



The Virtual Gardener—Chiltepin Peppers II

Last month I promised to continue the discussion of chiltepin peppers with some advice on how to grow them. Information available on the web is not definitive. Some folks complain they have tried unsuccessfully for years to even get chiltepin seeds to sprout, and others say they have bought some peppers in a grocery store, sprinkled the seeds in a pot, and had nearly 100% germination. To see what the real experts had to say, I consulted a book from my personal library—the book is also available in the Cochise County Library System—*The Pepper Garden* (Ten Speed Press, 1993) by Dave Dewitt, editor of *Fiery Foods Magazine* and Dr. Paul Bosland, world-renown expert on peppers from New Mexico State University. Here's what they had to say.

Chiltepin seeds can be directly planted in the garden after the soil warms, but starting plants indoors and transplanting them to the garden is recommended to give them extra growing time during the season. Pepper seed germination in general is often slow and irregular, even under perfect conditions. Many factors contribute to the problem, including the maturity of the pods from which the seed was extracted, the stage within the growing season that the pod grew, the amount of time the seed was allowed to lie dormant before being planted, and the moisture content of the seed,

to name a few. Chiltepins have a particularly tough seed coat and can be especially difficult to germinate. As mentioned last month, in nature, this tough seed coat is softened by passing through the digestive system of a bird. Buying some expensive chiltepins, feeding them to the birds in your yard, and hoping that they will poop in the right place is probably a non-starter for most of us, so what's a gardener to do?

Dewitt and Bosland suggest that soaking the seeds in water for six hours or just soaking them in a 10% solution of water and household bleach for five minutes or so before planting will speed up the germination process and improve the success rate. They also suggest applying gentle bottom heat to the planting tray while waiting for the seeds to sprout. In the absence of expensive equipment such as heating cables or mats, placing the tray on top of a refrigerator or other appliance that produces gentle warmth will do the trick. In one experiment raising the soil temperature from 50°-60°F to 90°F reduced the germination time from thirty days to six.

Many gardeners have secret mixes of peat, vermiculite, sand, and other components they use for starting seeds. Unless you are into that kind of alchemy, I would suggest you stick to a good quality commercial seed-starting mix.

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The seeds are small so should be shallowly planted—Dewitt and Bosland suggest about a quarter inch. To keep the humidity level up, the seed planting tray can be placed inside a plastic bag or covered with plastic wrap. Some people also use the small plastic seed-starting trays with clear dome lids you can find in the gardening supply sections of stores.

Once the seedlings emerge they should be placed where they get warmth and plenty of light. Cold frames and greenhouses are the best but window sills will also work if you are very careful to make sure they receive sunlight most of the day but are not allowed to overheat. Remember that the tiny seedlings are still susceptible to cold and should be placed in a warm environment overnight. Dewitt and Bosland suggest gently watering the seedlings from the top with warm water.

Once the seedlings have developed four or five leaves, they can be transplanted into larger pots and held there until it is warm enough to plant them in the garden. Alternatively, they can be kept in containers. Before putting the young plants outside permanently, they should be “hardened off” by gradually exposing them to the rigors of life in the out of doors. This is done by placing the plants outside for progressively longer periods of time over a period of a few days to acclimatize them.

There are many sources of chiltepin (and other pepper) seeds available on the internet that can be found with a simple Google search. Alternatively, why not pick up a small package of chiltepin peppers at a local grocery store and try planting them?

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener
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In a Desert Garden

Candelilla *Euphorbia antisyphilitica*

I love the Spurges and the plant I am writing about today belongs to this family of plants. The Spurge family is very large and contains a number of really interesting plants—the poinsettia is one of them. Another one, *Euphorbia rigida*, often misnamed as gopher plant is already blooming in my yard, but today it is Candelilla I am writing about. This plant is a succulent native to the Mexican region of Chihuahua and the Southwestern regions of the U.S. When not in bloom the plant shows thin upright, fleshy gray green sticks that form a clump to three feet high that is spread through underground runners. In my yard it is nowhere near that high—only about one foot in size. This might be due to lack of water as it grows on a little hill to prevent it from drowning in my heavy clay soil during the monsoon season. It is enduring, and looks just fine with the little water nature provides. In the literature about it the plant is considered borderline hardy in our climate, but it survived the deep frost without any protection. Later in the spring it will get tiny charming white flowers all along the stems that will appear any time there is moisture available. In Mexico the waxy sap of the plant was used as prevention to venereal diseases, which explains the name. It might surprise you to find this wax to be used in many beauty products like lipsticks. This plant is easily shared, just dig up some of the stems and replant.

Angel Rutherford, Master Gardener



Cuttings 'N' Clippings

* The **March 1, 2012** CCMGA meeting will be held at 5:00 p.m. in Room 503 at UAS. Bob Hermann will present his photographs of many varieties of cacti, agaves, mushrooms, and flowering plants that inhabit the desert and mountains of Cochise County.

NOTE: This meeting will be held in Room 503 at UAS.

* The **Saturday, March 3** Water Wise presentation from 9 to 11:30 a.m., will be *Pruning Landscape Plants*. Keep your plants healthy by knowing how and what to correctly prune. There will be a discussion of plant response to wounding and then an outside demonstration of thinning, pruning, and trimming. The presenter is DeForest Lewis, a Certified ISA Arborist and Cochise County Master Gardener. The free presentation will be held in the Public Meeting Room at UAS. For a list of 2012 Water Wise presentations go to:

<http://cals.arizona.edu/cochise/waterwise/events.html>.

* Carmen Miller will have a free Water Wise workshop on *Pruning Fruit Trees* in Bisbee on **Saturday, March 3** from 1:30—3:30 p.m. at The Weather Station Inn, 909 Tombstone Canyon, Old Bisbee.

What Do You Know That Ain't So?

While handing out gardening information at the Sierra Vista Farmers Market one Saturday not long ago, a fellow came up and asked how to get rid of some pesky shrubs on his property. We discussed his options, which pretty much boiled down to physical removal, also known as hard work, or the use of a herbicide, namely glyphosate (one common brand name is Round Up). A man standing nearby overheard our conversation and joined in, telling us somewhat animatedly to beware of that herbicide as its active ingredient is 2,4-D, the same chemical used in Agent Orange. When I responded that glyphosate was the active ingredient, the man persisted in saying it was 2,4-D. While certain the man was wrong, I dropped the subject because I just didn't know more about the topic.

Once I got home that day, I did a quick Internet search and learned, as suspected, that glyphosate IS NOT the same as 2,4-D. In fact, the two compounds are completely different things. 2,4-D is a chlorophenoxy acetic acid, while glyphosate is an organophosphate (I know, too much chemical gobbledegook). Glyphosate will kill pretty much any plant, while 2,4-D is typically effective only on broad leafed plants, not grasses. Agent Orange, meanwhile, turns out to have been a mixture of two chemicals, containing 2,4,5-T in addition to 2,4-D. The real toxicity issue with Agent Orange was apparently that it also contained dioxin, which was essentially a contaminant accompanying the 2,4,5-T component. 2,4,5-T is now banned, while some herbicides currently available still contain 2,4-D.

Glyphosate is a relatively safe herbicide when used strictly as directed on the label, which is the only way any herbicide should be used. NEVER mix a pesticide or herbicide in any way different from the label instructions. Off-label or incorrect use of any "-cide", organic or synthetic, is potentially dangerous and absolutely illegal. Glyphosate mixtures have been shown to be very harmful to aquatic life such as frogs (Dr. Rick Relyea, 2005, *The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities*, Ecological Applications, 15: 618-627), though the danger appears to lie with the surfactants and other ingredients in the commercial herbicide, not with the glyphosate itself. Don't ever use glyphosate around ponds, streams, and the like.

My approach is to pretty much avoid all herbicides and pesticides. The strongest thing I use is insecticidal soaps for insect control. I recommend two good books to help you sort through the issues of pesticide and herbicide toxicity, effectiveness, and the debate between organic versus synthetic. The books are both written by Jeff Gillman, Ph.D. of the University of Minnesota. They are: *The Truth About Organic Gardening* and *The Truth About Garden Remedies*. They're fairly short books, easy to read, and full of solid, practical information and facts. Take the time to learn the real scoop on a subject; don't go spreading information that just ain't so.

On a personal note, I'd like to thank the folks who have e-mailed me regarding some of my previous articles. One nice gentleman from Willcox has gone so far as to send me some tomato seed, not just once,

but twice! A couple of folks responded regarding my last article on goat's heads—it seems I'm not the only one who'd like to see them eradicated. As a result of some photos sent by a reader from Bisbee (plus the botanical expertise of Ms. Cado Daily of Water Wise), I've now learned what Filaree (*Erodium cicutarium*) is. I've gotten tomato variety advice from nearby places like Sonoita, Safford, and Douglas to as far away as San Antonio, Texas. One man wrote me regarding soil conditions at his home in Chile! The Internet is quite the thing! Thanks to you all. I really enjoy hearing from you.

Good news! It's getting close to the right time to start your tomatoes from seed for later transplant to your garden sometime in May. If you've got Walls-O-Water, or something like them, you might even be bold and stick a few plants out in your garden now so as to be the first one on your block to harvest a tomato this year. I'm pretty confident this will be the best year for tomatoes ever. Now if you'll excuse me, I need to start my list to Santa Claus.

Bill Schulze, Master Gardener
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March Reminders

- ◆ Prune roses
- ◆ Start seeds indoors
- ◆ Check cactus for fungus
- ◆ Plant cool-season veggies
- ◆ Reconsider your water usage (Call Water Wise for a free audit—458-8278, Ext 2139)
- ◆ Remove and replace winter mulches

2012 High Desert Gardening & Landscaping Conference High on the Desert

Thanks to all the committee chairpersons and CCMGA members who gave so much of their time, energy, and talents to make our 19th Annual High Desert Gardening & Landscaping Conference successful: Cliff Blackburn, **Donna Blackburn, Finance**, Heather Borman, Dory Bushong, **Rob Call, Program Co-Chair**, Terrie Gent, **Michelle Goodman, Sponsor Co-Chair**, Carolyn Gruenhagen, **Gary Gruenhagen, Program Co-Chair**, Kim Harpster, **Ed Henley, Facilities**, Rebecca Hillebrand, Cathy Schneider, **Bill Schulze, Sponsor Co-Chair** and **Gift Bag Chair**, **Vicky Schulze, Conference Coordinator**, **Jody Sharp-Webb, Publicity Chair**, Karen Silva, **Olivia Sinks, Registration Chair**, **Denise Sloan, Sales**, Doug Templeman, Eleanor Templeman, Cyndi Wilkins, the Cooperative Extension Staff in Willcox, and especially Honorary Master Gardener Joyce Williams in the Sierra Vista office. Special thanks to **Jan Groth, MC**, **Jim Koweek, Know it All Panel Moderator**, **Janyce Knight, Artist**, **Barbara Ashton** and **Rob Call, Centerpieces**.

Speakers:

Bill McDorman, Heidi Flugstad, Dennis Caldwell, Elizabeth Lonetti, Jan Groth, Oscar Mestas, Carmen Miller, Carl Olson, Eric Clark, Kim McReynolds, Karen LeMay, Dr. James Walworth, Greg Corman, John White, Steven Webb, John Porter, Peter Warren, Kate Tirion and Rick Weisberg.

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Territorial Seed Company
Terroir Seeds
Tomato Growers Supply
Trattoria Ragazzi
Tucson Botanical Gardens
Victory Seeds
Willhite Seeds

History of Gardening: Neolithic Era

When I first started in the Master Gardener course I did not know what I was in for. We learn the ins and outs of gardening in the Master Gardener program, but I also wanted to know where it all came from, how it started, and where our plants originated. I wanted to know it all and now I want to share it.

The Neolithic era was the first time human beings developed agriculture. Some consider it an agricultural revolution in our world history because humans progressed from being nomadic hunters and gatherers to settling in one place and concentrating on agriculture to survive. Although their gardening practices and knowledge of plants was primitive, they were successful growing crops.

They did not collect seeds that were unpalatable or difficult to

gather in abundance, so they were not stored and replanted the following season. By around 8,000 BC these farmers learned what seeds tasted best, gave the best yield, and would grow easiest. Years of this kind of harvesting led to what became their main crops: ones that became successful throughout the Fertile Crescent in the Middle East. They also helped to encourage agricultural progress in India, Africa, and finally Europe. These crops consisted of wheat, barley, einkorn, emmer, all of which fall into the *Triticaea* family. Lentils (*Lens culinaris*), peas (*Pisum sativum*), flax (*Linum usitatissimum*), and figs (*Ficus carica*) were popular crops. Various nuts and fruits were also widely cultivated.

Einkorn (*Triticum monococcum*) is thought to be the first wheat gathered and cultivated. Emmer (*Triticum dicocum*) is also one of

the oldest varieties of wheat to be cultivated. We know they are the oldest varieties because plants are often identified by DNA analysis. Einkorn has fourteen chromosomes but when bred with other wild grasses a hybrid containing twenty-eight chromosomes is produced. Wild emmer (*Triticum dicocoides*) is one of these hybrids and the only twenty-eight chromosome grass found in the wild today. Evidence of both of these species has been found at Neolithic excavation sites proving it was one of their foundation crops. In fact, the durum wheat that makes up our pasta today is derived from these twenty-eight chromosome emmer wheat hybrids. It will be interesting to see how these agricultural practices evolved later on.

Next month: The Egyptians

Stephanie Blanchette
Associate Master Gardener

A Few Farming Facts

This month I would like to share some facts that hopefully will increase your appreciation for the great miracle of modern agriculture, and for those who produce the majority of the food we eat, the American farmer.

In 1850, it took 75 to 90 labor hours and 2½ acres to produce 100 bushels of corn. Today, (1998) it takes about 2½ hours and one acre to do the same. Arizona, however, averages over

that amount and has the highest corn yields for any region of the United States. On average, one American farmer produces enough food and fiber for 129 people: 95 in the United States and 34 abroad. In 1900, each farmer fed less than ten people.

The sweet aroma of freshly turned soil comes from the soil bacteria genus *Actinomyces*.

Every cubic inch of topsoil may contain over a billion creatures, mostly bacteria, microbes, and fungi.

We need them because they make nutrients available to plants. All soils are teeming with life, except after a nuclear explosion!

How big is an acre? If it were a square, it would be just over 208 feet on each side. A football field, including end zones, covers 1.03 acres. It is the amount of land that a man could plow in a day with a yoke of oxen. Oxen are bovine (cows, steers, and bulls) trained as draft animals.

(Continued on back page)

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2012 High Desert Gardening & Landscaping Conference

Conference MC and Versatility of Container Gardening presenter, Jan Groth during her presentation.



Denise Sloan & Olivia Sinks were recognized for their project revitalizing the Hummingbird Garden at Kartchner Caverns by County Extension Director, Susan Pater. Cochise County Master Gardeners Association provided funds for new plants.



Photos by Donna Blackburn
Sign by Terrie Gent

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Americans spend just under 11% of their disposable income on food. In France, and much of Europe, it's 26% or more; Mexico 32%; and in China 48%. What would you do if you, like a Frenchman, had to spend 15% more of your disposable income on food?

Water traveling at 10 miles per hour can carry four times the sediment load than water going 5 mph. That's why filter strips, terraces, contours, *etc.* are so effective. They slow water down.

Of all the earth's water, 97% is saltwater and 2% is frozen in polar icecaps. Only 1% is usable fresh water.

The atmosphere around the earth carries about a ten-day supply of fresh water—about one inch of rain.

Water is the only substance necessary to all life. Many organisms can live without oxygen, but none can live without water.

The United States uses three times as much water a day, 1,300 gallons per person, as the average European country. Americans like to bathe and shower quite a bit!

The average American uses 60 gallons of water in the house each day. In our house of seven that would be 420 gallons of water a day. We do not use that much because we conserve, do you?

Sources: *Farming for Clean Water in South Carolina* and *Natural and Environmental Resources Report*. American Farm Bureau Federation.

(Note: Reprinted from the March 1998 Cochise County Master Gardener Newsletter written by Robert E. Call, Horticulture Agent.)

Survey

The University of Arizona Cooperative Extension is conducting a survey to determine your needs related to producing, selling, selecting, installing, or maintaining plants in urban landscapes and gardens. Your feedback will help us focus our programs on issues that are important to you, and deliver information so that it is easy for you to access. We strive to provide timely research-based information and educational opportunities for you

Thank you for taking the time to respond to this survey, which takes about 5-8 minutes to complete. Your input is greatly appreciated and will help us with our program planning. Please go to:

<http://www.surveymonkey.com/s/hortneeds>