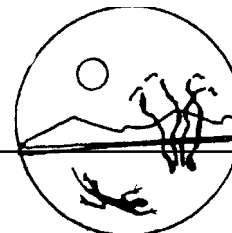


High on the Desert

Cochise County Master Gardener

Newsletter



The University of Arizona and U.S. Department of Agriculture cooperating.

What I've Learned About Xeriscape – Are Your Plants in the Right Zone?

Many people who visit my garden are surprised to find out, with the exception of the vegetable and herb garden, that it is a “Xeriscape” garden. It is full, lush, and attracts birds, butterflies, and other desert insects and animals I am fond of. In 1999 my garden required eight irrigations and so far this year five. Unfortunately when the word Xeriscape is used images of hostile cacti and acres and acres of hot, sterile gravelscapes comes to mind. It's an image that needs an adjustment.

The word Xeriscape (ZIR-i-scape) is derived from the Greek word

“*xeros*” meaning dry and “*scape*” meaning vista and therefore the definition of “water conservation through creative landscaping.” Here's a fun fact. While doing research on Xeriscape I discovered that the word has been trademarked and the x should always be capitalized.

I have been practicing (a kind word for trial and a lot of error!) the Xeriscape Principles and Zones for the past six years. I love and embrace them because they are the tools for a “maximum results with minimum effort” garden. Let's explore the three Xeriscape Zones and Xeriscape Principle #3 and how I apply them to my garden.

The reasoning behind grouping plants into **Xeriscape Zones** is water conservation and overall plant

health. It's a simple concept. By grouping plants with similar irrigation frequency and duration requirements, the irrigation schedule is planned accordingly to water plants when they need it.

For example, say a planting area consists of an *Agave parryii*, *Acer* species (Maple), *Chilopsis linearis* (Desert Willow), *Dalea pulchra* (Bush Dalea), *Penstemon superbus* (Superb Penstemon), *Salvia clevelandii* (Chaparral Sage), and groupings of Zinnias. They are all on one irrigation line. How would one water? The table below shows the irrigation requirements of each plant based on my garden conditions (I know that one gallon of water penetrates ten inches of dry soil in my garden).

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PLANT	FREQUENCY	DURATION (using 1 gph emitters)
<i>Agave parryii</i>	none-receive sufficient rain (Zone 1)	none-receive sufficient rainfall
<i>Acer</i> species - Maple	once every 2-3 weeks (Zone 1)	3.5 hrs/rootdepth of 35 inches
<i>Chilopsis linearis</i> - Desert Willow	once every 10-15 weeks (Zone 2/3)	3.5 hrs/rootdepth of 35 inches
<i>Dalea pulchra</i> - Bush Dalea	once every 12-15 weeks (Zone 3)	2 hrs/rootdepth of 20 inches
<i>Penstemon superbus</i> -Superb Penstemon	once every 10-15 weeks (Zone 2/3)	2 hrs/rootcepth of 20 inches
<i>Salvia clevelandii</i> - Chaparral Sage	once every 12-15 weeks (Zone 3)	2 hrs/rootdepth of 20 inches
Zinnias	once every 7-14 days (Zone 1)	1 hr/rootdepth of 10 inches

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Which set of plants does one water for? Irrigate for the high water users and it's probable that it's too much water for the drought tolerant plants, which may decline due to root rot. Water for the drought tolerant plants and the high water users are sure to die. Either way it's not a very efficient way to irrigate.

I find it's important to separate the Zone 1 and 2 plants. I spent this summer transplanting *Buddleia davidii* (Butterfly Bush) from the Zone 2 garden into the vegetable garden where they are now very happy. My main desert garden is a mix of Zone 2 and 3 plants. For areas farthest from the house I plant strictly with Zone 3 plants. Interestingly, I've talked to people who live in town and the Zone 2 and 3 plants in my garden become, respectively, Zone 1 and 2 plants in suburban areas due to the heat loads created by gravelscapes, concrete walls, roads, and houses built so close together you can pass the Grey Poupon to your neighbor through the kitchen window. I happen to live in the "country" so I don't have the traditional front yard. If I did, I would plant my front yard as a lush Zone 3 garden. Who uses the front yard anymore so why water there? Use the Zone 1 and 2 plants in the backyard, which is often used and enjoyed by family and friends. Plant selection would be based on my gardening preferences such as edibles for feeding family and friends and native wildlife plants.

Xeriscape Principle #3 is 'Use Appropriate Plants and Zone the Landscape.' This means doing the research through good gardening books, talking with knowledgeable nursery personnel, Master Gardeners, or Garden Club members.

Select plants according to their horticultural requirements that match your site and plant them into the proper Xeriscape Zone. Far too often I see people choosing plants that are not appropriate for the landscape. This begins a long battle of trying to make plants behave the way they want them to. Guess what? Plants are going to behave the way nature intended them to. So, choose plants, especially for Zones 2 & 3 that work with Mother Nature and will thrive in your landscape!

THE XERISCAPE ZONES

Zone 1 - For me it contains plants that require regular irrigation (usually once every 2-6 weeks). As a general rule Zone 1 is located closest to the house (and near a water spigot) and consists of potted plants, a small lawn or water feature, annual flowerbeds, and vegetables and herbs. Drip irrigation methods are usually applied in this area.

Zone 2 - In my garden it consists of drought-resistant plants that require deep irrigation (usually once every 12-15 weeks). This is a good area to use contouring techniques such as berms and swales to catch and direct rainwater for irrigation or use a drip irrigation system.

Zone 3 - This is the area where drought-tolerant plants that require little or no supplemental irrigation are used. If you have any natural vegetation and plants in this area on your property—keep it. Generally this zone is the furthest from the house and probably least visited. The emphasis here is to use plants that can survive on rainfall alone. Construct berms and swales to catch and direct rainwater for irrigation.

For a list of desert plants categorized into Xeriscape Zones point your web browser at <http://home.earthlink.net/~meltoncnc/plantlistxeri.htm>

Next time: Have you Probed your Garden Lately? – How to determine when and how long to water the garden.

*Cheri Melton
Master Gardener*

Cuttings 'N' Clippings

➤ Cochise County Master Gardeners Association will hold their November 1 meeting at the Sierra Vista Library from 5:30 p.m. - 7:30 p.m. (Note change of time). Guest speaker will be Daryl Smith giving an update on the Plant Sciences Center at the U of A South Campus. The CCMGA meeting on January 3 will have Mark Fredlake with the BLM "Beaver Project" on the San Pedro as guest speaker.

➤ CCMGA is offering up to \$250 grants to school classes. For details contact Barbara Kuttner at 378-1824. Huachuca Mountain Elementary has received the first grant for their garden project.



Robert E. Call
Extension Agent, Horticulture
Carolyn Gruenhagen
Editor

Garden Basics: Popular Irrigation Systems

DRIP EMITTERS: A form of drip irrigation which applies water to the soil at point locations at controlled, low flow rates by means of drip emitters. Drip emitters discharge from 0.5 to 4.0 gallons of water per hour (gph). Many emitters are pressure compensating, applying a nearly constant rate of water over a wide range of pressures and elevations.

DRIP TUBING: Another form of drip irrigation in which water is emitted at equally spaced points (6 to 60 inches apart) along a tube. The tubing is semi-rigid with emitters built right into the tubing. These emitters can be pressure compensating. **Drip tubing discharge is expressed in gallons per minute (gpm) per 100 ft of tubing.**

ADVANTAGES OF DRIP IRRIGATION:

- Plants may be watered at any time of the day. Since water is applied at the base of the plant and does not get on the leaves, there is less chance of damage/disease to the foliage from too much moisture.
- Irrigation is at ground level, right over the roots, so very little water is lost to evaporation.

DISADVANTAGES:

- Emitters can clog, especially since our water is “hard,” (contains lots of minerals). Putting a filter on your irrigation system will help.
- System needs to be inspected routinely for problems such as leaks and clogged emitters.

IRRIGATION TIPS:

- **IMPORTANT! All drip irrigation systems should include a filter and pressure regulator.**
- Be sure to run the drip irrigation system long enough to reach the root zone! If you run the system for only 15 minutes with a 1 gph (one gallon per hour) emitter, only one quart of water will be applied to the soil/plant.
- Ideally, trees should have their own dedicated irrigation line, and flowers and shrubs should be on another irrigation line, due to the different watering requirements of each.

SOAKER HOSE: A porous hose that allows water to seep out along the entire length of the hose. Depending on the type of soaker hose, operating pressures are from 5 to 20 psi (pounds per square inch). **Soaker hoses ooze water at a rate of 0.6 to 0.8 gallons per hour (gph) per foot.** It is a good idea to install a filter and pressure regulator on a soaker hose system (choose one that will keep the pressure below 10 psi).

ADVANTAGES OF SOAKER HOSES:

- Sturdy, easy to hook up, movable, flexible (can be snaked around existing plants - great for vegetable gardens, annual flower beds, plant groupings, and trees).
- Can either be laid on top of the soil or buried in the soil.
- Irrigation is at ground level so little water is lost to evaporation.

DISADVANTAGES:

- Hoses can clog especially with hard, mineralized water source (using a filter will help).

- Fittings can leak or come apart if the water pressure is too high (use a pressure regulator).
- Best used on soil surfaces that are level to ensure even flow rate.

BUBBLERS: Flood a small area and the water continues to infiltrate into the soil after the bubbler has been shut off. **The flow rate of bubblers is adjustable from 2.0 to 6.0 gallons per minute (gpm),** resulting in application rates much higher than soil intake rates.

BUBBLER ADVANTAGES:

- Wets root areas well, good for fruit and ornamental trees (must expand basins regularly to cover the root zone).
- Bubblers are easy to clean, not prone to clogging.

DISADVANTAGES:

- Best used on soil surfaces that are level.
- Are only applicable in areas where basins can be constructed to contain the water.

SPRINKLERS: Commonly used for turfgrass applications. Selection of sprinkler type depends on size and shape of area being irrigated, and the flow rate and pressure of the water supply. Water pressure higher than what is recommended for the sprinkler tends to make small water drops, which are subject to evaporation and drift in windy conditions. Low water pressure decreases the radius of “throw” and does not break up the water stream properly, causing poor uniformity of application.

(Continued on next page)



Telephone: (520) 538-SAVE

ADVANTAGE OF

SPRINKLER IRRIGATION:

- Most effective way to water large grassy areas.

DISADVANTAGES:

- High water loss due to evaporation. Water is thrown out into the air instead of applied directly to the soil.
- On windy days, sprinkler water can be blown out of the watering pattern, resulting in uneven application of water and excessive evaporation.

DID YOU KNOW? Garden hoses deliver water at a rate of between 5-7 gallons per minute! That's a lot of water!!!!

RAINWATERING

HARVESTING: The capture, diversion, and storage of rainwater for plant irrigation and other uses. Water can be directed to earth berms and swales, or into barrel/cistern systems and stored for use during dry periods.

ADVANTAGES OF RAINWATER HARVESTING:

- Provides "free" water and reduces dependence on ground water.
- Sloping ground enhances the effectiveness of using berms and swales.
- Reduces off-site flooding and erosion by holding rainwater on the site.
- Rainwater is a clean, salt-free source of water for plants – it also contains dissolved atmospheric nitrogen, a fertilizer that is lacking in our native soils!

DISADVANTAGES:

- None! Harvesting rainwater is a "win-win" situation!

FOR MORE INFORMATION:

Harvesting Rainwater for Landscape Use by Patricia H. Waterfall

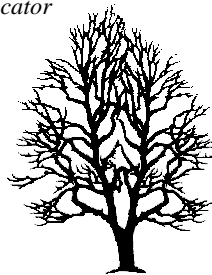
<http://ag.arizona.edu/pubs/water/az1052/>

High Desert Gardening - Cochise County Master Gardeners Website

<http://www.ag.arizona.edu/cochise/mg/>

Ginger Maxey

Master Gardener/Ft. Huachuca Water Conservation Educator



Call's Classic Comments

I have received many questions about pecan trees and when to harvest the nuts. Pecan nuts are ready to eat when the shuck splits. The shuck is the husk or fleshy material around each individual nut. The nut consists of the shell and the meat. Commercial harvest in Cochise County usually begins around Thanksgiving. When the nut meat has filled the shell the husk will start to split, slowly dry, and open. Many nuts will drop to the ground on their own. After several hard freezes, nuts will really start to fall to the ground. Sometimes the shuck does not separate from the nut thus producing what is called a "stick-tight." Many times the nut

meat has not fully matured and is the cause of the stick-tight condition. Harvest is then a matter of picking up nuts off of the ground before wildlife does! Commercially, mechanical shakers are used to shake nuts to the ground and then they are swept up from the ground mechanically. Nuts need to be separated from the shucks if they are not already. This is done by hand if only a few trees are involved. Commercially there are hulling machines that are a set of brushes that rub the husks off, producing cleaned nuts. The final step is to crack the shell and just have the meats for eating. This is done by hand, one nut at a time, or with the aid of one of several nut crackers. On a larger scale, nuts are placed in a machine that will singulate them and mechanically crack them. The meats are removed by hand.

To determine if you had a good nut year, collect a sample of your nuts. Clean off all of the shucks and weigh it. Crack and shall all the nuts and weigh the remaining meats. Divide the meat weight by the nut weight to get a percentage. A good nut to meat percentage is between 50 - 55%. Anything over 55% is an excellent yield. If this was not accomplished, culture practices such as watering schedules and fertilization should be improved.

Also on the subject of trees this month, now is NOT the time to prune fruit and shade trees. Plants are preparing to go into winter on the high deserts. Pruning is a dwarfing, stimulating, and stressful event. Trees and shrubs are moving

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compounds from the leaves and branches and storing carbohydrates in the trunks and roots. If pruning is done now, buds that are going dormant are stimulated and might begin to grow using energy and other resources that are normally stored to survive winter and the spring push of rapid growth and development of leaves and shoots. Next spring's growth takes a lot of energy and if used up in the fall and winter because of pruning stimulation can cause plants to become stressed and even die if winter conditions are severe. All of this growth needs to occur in the spring before photosynthesis can begin anew in deciduous plants. Even evergreens' growing activity in the winter slows and in some cases stops. Stimulating new growth is just opposite of what the plant needs to have happen to survive the winter season.

Prune most fruit and shade trees just before bud swell occurs in late winter or early spring between February and April. With many flowering ornamental plants the recommendation is to prune after flowering occurs. If you have a question on a specific plants pruning requirement contact the Extension Office in Sierra Vista or Willcox.

Source: November 1994 *Cochise County Master Gardener Newsletter*

Robert E. Call
Agriculture Agent, Horticulture



The Virtual Gardener— El Niño, La Niña, La Nada

About this time every year I begin wondering what the winter will be like. Will it be warm or cool? Wet or dry? In Southeastern Arizona we have been lucky for the last few years to have fairly warm winters and that has caused a lot of folks to buy plants that might be a little tender for the some of the winters we have historically had here. I thought it might be interesting to find out what the weather gurus have to predict about the winter this year so I surfed to the National Oceanic and Atmospheric Administration's (NOAA) Climate Prediction Center at www.cpc.ncep.noaa.gov/products/winter_outlook/.

Over the last couple of decades we have learned a lot of new things about global weather cycles. Unless you have been hermetically sealed in a cave you have probably heard about the El Niño/Southern Oscillation (ENSO) phenomenon in the South Pacific and its sister La Niña that have such a big effect on global weather, causing droughts in Africa and floods in Peru. An El Niño condition occurs when a huge pool of warm ocean water migrates eastward across the central Pacific until it bumps into South America around December (hence the name which refers to the Christ Child in Spanish). When a huge pool of cool water moves eastward across the Pacific we have the opposite of an El Niño condition referred to as La Niña. After several years of extremes, this year we have an ENSO neutral condition, sort of a "La Nada" year.

With the advent of weather satellites, sophisticated sensors, and more powerful computers, weather scientists have discovered many more oscillations besides the ENSO. Our weather in western North America is also affected by an oscillation in the northern Pacific called the Pacific Decadal Oscillation (PDO), an Arctic Oscillation (AO), and even a North Atlantic Oscillation (NAO). At this point, however, the scientists do not fully understand the cause and effect relationships between these oscillations and our weather and they are not able to reliably predict when they occur.

Scientists at the Climate Prediction Center sifted through historical weather data to filter out data for winters where ENSO and PDO/AO conditions have been equivalent to those we are experiencing this year. After looking at all the evidence, they are predicting a winter for North America that is warmer than the long term average but generally cooler than the last three years. Specifically for Arizona, their prediction indicates that the northern two-thirds of the state will
(continued on back page)

NOVEMBER REMINDERS

- This is a good time to install a drip system
- Replace summer mulch with fresh mulch
- Start a winter herb garden
- Protect plants from frost (The bulletin *Frost and Frost Protection* is available from the Cooperative Extension offices)

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High Desert Gardening & Landscaping Conference February 15 & 16, 2001

average 2-4°F cooler than last year while the southern one-third of the state (including Cochise County) will average only 0-2°F cooler than last year. Of course you should remember that the prediction only deals in averages. It says nothing about specific weather events such as the severe cold snap that lowered temperatures to 6°F in Sierra Vista on the 8th of December 1978. When buying long-lived plants such as trees, remember that even though we haven't had very cold temperatures for the past few years, the law of averages will catch up with us one of these years. Play it safe and buy only plants that are rated as cold hardy for your area.

Precipitation this winter is predicted to be near normal. If the prediction is correct we should get roughly the same amount of rain this winter as we normally get during the summer monsoons, about 7 to 8 inches in valley areas. This will be a pleasant change from last year. Of course if October is any indication, we might get even more.

Sometime next spring, take a look back at the winter and see how good these forecasts were. I'm willing to bet there will be some surprises.

Until next time. Happy surfing.

*Gary A. Gruenhagen, Master Gardener
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Scholarships Offered

The Cochise County Master Gardeners Association (CCMGA) is awarding up to five full scholarships to the 2001 High Desert Gardening & Landscaping Conference to be held at the Lakeside Activity Centre located on Ft. Huachuca, AZ, on February 15 and 16, 2001. Applicants are invited to submit an essay on one of the following topics:

- Gardening for food production
- Landscaping with native plants
- Environmental stewardship

For details please contact the Cooperative Extension Office in Sierra Vista or check the web site.