen to one part oxygen (hence the famous formula H<sub>2</sub>O). At any particular time in a container of pure water, most of the water molecules remain bonded together while a very tiny number break apart into free hydrogen ions (H<sup>+</sup>) and free hydroxyl ions (OH<sup>-</sup>). Normally there are equal concentrations (about one part in ten million) of each of



the hydrogen and hydroxyl ions. A solution with equal numbers of both ions is said to be neutral, but if something upsets the balance and selectively

removes either hydroxyl or hydrogen ions, the solution is said to become either acidic or basic (alkaline). Acid solutions have a larger concentration of free hydrogen ions, and alkaline solutions have a larger concentration of free hydroxyl ions. The relative acidity or alkalinity of a solution is expressed as pH, (potential Hydrogen) which is a measure of the relative number of free hydrogen ions. The pH scale is a little tricky because it’s inversely proportional to the concentration of hydrogen ions, that is, a higher pH number indicates fewer rather than more hydrogen ions. (For the technically inclined, pH is the negative of the base 10 logarithm of the reciprocal of the concentration of free hydrogen ions.) A solution with a pH of 7 is said to be neutral. Solutions with pH values higher than 7 are alkaline, and those with pH values less than 7 are acidic. Another twist to the pH scale is that each unit value on the scale indicates a tenfold increase or decrease in the number of free hydrogen ions. For example, a solution with a pH of 6 is ten times more acidic than a solution with a pH of 7 and one with a pH of 5 is ten times more acidic than a solution with a pH of 6 and 100 times more acidic than a solution with a pH of 7.

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## Cochise County Cooperative Extension

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The details of the chemical reactions that determine the pH of soil are complicated, but generally where there is more than about 20 inches of rainfall in a year, the soils tend to be acidic. Where there is less than 20 inches of rainfall in a year, such as here in the High Desert, the soils tend to be alkaline. This is important to the gardener because certain plants—especially those that are most familiar to people who grew up in the Eastern United States where the soils tend to be acidic—are adapted to grow in acidic soils and will not do well in alkaline soils.

Gardeners trying to grow plants in the alkaline soils of Cochise County can pursue two possible strategies. The first is to attempt to alter the pH of their soils by the use of amendments such as sulfur so that they can grow the acid-loving plants they remember from another place. The second is to go native and grow only those plants that are adapted to our alkaline soils. Although attempts to lower the pH of soils can be successful in the short term, they require the repeated addition of huge quantities of amendments to maintain even a small change in pH. Ultimately the gardener will lose to Mother Nature. The better strategy is to leave the soil pH alone and plant only those plants that are adapted to the soils of our area.

Until next time, happy surfing.

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

(Note: Reprinted from the June 1997 Cochise County Master Gardener Newsletter.)

## Cuttings 'N' Clippings

✿ The next CCMGA meeting is 5:00 p.m. Thursday, **June 3**. This will be the Annual Business meeting and also the graduation of the latest Master Gardener class.

✿ The next Water Wise free workshop is scheduled for Saturday, **June 5, 8:30-10:00 a.m.** at the University of Arizona South, 1140 N. Colombo Ave, Sierra Vista, AZ. Public Meeting Room. *Sensational Succulents!* Spring in the desert is tough for most plants because of the heat and dry winds but succulents love it. Come learn about the wide variety of succulents you can plant in your garden. Plants will be for sale after the talk. Presenter: Mark Sitter, B & B Cactus, Tucson. From **11:00 a.m.—noon** Mark will give the

workshop again at the Bisbee Farmer's Market, Vista Park.

✿ 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 from August 20—September 24 at the University of Arizona South. There is a fee which will go to support the Cochise County Herbarium. Enrollment is limited to twenty people and a \$25 deposit will reserve a place in the class. For more info call Cecile Lumer at 432-4294 or Joyce at the Cooperative Extension at 458-8278 ext.2141 or e-mail [cecilelumer@gmail.com](mailto:cecilelumer@gmail.com)

✿ Thanks to Master Gardeners Jan Groth, Terrie Gent, Gary and Carolyn Gruenhagen for their support and work with the Buena seniors as they "leave their mark" on May 24 on the campus. See Page 4 of this newsletter for photos.

### June Reminders

- ◆ Check tree ties
- ◆ Remove stakes if new tree can stand alone
- ◆ Mulch trees & shrubs
- ◆ Remove faded flowers & fertilize roses
- ◆ Stake tomato plants & watch for curly top—remove diseased plants
- ◆ Prevent blossom end rot on peppers, melons, squash, and tomatoes by even watering and mulching



*Robert E. Call*

Robert E. Call  
Area Horticulture Agent  
Carolyn Gruenhagen  
Editor

## Resources For the Vegetable Gardener

Last month, I wrote an article claiming that one can grow most any vegetable or fruit in our corner of the world. Easier said than done, right? So, this month, I figured I ought to provide some resources to turn to for guidance.

My first recommendation is a radio program. Philadelphia radio station WHYY airs a program called “You Bet Your Garden” that they make available as an MP3 podcast. The program is hosted by Mike McGrath, who was the editor of Organic Gardening Magazine from 1991 through 1997. It’s an hour long, listener call-in show that covers the entire gardening scene, from artichokes to magnolias to zinnias, from good composting techniques to why you should generally not use wood mulch in your garden. It’s a light-hearted show—McGrath has a great, albeit somewhat corny, sense of humor. It’s strictly an organic approach, as you might expect from a former Organic Gardening editor.

The home page for the show can be accessed at the following website:

<http://www.whyy.org/91FM/ybyg/>.

Podcasts of the five or so most recent shows are right there on the home page; older shows dating back to November 2008 can be reached through the “Archives” tab toward the top of the page. Just download the shows to your MP3 player, then hit the garden and Take care of your plants while being entertaining and educated.

There’s more of value on the WHYY website than just the podcasts. Adjacent to the “Archives”

tab is one entitled “A-Z Garden Answers.” which is a very large, alphabetized list of answers to common garden questions. These aren’t in podcast form; they’re brief articles about organic solutions to gardening difficulties.

Another website that’s chock full of information is that of the Cochise County Master Gardeners. Find it at

<http://ag.arizona.edu/cochise/mg/>  
Here you’ll find the latest issue of the Cochise County Master Gardener Newsletter, which has been published continuously with nary a miss for over twenty years, thanks to the diligent efforts of Carolyn Gruenhagen. Old issues as far back as 1999 are right there, too.

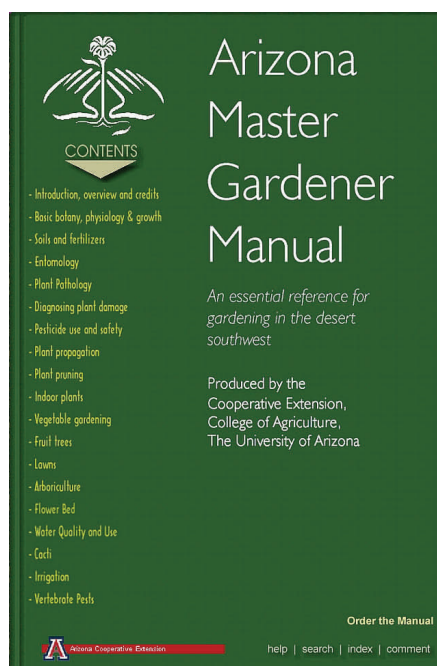
Also on the Cochise County Master Gardener site is the *Arizona Master Gardener Manual*, accessed via the “Desert Gardening” tab. Over two inches thick and sold in hard copy for \$40. It is free online and it’s loaded with gardening information specific to our conditions in Arizona.

There’s plenty of other information on the web site. There’s a plant list specific to our area, Water Wise information, lots of historical climate data, and much more. Take the time to explore the whole site; you’ll be glad you did.

Let’s not forget books. My favorites are Eliot Coleman’s *The New Organic Grower*, Burpee’s *The Complete Vegetable And Herb Gardener*, (subtitled *A Guide To Growing Your Garden Organically*) and Organic Gardening Magazine’s *Vegetable Garden Problem Solver*.

Eliot Coleman is a highly respected, small scale, commercial (think “farmers market”) grower in the state of Maine. His book addresses everything from veggie: garden tools, soil fertility, starting seeds, transplanting plants, dealing with insects and diseases, harvesting, and more. While it might seem at first blush that a Maine grower’s experiences couldn’t be applicable to Arizona situations, the book has a lot of solid, basic information that’s relevant anywhere, plus great advice on cold season growing that is readily adaptable to keeping the garden going through our winter season. The Burpee book contains some general introductory chapters on gardening basics, followed by a discussion of vegetable types, arranged alphabetically, so it’s easy to find information on the vegetable(s) or herbs you want to grow. The Organic Gardening Magazine book is laid out entirely in alphabetized subject format, with topics including both vegetable type and

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## Buena Seniors "Leave Their Mark"

On Monday, May 24, the graduating seniors of Buena High School, Sierra Vista, completed a landscaping project on the East side of the campus. With the donations of plants from Home Depot, soil from Cochise Stone, and monetary support to purchase more plants and volunteers from Cochise County Master Gardeners Association they were able to help beautify the entrance to the school. Not only did they "give back" to the school, but also to the community! Next time you attend a function at Buena, check out the South side of the East entrance to the building! Congratulations to the 2010 Graduates! To view a short video [click here](#).



Gary Gruenhagen and Jan Groth unload plants.



Thanks from the students to CCMGA!



The soil was REALLY REALLY hard!



The project is nearly completed.

## To Cut...or Not to Cut

Have you ever driven into your yard, only to discover something looking like a clump of green broom bristles in your favorite Mesquite tree (*Prosopis* sp.)? Well I did, about a month ago. I didn't have any idea what it was, but I knew I didn't like it. I just wanted it gone!

So, as a person who doesn't have a clue what to do, I naturally turned to the Internet. I discovered that I was looking at Desert Mistletoe (*Phoradendron californicum*) according to *Gardening in Oracle, Arizona*

([www.gardenoracle.com/parasite.html](http://www.gardenoracle.com/parasite.html)). It's a perennial, evergreen, obligate parasite that likes leguminous trees, such as mesquite and acacia. Its "roots" invade the bark of the tree to steal water and nutrients, but it's also capable of pho-

tosynthesizing on its own.

This snarled-up mass is capable of generating pretty, small, yellow-green flowers and pinkish-orange berries between October and November. Who knew?

Mistletoe is very hard to eradicate, according to a February, 2010, article from the University of Arizona Extension Office ([www.cals.arizona.edu/PLP/plpext/diseases/trees/mesquite/mesquitelist.html](http://www.cals.arizona.edu/PLP/plpext/diseases/trees/mesquite/mesquitelist.html)).

Sprays sold for mistletoe "control" will remove the "witches broom" from the outside (as will pruning), but not what's growing on the inside.

You can remove the whole branch 1—2 feet from the infected area, but that too, won't touch what's growing inside your tree. The best you can do is trim

off the mistletoe, monitor closely, and trim again when it reappears. If left alone, eventually it may kill your tree.

A US Government survey article reported that mistletoe has been around for over 20,000 years, and **there are over 1,300 species**

([www.usgs.gov/newsroom/special/mistletoe](http://www.usgs.gov/newsroom/special/mistletoe)). Ironically, the scientific name means "thief of the tree" in Greek. The "witches broom" mass of misshapen stems were called "basket on high" by the Navajo. Even today's common name of mistletoe came from the Anglo-Saxon "dung-on-a-twigg" courtesy of the birds who leave their "deposits" behind.

Mistletoe is very important to many birds. Fruits produced on the female plants look like small red berries, a favorite diet for many birds. After digesting, they deposit sticky seeds on branches of trees to spread the mistletoe. The seeds germinate, grow into the tree as "haustorial sinkers" - organs that act much like the roots of a plant. Margie Klein, in her article about the *Phainopepla* for the Nevada Department of Wildlife in December, 2006, pointed out that this bird lives entirely off the mistletoe!

([www.ndow.org/about/news/pr/122806\\_phainopepla.shtm](http://www.ndow.org/about/news/pr/122806_phainopepla.shtm))

So, I'm faced with this dilemma. On one hand, this disfiguring plant is slowly killing my tree and is very hard to kill. On the other, mistletoe supports the life of many really cool birds! It's a natural part of a well-balanced eco-system.

Here I am with my chain saw in hand. To cut... or not to cut?

*Jody Sharp-Webb*  
Associate Master Gardener



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gardening subject, so you can not only easily find out about, say, tomatoes or watermelons, but powdery mildew, slugs, or compost as well.

All of the books, except Burpee's, are in the Cochise County Libraries, and of course they're all readily available from any book retailer.

Gardening is as much an art as it is a science, so learn what you can, then get out there and grow something! As for me, I'm heading out to plant some peanuts, so I'll end with one of Mike McGrath's well worn lines. "You ain't a gardener 'til you've killed at least a hundred plants."

*Bill Schulze, Master Gardener*

## Did You Know. . . 18 years ago!

### University of Arizona, Sierra Vista: Campus Ground Breaking

Ground-breaking for the new University of Arizona, Sierra Vista Campus took place on May 7, 1992 at 10:00 a.m. The new campus is located next to Cochise Community College in Sierra Vista. An estimated attendance of 300 people witnessed U of A and local dignitaries participate in the ceremony. The highlight of the event was the delivery of the "Golden Shovel" to U of A President, Manuel Pacheco. Building construction has started and should be completed early in 1993. The Master Gardeners and Cooperative Extension will have offices in the new facility and space to plant a demonstration garden.

*Editor's Note:* Reprinted from the June 1992 *Master Gardener Newsletter*. The Extension Offices are now located in Building 200 on the UAS Campus. You may reach a Master Gardener by calling (520) 458-8278, Ext. 2176 or contact them through their web site:

[www.ag.arizona.edu/cochise/mg](http://www.ag.arizona.edu/cochise/mg)

