



The Virtual Gardener — Give Your Plants a SIP

Many years ago—close to a decade, as I recall—I saw some self-watering planter boxes advertised on TV. According to the ad, you set them up at the beginning of the season with potting mix, fertilizer, and plants and from then on all you had to do was add water. No weeding, no fertilizing, and bingo, a bumper crop. It sounded like a gimmick too good to be true, but in the interest of experimentation I decided to give them a try and bought three. Now, after years of experience using them, I can report they work as advertised. In fact, they worked so well for me I purchased four more and now have seven. They are my kitchen garden.

I have grown tomatoes, peppers, lettuce, and Swiss chard in them—tomatoes and peppers in the summer, lettuce and chard in the winter. I even tried corn one year but didn't have a lot of success.

Each year I eagerly await the warm days of spring to plant the tomatoes. What a pleasure to have fresh, juicy, vine-ripened tomatoes growing almost within arms-reach of the kitchen door all summer long.

The technical term for these planter boxes is "sub-irrigated planters" or SIPs for short. When I first bought mine, there were only a few commercial SIPs on the

market. Now there are dozens of different brands for sale online and in stores and hundreds of do-it-yourself instructions on the internet for building your own.

So how do they work? Think Earth, Air, Fire, and Water—the classical elements of the ancient Greeks.

The first requirement is a water-tight container to hold everything, usually made of plastic. **Earth** (potting soil that acts as a growing medium) resides in the top half of the container; **water** fills the bottom; and a layer of **air** separates the two. The **fire**, of course, is the life-giving energy provided to the plants by the sun.

An important component of the SIP is a screen or porous shelf inside the container, separating it into an upper chamber and a lower one. The screen supports the growing medium, keeps it from spilling into the water reservoir, and suspends it slightly above the surface of the water, creating a thin layer of air between the growing medium and the water. Overflow drain holes located just below the screen keep the water level from ever rising into the growing medium and saturating it.

The air layer is very important. It is sometimes forgotten that plant roots need

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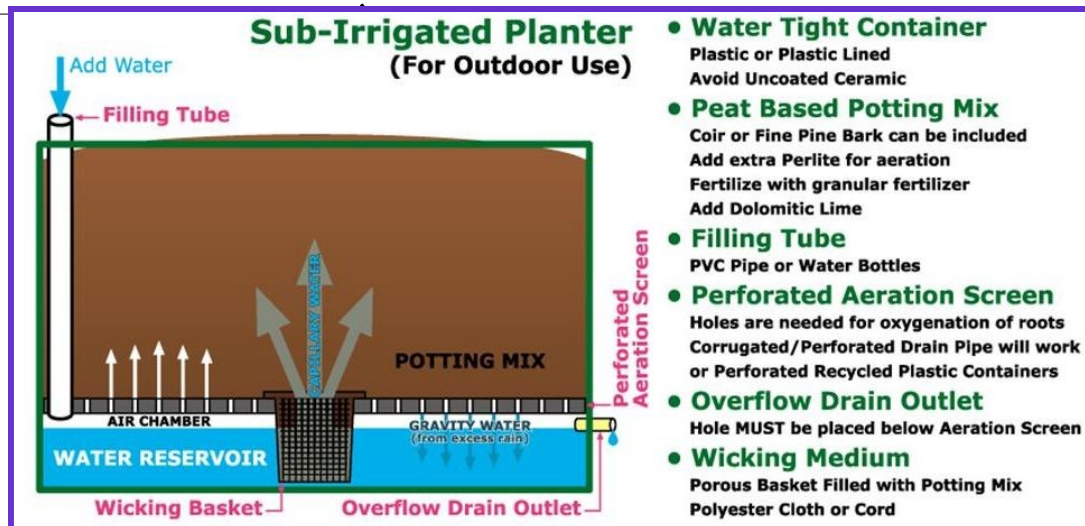


Diagram from Albo Pepper—Urbanized Growing

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both water and air. If the growing medium is saturated and completely filled with water, plants suffocate for lack of air. Conversely, if the growing medium is bone dry and completely filled with air, plants desiccate for lack of water. The porous barrier supporting the growing medium allows air to flow upward from the air layer into the growing medium, keeping it aerated and preventing it from becoming saturated.

But if the growing medium is suspended above the water reservoir, how does the water get to the plants?

The water moves upward from the reservoir through wicking channels that connect the reservoir with the growing medium. These channels are tightly packed with the growing medium. The motive force is capillary action or wicking, the mysterious force that seems to make water flow uphill. The water in the reservoir saturates the bottom portion of the packed material in the wicking channel and the water is drawn up into the growing medium by capillary action. As the plants take up the water and transpire it into the atmosphere, the growing medium dries out and more water is drawn upward from the reservoir to replace it. In effect, the plants signal

the system to provide additional water when they need it. The result is a dynamic balance of air and water in the growing medium that provides a perfect environment for the plants.

Two other components round out the system. A water filling tube and a plastic sheet covering the medium around the plants. The tube allows the water reservoir to be replenished without pouring water into the growing medium. The plastic sheet acts as a mulch to reduce water loss through evaporation. It also keeps rainwater from saturating the growing medium and inhibits weed growth.

Last but not least, we need to provide some nourishment for our plants. Depending upon the potting soil used to fill the SIP, the growing medium may contain some nutrients, but probably not enough to sustain plants through an entire growing season. The commercial systems usually recommend placing a couple of cups of granular fertilizer in a furrow down the middle or along a side of the container. It doesn't make much difference where you place the fertilizer as long as you don't install your plants directly on top of it. You may want to choose a fertilizer especially formulated for the plants you are growing, but I have had

good results with a generic 10-10-10 formulation. Another addition that is recommended is some ground dolomite, which adds trace amounts of both calcium and magnesium to help prevent blossom-end rot in tomatoes.

If you are interested in learning more about SIPs, there is a ton of information available on the web. One of the best sources is the [EarthBox web site](#) that has a large collection of explanatory and how-to articles and videos about SIPs. The EarthBox company was one of the first to manufacture a consumer-grade SIP. The information on their website naturally focuses on the use of their products but much of the information they provide is generic and applicable to any SIP system.

If you are interested in building your own SIP, there are many online articles and YouTube videos that will tell you how to do it. I highly recommend the [Albo Pepper website](#) as one of the best. Other than that, a general search for "sub-irrigated planters" or "earth boxes" will turn up scores of articles and YouTube videos on the subject.

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
virtualgardener@cox.net

Suggest a Xeriscape Garden

(Xeriscape (zir-ə-skāp): a landscaping method developed especially for arid and semiarid climates that utilizes water-conserving techniques such as the use of drought-tolerant plants, mulch, and efficient irrigation.)

This year will mark 20 years for the annual Xeriscape Tour sponsored by the Cooperative Extension at UA Sierra Vista! For this 20th anniversary, we'd like to offer the community a collection of wonderful, inspirational gardens to visit on the tour which is being held in early October of 2017.

If you, a friend, or a neighbor has xeriscaped gardens that you think would offer "wow factors" for visitors, please let us know. We are beginning to collect ideas and suggestions now. When thinking of a xeriscape garden that might be interesting to visitors, here are some possible concepts to think about:

- 1) Gardens with riots of color from blooming plants offered for pollinators.
- 2) Gardens with interesting hardscape, such as the use of boulders, arbors & trellises, pathways, fountains, birdbaths, garden art, interesting fencing, rainwater harvest tanks, *etc.*
- 3) Gardens displaying lots of different plant textures, such as mixing the softness of grasses and blooming plants with the structures of agaves and yuccas.
- 4) Gardens offering interesting contouring and shaping to not only add interest, but to channel water to grateful plants.

5) Gardens with diversity, offering a variety in drought tolerant trees, shrubs, flowers, vines, cacti, and succulents.

6) Gardens which incorporate container gardening using pots as part of their landscape.

7) Gardens with efficient irrigation plans and systems.

These are just a few ideas to provoke your thought. The ideas have no limit. So, if you think you might know of a xeriscape landscape, front yard and/or back yard, large or small, that our community would love to see—the kind of gardens in which you like to enter and linger—the kind of gardens that motivate and excite, please contact the following:

jangroth@email.arizona.edu

or phone: 520-559-7078 or

valeriedavidson@email.arizona.edu

or phone 520-458-8278, ext. 2141

Hope to hear from you!

Jan Groth, Master Gardener
Program Coordinator



Cuttings 'N' Clippings

✿ The CCMGA 2017 MG Class graduation will be held on May 17 and the May meeting will be a field trip on May 11. For Cochise County Master Gardeners Association information contact Valerie at:

valeriedavidson@email.arizona.edu

or the Cochise County Master Gardeners web site at:

<http://cals.arizona.edu/cochise/mg/>

You can also follow them on Facebook at:

www.Facebook.com/

[CochiseCountyMasterGardeners](http://www.Facebook.com/CochiseCountyMasterGardeners)

✿ Water Wise will be holding a *Rainwater Harvesting on Any Budget* lecture on **Saturday, May 6** from **10:00—11:30 AM** at Lowes Home

May Reminders

- ◆ **Deep water**
- ◆ **Plant warm season crops**
- ◆ **Check tree ties**
- ◆ **Control pests**
- ◆ **Control weeds**

Improvement, 3700 MLK, Jr. Pkwy, Sierra Vista. The presenter will be Rick Weisberg, Oasis Water Harvesting. Contact the Cooperative Extension at 458-8278, Ext. 2141 for more information. Check out the Water Wise web site for their 2017 schedule at:

<http://waterwise.arizona.edu/>

✿ The Cochise Chapter of the Arizona Native Plant Society's next program will be held **Friday, May 19 at 5:00 PM**. They meet in the Cochise County Community Development Office conference room, 4001 Foothills Dr. Sierra Vista. The speaker will be Dr. Tom Van Devender, one of the most important and accomplished biologists in Arizona. His topic will be: *Floristic Discoveries from two Madrean Expeditions in 2015 to Sierra Elenita and Sierra Buenos Aires, Sonora, Mexico*.

Dr. Van Devender will illustrate his presentation with his beautiful slides of the botanical marvels to be found in two major Sonoran Madrean Sky islands located just south of Cochise County in Sonora, Mexico.

For more information, follow AZ Native Plant Society on their web site:

<http://www.aznps.com/chapters/cochise/cochise.htm>

Salvia—Not Just Another Pretty Face

Modern pharmacy is mostly tablets and capsules that bear little resemblance to anything in your garden. But we must remember that many of our modern remedies have a long history of use as herbal medicines. The common aspirin, for instance, comes from willow bark originally.

A desert garden plant that provides us with lovely flowers, is a favorite food source for hummingbirds and used medicinally by native peoples for countless generations is the Sage, or Salvia. Salvia has been widely cultivated and new species have been introduced from Mexico, South America, Eurasia, and Africa for our gardens. The flowers range from white and yellow, to pinks and scarlets, and blues to purples. They are members of the mint family, *Lamiaceae*, and are all aromatic to some degree.

Charles W. Kane lists our major Western species of sage in his book, *Medicinal Plants of the American Southwest*. The White Sage (*Salvia apiana*) is a 3'-5' tall perennial with silvery-white stems and leaves. The flowers are white or speckled with lavender. It can be found growing profusely in California from the coastal ranges of Santa Barbara and San Diego Counties east and south to the desert's edge. Purple Sage (*Salvia carnososa*) is smaller, with the same silver leaves and blue flowers. It is widely distributed from Washington to Arizona in Juniper-Pinyon woodlands and sagebrush deserts. *Salvia mohavensis* inhabits the desert regions of southern Nevada, southeast California, and western Arizona at 1,000'-5,000' in dry rocky slopes and canyon walls. It and *Salvia clevelandii* have small blue-lavender flowers. *Salvia clevelandii*



is extremely fragrant and is found on dry slopes below 3,000' in Chaparral Scrub areas. The southwestern sages, particularly *Salvia apiana*, have been used ceremonially by Native Americans and many of us non-natives as a cleansing 'smudge'. Although regular sagebrush can also be used, the White Sage tends to be more fragrant. These Salvias' medicinal potency is essentially indicated by that strong fragrant smell. The stronger the smell, the stronger the medicine.

You have probably been using sage as a seasoning for years without thinking of the lovely flowers or its other medicinal effects. For instance, sage (Salvia) is a carminative. It is useful as a spasmolytic for gas pains and flatulence. It dilates blood vessels and moves blood, hence activity to the stomach walls. In that same sense, a cup of sage tea may help a mild fever, or sweating. The 1947 edition of *Pharmacognosy*, the pharmacist's bible of that era when pharmacists actually made the medicines they dispensed, listed Salvia as a stimulant, a carminative, and a condiment.

Several different varieties of Salvia have been used in English herbal medicine for memory loss and forgetfulness. *Salvia officinalis* and *S. lavandulaefolia* essential oils show promise in diminishing the dementia and cognition loss in Alzheimer's patients, and even non-Alzheimer study subjects. Their action appears to block acetylcholine from breaking down, improving brain nerve transmission. Interestingly, this is the same manner in which conventional pharmaceutical treatments work. This is great news for those of us who are "of a certain age."

Now, what was I saying? Oh yes, Salvia applied externally is strongly anti-inflammatory and antioxidant. It is good for pain relief and redness from burns and other minor injuries. Inhalation of the steam from a pot of hot Salvia tea three times a day may be a useful adjunctive treatment for mild pharyngitis. This will concentrate Salvia's antimicrobial aromatics to the back of the throat where the majority of bacterial colonization occurs. Of course, do not substitute this for modern medical assistance if any of these above-mentioned symptoms persist. Also, do not use during pregnancy.

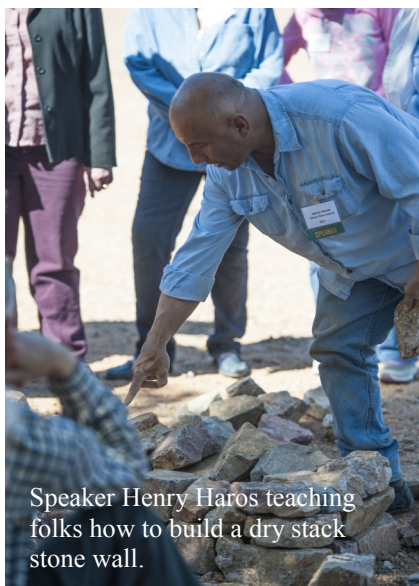
While gathering your own herbs and creating essential oils and tinctures is enticing, be sure you study the various methods for whichever plant you wish to use. In the case of the Salvias, the dried leaves and flowers are the only parts of the plant to use. For a simple tea, use 1 oz. of dried Salvia to 1 qt. of boiling water. Take off heat and steep for 15 minutes or more. Gathering Salvia has the added enjoyment of admiring the lovely flowers and smelling the wonderful fragrance of one of our desert beauties.

Kris Williams, RPh, Master Gardener

Conference—a Wrap!

The 24th Annual High Desert Gardening & Landscaping Conference was a wonderful success thanks to so many people. First, we had about 128 folks attend this year from Arizona, Texas, New Mexico, and even one from Virginia! That was probably the best part—the people—lots of great people with the common bond of a passion for gardening of all kinds.

We were so fortunate to have some terrific speakers for keynotes, breakout sessions, and workshops. We are grateful for all the time and effort they gave to



Speaker Henry Haros teaching folks how to build a dry stack stone wall.

engage with the Conference to help educate and motivate our gardening community. See more photos on Page 6.

We enlarged our list of vendors this year and called it our Master Gardener Spring Market Place. The place was hoppin'! The vendors all

said they had their best year ever at our conference. Thank you, vendors! Thank you, conference attendees! We plan to expand our Market Place even more for next year.

And speaking of next year, it will be the 25th! Yes, our sterling anniversary of the conference. We are already starting to make plans. In fact, we have already thought of events and a bit different format for this special year which would require us to expand the conference to two and a half days instead of just two. This is not certain. We're just thinking. All of that said, we would love to hear from you! Please send us ideas for speakers, workshops, or any other suggestions you may have to:

jangroth@email.arizona.edu or 520-559-7078.

And finally, we had the GREAT-EST group of people work on the conference this year. A hard, hard-working team, made up of "old guard" Master Gardeners, along with an energetic, generous group of new 2017 Master Gardener students who knew no working boundaries! To all of you who gave so much of your physical energies and creativity, a heart-felt thank you!

Watch for updates regarding dates, place, and events for next year's 25th Annual High Desert Gardening & Landscaping Conference!

Jan Groth, Master Gardener Program Coordinator

Cochise County Master Gardener Newsletter Editor
Carolyn Gruenhagen

What's the Deal With Green Thumbs?

(Editor's Note: This article written by Master Gardener Bill Schulze was adapted from a May 2012 article published in the *Sierra Vista Herald*.)

Do you have a green thumb? Let me assure you that you definitely do. Well, at least you certainly can have one. Strictly speaking, of course, there's no such thing as a green thumb, excepting a case of gangrene or carelessness during a tie-dye job. Speaking a bit less literally, though, some folks do seem to have a knack with plants while others don't, but with a little education, anybody, and I mean anybody, can grow plants successfully. Heck, I still kill the occasional plant, but I've grown a lot of great veggies, too. If I can do it, starting in my fifties, you can as well.

Think about cooking. You wouldn't expect to make good chocolate chip cookies by just dumping eggs, flour, chocolate chips, and sugar on a baking sheet and throwing it in the

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MG Class Graduation

2017 Master Gardener Class to Graduate! Please plan to attend! This is another wonderful group of very hard working, energetic new graduates. There will be food and drink and a great opportunity to meet 22 great new folks! Graduation will be in the Patterson Observatory on UA Sierra Vista Campus, Wednesday, May 17, 2:00 PM.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Jeffrey C. Silvertooth, Associate Dean & Director, Economic Development & Extension, College of Agriculture and Life Sciences, The University of Arizona. The University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation in its programs and activities. The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by Cooperative Extension is implied. Any products, services, or organizations that are mentioned, shown, or indirectly implied in this publication do not imply endorsement by the University of Arizona.

More from the conference . . .



Opening session



Kris Williams at the MG table



Shopping at the Master Gardener Market Place

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oven, would you? Same with plants. You need to understand the needs of the plant you're trying to grow. You can't just dig a hole, toss in a plant, and expect it to thrive.

The *Sunset Western Garden Book* will give you a basic understanding of the needs (soil type, sun exposure, water requirements) of plants. It's probably the best single gardening book you can own. It covers pretty much every plant imaginable and it tells you whether or not it will do well where you live. Most of us in Cochise County live in what Sunset calls Climate Zone 10. If Sunset says a plant will grow in Zone 10, that plant will give you a good head start on success. If your plant isn't listed as appropriate for Zone 10, you might consider

passing it by. Some nurseries have a lot of stock that isn't appropriate for our area, so study the choices you make and be sure your plants will grow well where you live. Just because you can buy an orange tree from a nursery in Sierra Vista doesn't mean you'll be spending the next thirty years drinking freshly squeezed OJ from your own tree.

The most common zone system is from the US Department of Agriculture. The USDA Plant Hardiness Zone Map defines Cochise County to be in USDA Zone 8. Zone 8 also includes most of Alabama, Mississippi, and Georgia, all which have a much different overall climate than we do. The USDA zones are pretty much defined by a single parameter, that being the coldest temperatures typically experienced during the winter. The USDA divides the

entire US into just 13 zones. By contrast, Sunset divides just the western US into 24 zones. Furthermore, the Sunset zones are defined by considering other climate and growing characteristics such as rainfall, soil type, and summer high temperatures. The Sunset zones are very precise and useful.

Another useful planting guide is put out by the Cochise County Master Gardeners. It lists only plants that are appropriate for our climate. It's a very large list, covering grasses, ground covers, annuals, cacti, perennials, shrubs, and trees. You can find it at the following link:

<https://cals.arizona.edu/cochise/mg/plant-list>

So, educate yourself and develop that green thumb you've always had.

Happy gardening!

Bill Schulze, Master Gardener