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—
The North American Monsoon, Part 2

Monsoon 2012 began with a bang . . at least at my house. We got a quarter inch of rain on the second day of the season. Unfortunately, there is no consistent connection between the amount of rainfall received during the monsoon and its start date, so the question remains: Will it be a good rainy season or a poor one?

Last month I discussed how summer heating of the southwestern deserts sets up wind patterns that draw in moisture from the oceans and bring us our monsoon rains. But, as elegant and simple as that explanation is, it doesn't help much in predicting the quality of our summer rainy season. The devil, I said, is in the details. Scientists have been searching for decades for a good predictor but so far have found lots of interesting correlations but nothing that is useful as a predictor. And to make matters even worse, most of the correlations are pretty weak. Here is a sample of some of the things they have discovered.

A dry summer in the Great Plains means a strong monsoon in the Southwest and *vice versa.* This is an interesting observation but isn't too helpful for making predictions since we're no better at predicting summer rains in the Great Plains than we are at predicting summer rains for the Southwest, although the National Weather Service **Climate Prediction Center** is predicting continued drought in the High Plains this summer and, coincidently, some improvement in the drought situation for us.

A heavy snow pack in the Rocky Mountains tends to retard the start of the monsoon, although the relationship is not consistent. It would be great if we could count on this. All we would have to do is stick a pole in the snow and measure its depth, but alas it's not a reliable indicator. For what it's worth, the snow pack this year was way below average.

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A wet monsoon in southern Mexico usually means a dry monsoon in northern Mexico and the U.S. Southwest and *vice versa.* This is obviously not a very good predictor, but it does perhaps provide some additional insights into the whole North American Monsoon process. Since the rains generally start in the south in early summer and move northward as the season progresses, it would be useful to understand how that process operates and why it is sometimes interrupted so the rains remain trapped in the south. Conversely, it would be useful to understand why the rains sometimes start farther north and miss the south, if that's what happens.

We have all heard of El Niño and his sister La Niña, right? Those are the siblings that have such an impact on weather around the world. What effect do they have on our monsoon rains?

They do have an impact…we think. But it's not as simple as El Niño means good monsoonal rain and La Niña means poor or the other way around. It turns out that it's more complicated than that. The El Niño (warm phase) and La Niña (cool phase) change sea surface temperatures in the tropical Pacific on irregular cycles that last on average about five years. Although these phases taken by themselves don't seem to have much of a direct impact on our summer rains, they appear to interact with a couple of similar cycles in the North Pacific—the North Pacific Oscillation (NPO) and the Madden-Julian Oscillation (MJO)—that operate on different schedules. The NPO is not very predictable at all and the MJO operates on a 30-60 day cycle. When these line up in a certain way, it appears that they enhance or suppress our summer rains, but no one knows exactly why. It doesn't make much difference this year anyway since we're in an El Niño-La Niña neutral phase.

So the next time someone asks you the quintessential Arizona summertime question: I wonder if we'll get much rain this monsoon? Your answer should be, "¿Quién sabe?"

If you're interested in learning more about this subject, check out these online documents: **Characteristics of North American Summertime Rainfall with Emphasis on the Monsoon** and **The Relationship of the North American Monsoon to Tropical and North Pacific Sea Surface Temperatures as Revealed by Observational Analyses**

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener
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Water Wise Offers Free On-Site Visits

Cochise County Residents: Need help with your landscape? Don't know how to water or what that plant is in your yard? No fear, Water Wise is here! Water Wise Specialists are available to visit your home or business and help you do what you want, but more water efficiently. To schedule a FREE on-site visit, call the Water Wise Program at (520) 458-8278 Ext. 2141. A qualified water conservation educator will visit your home or business and give tips specific to you!

Cuttings 'N' Clippings

❄ **Saturday, July 7, *"Rainwater Tour."*** Come see how your neighbors harvest rainwater and get inspired! Several rainwater harvesting systems in the Sierra Vista area will be open for guided tours.

Saturday, July 14, Bisbee *"Rainwater Tour."* Several rainwater harvesting systems in Bisbee will be open for guided tours. Contact Water Wise for time and location for either of the Rainwater Tours (520-458-8278, Ext. 2141. For a list of 2012 Water Wise presentations go to: **http://cals.arizona.edu/cochise/waterwise/events.html.**

❄ The **July 2012** CCMGA meeting will be a graduation of the new Master Gardener Class. The date will be July 12. For information, Master Gardeners are asked to call Joyce at 458-8278, Ext. 2141.

❄ The newly elected officers of CCMGA are:
President: Jody Sharp-Webb
V President: Terrie Gent
Secretary: Steve Fletcher
Treasurer: Donna Blackburn

Master Gardener

Cochise County Master Gardener
Newsletter Editor
Carolyn Gruenhagen

Watch Mother Nature

More and more often, I am reading and hearing that the best course of action for gardeners to take is the one that Mother Nature herself takes. Across the spectrum of gardening books and articles, the emphasis is more and more on duplicating, or at least approximating, Mother Nature. This advice isn't coming from geriatric hippie holdouts from the sixties; it's coming from university professionals with Masters and Doctorate degrees .

For example, one of the speakers at the recent Master Gardener Conference in New Mexico was Dr. Bill Lindeman of New Mexico State University in Las Cruces. Dr. Lindeman spoke on soil amendments. His primary recommendation? Add organic matter to your soil. It isn't even absolutely necessary to till it in. If appropriate, let it decay on the soil surface, just like Mother Nature does. He also suggested that purchasing special soil bacteria and fungi and other "magic potions" is a waste of money. The necessary soil organisms are very likely already in your soil. They just need some organic matter in order to thrive. If your soil is truly devoid of life, a very unlikely event, get some dirt from a neighbor with decent soil and, presto, you've added just the organisms you need. Follow up with adequate organic matter and those organisms will prosper. If you have a grass yard, buy a mulching mower to return the grass clippings to your yard. You'll feed your grass and put less waste (and work) into your trash. Voila! More time for lemonade.

Similarly, save seed or propagate from your "best" varieties, whether vegetables or landscaping plants. Do with personal selection what Mother Nature does with natural selection. Remember, you get to define "best" on your own terms. "Best" could mean taste, size, early harvest, pest resistance, heat or cold tolerance and so on. One gardener with a large number of a single species of agave in her yard reported that she lost many of them during the Big Freeze of 2011, but she noted that some survived unharmed. Very likely the individual plants that survived had a genetic tendency toward cold tolerance, therefore their descendants will as well. Propagate from your "best" and the next generation will be better than the last at exhibiting whatever characteristic(s) you are selecting for.

Last year, I planted garlic purchased from Jim Montoya, a vendor at the Bisbee Farmers Market. Jim has been growing and saving his own garlic locally for about a decade and his garlic bulbs are much larger than those I've grown. This spring, the garlic I harvested from Jim's seed yielded the largest bulbs I've ever grown. For me, the "best" garlic is large headed, large cloved, and easy to peel (all garlic tastes great!). The way to achieve my goal, of course, is to adapt garlic to our local climate, and the way to do that is to save the best garlic each year to be replanted. When it comes to getting better garlic in the long run, I eat the small bulbs and save the big bulbs for next year!

Practice diversity in your garden. You rarely see Mother Nature planting a "monocrop." The Irish Potato Famine resulted because only one variety of potato (the 'Lumper') was planted in Ireland. Making matters worse, that single crop was in large measure the primary food source for many. When late blight struck Ireland in 1845, the 'Lumper' proved vulnerable to it and the entire Irish potato crop was lost. Approximately one million Irish died, and another million people left Ireland to emigrate elsewhere. By contrast, in Peru, another culture heavily dependent on the potato, many varieties of potato are grown. As a result of this genetic diversity, when disease strikes, the likelihood is that at least some varieties will be resistant and total failure will be avoided. So, whether you're planting a vegetable garden or designing a landscape, add variety to the mix. By planting many things, you'll also likely encourage pollinators and predators of pests to come into your yard.

When the temperature is over 100°F, the quail are eating every new plant shoot, the cucumber beetles are devouring leaves like crazy, and powdery mildew season is just around the corner, it may be difficult to remember that Mother Nature can be on your side, but the simple fact is that she can be your best friend and teacher. She's been a successful gardener for a long, long time.

Bill Schulze, Master Gardener
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July Reminders

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

Agriculture in Biblical Times

There are many references to gardening and crops throughout biblical times. In both the Old and New Testaments, Israel was not a fertile place. Most of it was hot, dry, and barren. Farming was difficult and the majority of the people of that time, about 90% or so, were farmers. It was so hot and dry that fields were planted in the fall or winter instead of spring. Seed was cast around October when the rains came. Following the farmer was a plowman who used a metal plow blade attached to a wooden frame pulled by oxen to plow the seed under. Sometimes it was hoed into the ground instead.

Wheat was the preferred crop during Biblical times but barley was also grown because it thrived in poor soil and tolerated drought. Barley was ready to harvest in April, which is when the Jews celebrated their feast of Passover. Wheat was not ready to harvest until June. These grains were reaped by pulling the stalk out of the ground, roots and all, or chopping it down with a sickle. They were then bound into sheaves and set aside to dry. To thresh the wheat they walked animals over the floor where the stalks were placed to separate the stalks from the grain. They then winnowed it by throwing it into the air to let the wind separate the chaff, the tougher outer covering on the grain, from the grain.

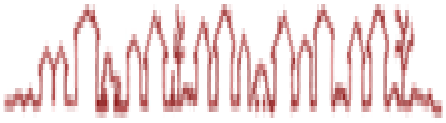
Grapes were grown for wine and raisins and vineyards were seen as a precious commodity. Figs were a popular crop also and were often grown in vineyards to support the vines. When grapes were harvested they were dumped into vats with sloped floors and then trampled by foot to release the grape juice, which would drain into a small basin. The figs that were often grown in these vineyards were a staple in most homes. They were a main source of sugar. Figs would often be dried or turned into syrup and used in cooking, like we use corn syrup today.

Olives were mostly grown for oil. This was important to Israel's economy at the time. Olive oil was used for many purposes such as cosmetics, cooking, and oil lamps for light. The oil was also used for medicinal purposes such as cleaning wounds and anointing the sick. Olive trees were relatively easy to grow because they tolerate poor soils and drought conditions. The olives were usually harvested in the fall.

While growing food in this hostile desert environment was challenging in the past, today technology has helped Israel overcome those challenges to not only become essentially self-sufficient in food production but a leading exporter of citrus and other fruits.

Next month: Medieval Farming

Stephanie Blanchette
Associate Master Gardener



Garden Tip #6730

Have you ever been frustrated trying to get the leaves, weeds, or other trash you've raked up into a plastic trash bag? I have. If you leave the bag loose on the ground, it takes six hands to keep it open and handle the rake at the same time. If you drape it inside a garbage can, the air trapped outside the bag takes up most of the space and the first load you drop in pulls the bag into the can. Then, when you finally get the bag full, all of the air has been squeezed out of the can , and the bag refuses to come out. There are basically two problems here—how to get rid of the air trapped inside the can (and let it back in again when you remove the bag) and how to keep the top of the bag anchored to the rim of the can.

I solved the first problem by boring some half-inch diameter holes in the bottom and around the sides of a plastic garbage

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Solving Rose Problems

QUESTION: When my roses bloom they have brown and black petal edges and the flowers are deformed. Also, the leaves are sticky. Some of the leaves are covered with yellow spots mixed with the green color of the leaves. What is causing these problems and what can I do?

ANSWER: Your roses have two insect problems and a virus. The flower petals are brown or black because of a very small insect called the western flower thrip, *Frankliniella occidentalis* (Pergande). Adult thrips are about 1/8th inch (2 mm) in length, usually tan to dark-brown bodied, with four feather-like wings and they are weak fliers. The young, or nymphs, are creamy white and wingless and develop into adults in about two weeks. The adults enter a rose bud and lay eggs inside the immature flower. The eggs hatch and the resulting nymphs and adults injure the plant by rasping the bud, flower, and leaf tissue of host plants and then sucking the exuding sap. This causes petal tissue to die and results in brown or black petal edges. Thrips also affect other flowers and fruits, including apples and nectarines, and vegetables like onions and snap beans. This results in surface damage but they are still edible. Chrysanthemums, gladiolus, and iris are also damaged by other thrip species. With normal winter moisture

many more cool season wildflower and weeds grow. Thrips live on these plants and increase their populations, and then they move on to other plants.

The other insect problem is aphids. These small insects are yellow to green in color and suck sap from plants that they infect. The "sugars" which they do not metabolize are excreted and fall onto the leaves of the plant. This is the sticky, shiny substance you see. Sometimes ants and flies will "milk" aphids for this exudate and feed on it. So, if ants are spotted on plants, there is a good chance that aphids are present.

The yellow marks, mixed with the green color of the leaves, is a virus or a complex of several viruses. The spotted yellow-green leaf color is known as mottling and is symptomatic of viruses. Most viruses do not kill rose plants, but can weaken them.

Controls: Several insects are predators of thrips and aphids. These include ladybird beetles and their larva, minute pirate bug, and lacewings. Thrips have alternate hosts of weeds and wildflowers. By controlling host plants, thrip populations will be lowered. Because thrips do damage inside the rose buds a systemic insecticide should be used. There are several products on the market which control thrips and aphids systemically. Sometimes a systemic insecticide is included in rose fertilizers. **Always follow label directions when applying pesticides.**

To reduce the problems of viruses in plants, purchase virus-indexed or certified virus-free plants. Virus infected plants may be a source of infection and can be transmitted to healthy plants by aphids or other insects. Therefore, control insect vectors (transmission agents) to control the spread of some virus diseases.

Source: *Insect Pests of Farm, Garden, and Orchard*. 7th Ed. R. H. Davidson and W.F. Lyon. pp. 305-6, 311-12

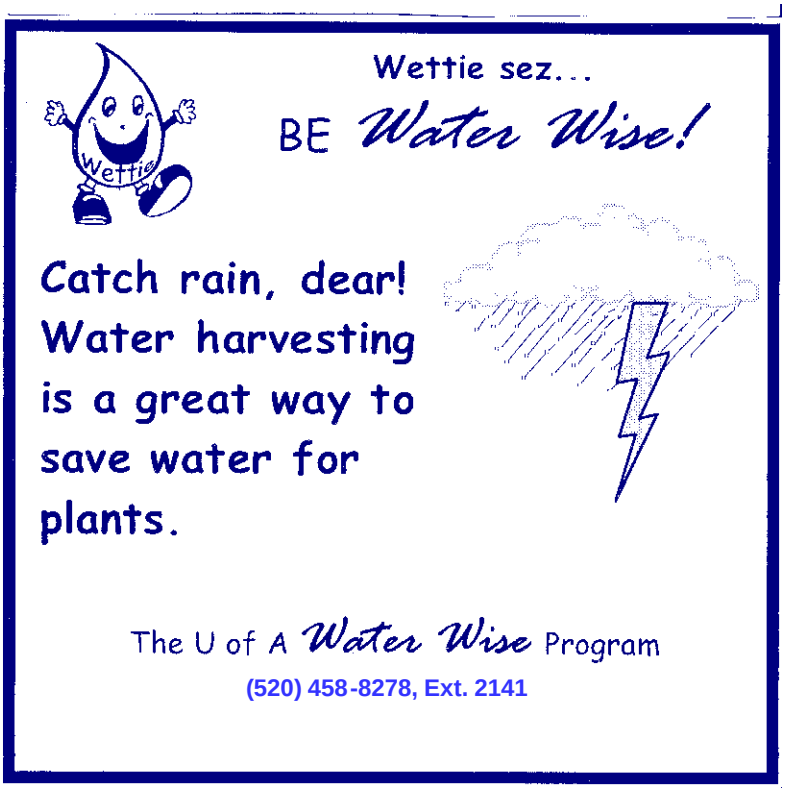
(Note: Reprinted from the May 1998 Cochise County Master Gardener Newsletter written by Robert E. Call, Horticulture Agent.)

Did You Know . . .

Another project that Cochise County Master Gardeners Association (CCMGA) has been involved with is Kartchner Caverns State Park. When the Park was opened in the late 1990s the Hummingbird Garden was created from donated plants and labor. Most of the plants did not require a lot of supplemental watering, but an extensive watering system was installed, ensuring that the plants would bloom well. Because of budget problems, by 2009 there was not much plant maintenance except for some weeding and removal of plant branches that grew into the walkways. In 2010 the Park received a donation of $800 for new plants for the garden. The Volunteer Coordinator for Kartchner Caverns requested help from Cochise County Master Gardeners with the selection of plants and the rejuvenation of the Garden. Associate Master Gardeners, Olivia Sinks and Denise Sloan took on the project to earn hours to become Certified Master Gardeners. At this point the garden was overgrown and looked very unkempt. Their mission was to add or replace plants with native Arizona plants that would attract hummingbirds. There were many challenges and problems. The inventory of existing plants took many trips, and all the books they could lay their hands on. The research for local plants was extensive. In 2011 the $800 was spent on about 140 plants, and they seemed to merge unnoticed into the large garden. To help out, CCMGA donated an additional $800 to provide for more plants.

In the Spring of 2012 the garden was receiving many compliments for the new blooms. Master Gardener Olivia Sinks led a group of Master Gardeners on a tour May 12. If you click here you can take a short video tour. Enjoy!

Olivia Sinks, Master Gardener
Video photos by Bob Herrmann, Master Gardeners Denise Sloan, Bill Schulze, & Gary Gruenhagen



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can, four in the bottom and four around the sides. At first I was reluctant to "ruin" the can, but after a second thought, I realized that having the can water tight is more of a problem than having it leak. Now, at least, water won't collect in it if it's left out in the rain.

The second problem was solved with a piece of twine and a short, small bungee cord. I cut the twine to a length that was just short of the circumference of the can and tied both ends of it to the bungee cord. Now I can stretch the string over the top edge of the can to secure the bag. The bungee cords deteriorate, but are easily replaced. One can occasionally find elastic cords made just for this purpose.

Gary Gruenhagen, Master Gardener