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JOURNAL



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Maricopa County Master Gardeners: Cultivating Plants, People & Communities since 1980

Master Garden volunteers are trained by University of Arizona faculty and staff during a 17-week course. They provide educational leadership to the community with research-based horticulture knowledge. Volunteers promote efficient use of water, fertilizers, and pesticides, and preservation of our desert environment.

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13815 Camino del Sol Blvd., Sun City West, AZ 85375. Phone 623-546-1672. Hours: 9 a.m.-1 p.m. Monday-Friday.

East Valley Satellite location: East Mesa Multigenerational Center
7550 E. Adobe Rd., Mesa, AZ 85207. Phone 480-985-0338. Hours: 9 a.m.-noon, Mondays and Thursdays.

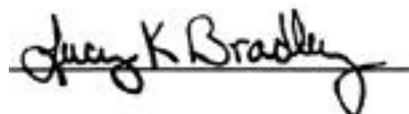
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Cover Photos: (clockwise from top left)
Xeriscape and Prickly Pear by Candice Sherrill,
Kid's Garden courtesy Cooperative Extension,
Indian Corn by Donna Atwood



Lucy Bradley, Extension Agent, Urban Horticulture

Photography: Donna Atwood

Master Gardeners are Making a Difference

by Lucy K. Bradley, Extension Agent,
Urban Horticulture

With over 3 million people in Maricopa County, a large percentage of them newcomers to the Sonoran Desert, the need for public education regarding appropriate selection, placement and care of plants is tremendous. The Master Gardener program seeks to improve the health of plants and people, while promoting environmental responsibility in the garden. This includes the efficient use of water, fertilizers, and pesticides, and the reduction of green waste.

YOUTH GARDENING/ GROWING AWARENESS

Maricopa County Master Gardeners make a difference by working to increase the knowledge, skills and motivation of teachers, parents, administrators, and community members to (1) manage effective, sustainable youth and community gardens and (2) use the gardens as a tool for experiential learning of life skills (including health and nutrition, responsibility, critical thinking, planning and much more), academic subjects, and environmental stewardship.

IN 2002, MASTER GARDENERS:

- Responded to 455 individual phone, mail, email, and in-person requests.
- Coordinated annual Youth and Community Gardening Conference for 250 participants. "This was SO much more than I expected - What a treat!!" (Survey Response 2002).
- Taught 60 participants in workshops and training.
- Partnered with Maricopa County Department of Public Health Office

of Nutrition Services to bring 543 students from 10 schools to the Extension Office Outdoor Learning Center for a Five-A- Day/Garden Nutrition Program. "The kids loved the hands-on experience and I was glad that they were able to learn about plants in a new setting. The trip was really well organized." (Anna Shetty, 3rd grade teacher, Hamilton Elementary School 11/1/02).

- Planned Interpretive Trail: Began to create an environmental education interpretive trail based on water, plant, and nitrogen cycles.
- Enhanced the Youth Gardening Web Site.
- Supported the Youth Gardening List Serve, which enables 115 subscribers connected with youth gardens to share information and find answers to their questions.
- Created and maintained a database of school gardening contacts: We continue to maintain and expand a database of 1,800 organizations, agencies, schools, and individuals involved with youth gardening efforts, and shared resources and expertise to make these programs excel.

GRANTS AND GIFTS RECEIVED:

- Digging Deeper - Statewide Youth Gardening Training Institute, \$100,326 USDA via Arizona Department of Education.
- Food Stamp Matching Funds, \$98,980, Arizona Nutrition Network.
- Environmental License Plate Fund, \$30,000, State Land Department.
- Master Gardener Tour - Real Gardens for Real People, \$8,030,

Arizona Community Tree Council.

- Working Group Grant - Junior Master Gardener Statewide Training, \$5,731, University of Arizona Cooperative Extension.
- Arizona Department of Education, \$5,500, Printing, Postage, Registration Packets.
- National Junior Master Gardener Office, \$990, to sponsor Awards.
- Arizona Department of Health Services, \$500, to Underwrite Speaker.
- World Hunger Ecumenical Arizona Task Force, \$200, to sponsor speaker.

A hearty and sincere thanks to each of you who have had a part in this significant and impressive group of accomplishments. I look forward to all we will continue to achieve in 2003. ■

*"Of all human activities,
apart from the procreation
of children, gardening is the
most optimistic and hopeful.
The gardener is by defini-
tion one who plans for and
believes and trusts in a
future, whether in the short
or the longer term."*

— SUSAN HILL

Calendar of Events

JUNE, 2003

6/3 — **Propagation.** Tuesday, 6:00 pm to 8:30 pm at the Extension Office. Let our master gardeners show you how to successfully propagate your favorite plants and watch your collection multiply. With the right techniques, you will have plenty of plants to share. Price: 20.00. Registration required. Address: Cooperative Extension office, 4341 E. Broadway Road, Phoenix. Contact: Ainsley LaCour at ainsley@azorchids.com. Phone (602) 470-8086. Website: <http://ag.arizona.edu/maricopa/garden/>.

6/7 — **Water Wise Workshop Series: "You Call THIS Soil?"** Saturday, 9:00 am in Sierra Vista. Sandy Kunzer, Geologist, and Betsy Kunzer, Physical Scientist. Price: Free. Address: UA South, 1140 N. Colombo, Sierra Vista, AZ. Contact: Cado Daily at cdaily@ag.arizona.edu. Phone (520) 458-8278. Website: <http://ag.arizona.edu/cochise/waterwise/>.

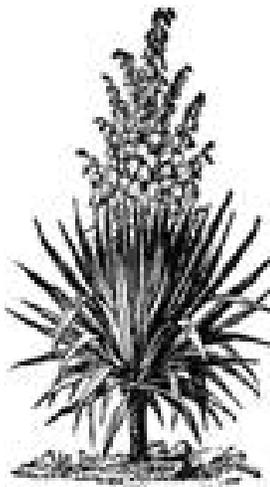
6/10 — **The Ins and Outs of Home Water Management.** Tuesday, 6:30 pm to 9:00 pm. in Gilbert. Learn where our water comes from, how to read your meter, and learn simple tips to reduce your water consumption and costs. Class offered by the Town of Gilbert Water Conservation Office. Price: Free. Registration required. Address: Regional Library - 775 N. Greenfield Rd. S/E/C Greenfield & Guadalupe Roads. Contact: Lisa Hemphill at lisahem@ci.gilbert.az.us. Phone: (480) 503-6878. Website: <http://www.ci.gilbert.az.us/water>.

6/19 thru 6/22 — **International Master Gardener Conference 2003.** Thursday thru Sunday. Come with us to celebrate gardening in the Ohio River Valley. The

showcase of gardens and wealth of family centered activities promises to make this a conference you'll long remember! Program topics: A major theme of the conference will be biodiversity as it effects landscape management and environmental stewardship. This will be emphasized in: Nationally recognized speakers to challenge your thinking. Hands-on Workshops that provide take-home ideas for future projects as you network with colleagues from other states. Trade show with nationally recognized vendors. Local tours and attractions that highlight horticulture in Kentucky and Ohio. Price: TBA. Registration required. Address: Northern Kentucky Convention Center, Covington, KY. Subject: Contact: Bobbi Strangeld at strangeld1@postoffice.ag.ohio-state.edu, phone (513) 946-8986. Website: <http://mastergardener.osu.edu/imgc2003>.

6/21 — **Summer Plant Sale.** Saturday, 9:00 am to 5:00 pm at the Arboretum in Flagstaff. Choose from hundreds of high elevation, drought tolerant plants. Free admission.

6/21 and again on 6/26 — **Saguaro Fruit Harvest.** Saturday, and again on Thursday, 7:00 am to 1:00 pm both days at the Arizona-Sonora Desert Museum. The Sonoran Desert silently celebrates its new year with the swelling of the saguaro's rosy fruits. Join us to gather and prepare saguaro fruits in the traditional O'odham manner, using a harvesting pole made from the ribs of the giant cactus, then cook the fruit for several hours until it thick-



ens into a rich, sweet syrup. Learn about other desert plants that were important food sources for native people and about the animals that use the saguaro for food and shelter. \$67 members; \$75 non-mem-

bers. Register online at: <https://secure.dakotacom.net/desertmuseum/link/sonoranstudiesregistration.html>.

6/27 — **West Nile Virus.** Friday, 9:00 am to noon. Dr. Dawn Gouge, Assistant Entomology Specialist for the Maricopa Agricultural Center will speak to Master Gardeners about the West Nile Virus in the Palo Verde room at the main extension office. Address: Cooperative Extension office, 4341 E. Broadway Road, Phoenix.

JULY, 2003

7/8 — **The Ins and Outs of Home Water Management.** Tuesday, 6:30 pm to 9:00 pm in Gilbert. Learn where our water comes from, how to read your meter, and learn simple tips to reduce your water consumption and costs. Class offered by the Town of Gilbert Water Conservation Office. Price: Free. Registration required. Address: Regional Library - 775 N. Greenfield Rd. S/E/C Greenfield & Guadalupe Roads. Contact: Lisa Hemphill at lisahem@ci.gilbert.az.us. Phone: (480) 503-6878. Website: <http://www.ci.gilbert.az.us/water>.

7/12 — **Bird Walk.** Saturday, 7:30 am to 9:00 am at the Arboretum in Flagstaff. Led by experts. Meet by front door of Arboretum. Free. Bring, or borrow our binoculars.

7/12 — **Going Bats.** Saturday, 5:00 pm to 8:00 pm at the Arizona-Sonora Desert Museum. They use night as their cover and are shrouded in mystery and misunderstanding. But we'll throw some light on one of the most intriguing desert animals - Bats! Learn how they make our desert more beautiful and more livable. Join us as we separate fact from fiction on the 28 different bat species in Southern Arizona, then take a trip out onto the ASDM grounds to study the animals in action. Instructor: Karen Krebs, ASDM Conservation Biologist. \$36 members; \$40 non-members. You can register online at: <https://secure.dakotacom.net/desertmuseum/link/sonoranstudiesregistration.html>.

7/26 — **Wildflower Walk.** Saturday, 9:00 am to 1:00 pm at the Arboretum in Flagstaff. Limited to 15 participants. Reservations required. Free guided walk in the Upper West Fork of Oak Creek Canyon.

7/26 — **Learn Your Lizards Walk.** Saturday, 9:00 am to 11:00 am at Boyce Thompson Arboretum, 37615 Hwy 60, Superior. Visitors spotted dozens of entertaining reptiles during the Arboretum's guided tours last summer. Various colorful and comical lizards are common along the 1.5-mile main trail. Arizona Game and Fish Department herpetologist Daren Riedle will lead walks lasting two hours up the main trail. Participants should carry binoculars and water bottles. Wear a hat and dress for a warm day. ■

Things to Expect & Things to Do

by Terry H. Mikel, Extension Agent, Commercial Horticulture

CITRUS FRUIT DROP should be finished. Navels consistently win the prize for most dropped.

FALSE CHINCH BUGS migrate to greener pastures as the desert dries in the heat. The dry winter has reduced their numbers dramatically.

METALLIC FLEA BEETLES make their annual presence known. They are especially fond of Mexican primrose (*Oenothera berlandieri*), and provide a much-needed pruning to this plant.

LAWNS will begin to show stressed areas if the sprinklers are not putting out water uniformly over the area.

BROWN BEETLES suddenly appearing around the lawn indicate emergence and mating time. Treat 45 days to 2 months after first seeing small (1/2 to 5/8 inches long) brown beetles near lawn areas. Waiting this time allows all the emergence, mating, and egg laying of the beetles to happen.

CICADAS buzz incessantly, marking the beginning of summer as no other sign.

ANTS AND TERMITES become more active and swarm during Arizona's summer storm season. Look for swarms on hot sultry mornings. To distinguish ants from termites, there are two things to look for: 1) ants have a tight constriction between the head/thorax and the abdomen, and 2) ant antennae bend to nearly 90 degrees about halfway out.

TOADSTOOLS AND SLIME FUNGI increase around the landscape with the warm wetness of the season. Though some may be edible, don't chance it. My criteria for eating a wild mushroom is letting someone with over 30 years of experience choose it. One wrong choice can ruin your day.

PALO VERDE BEETLES continue to emerge from the ground under infested trees. Extra TLC remains the best treatment. Remember, Palo Verde Borers have been found on many other types of trees; especially (but not necessarily) ones with tap roots.

FERTILIZE CITRUS after the annual natural fruit thinning. Doing it before the drop will make you think the fertilizer caused it. The next time is August/September prior to fruit sizing time.

WATCH LAWNS FOR SIGNS of poor watering. If some areas look weak, check to ensure even water distribution by putting out cans and checking the amount after a normal watering. This will quickly slow any variation. Areas with less water need attention to those sprinklers. By fixing the poor sprinklers, you won't over water the rest to supply the weak.

HARVEST WILDFLOWER SEEDS from your beds for next season. A simple way is to put a brown paper bag over the whole plant and pull it up. This lets the seeds stay in the bag.

MULCH SOIL SURFACES of trees, shrubs and flowerbeds to keep root zones cooler and to minimize evaporation loss of water.

PRUNE AND PLANT PALMS in the summer. Warm soils stimulate the roots to start growing and the flower spikes are there for easy recognition.

WATER CAREFULLY for better plant growth and to save water. The watering needs of plants increase with hot, dry weather. Be attentive to wilt symptoms. Water deeply, but only as often as necessary to maintain good growth.

Remember the 1 - 2 - 3 rule.

Children Know Once They Grow

by *Becky McAneny, Master Gardener*

Kids play in the mud, dig for worms, and catch bugs. They also roll in the grass, hide in the bushes, and jump into piles of leaves. Not only are these children having fun, but they are also learning about soil, water, wiggly, crawling things, and plants.

Such activities can be developed into a teaching program for kids. Elementary school gardens involve math, science, and English, and they are quickly becoming an important educational tool. Some educators are seeing an improvement in classroom interest and in test scores among children who are involved in garden programs. Children use science and math to choose a location and design for their garden. They also learn what they need to do to prepare their new garden for planting and how to maintain it. They dig up worms and learn how they help the soil, and how to use a ruler by measuring planting rows. The experience of creating a garden enriches the lives of both the adults and the children who work together planning and nurturing their outdoor classroom.

Once the school sets up the garden program, the fun begins!

The first step is to walk with the children around the campus and decide on a site for the garden. They need to choose a place that will have 6 to 8 hours of sunlight each day. One way to help them understand this concept is to show them where shadows fall around their school. Another important site consideration is how water will be brought to the garden. Unless a watering system is installed, one of the

adults will have to drag hoses and sprinklers to the garden when watering needs to be done. Drainage is another important consideration. If the garden is full of puddles after watering, not only will you have soggy plants but you will also have soggy kids. One way to turn on the energy switch in kids is to



hand them a shovel. They can help fill in the puddles with soil so the ground is level. Convenient access to the garden from the classrooms will be important. Teachers and students can easily extend their classroom activities outside when the garden is located nearby.

The next step is to design and develop the site. It's important to think small. If the garden is too large, weeding and watering can become overwhelming tasks. An easy way to involve the students is to get out a large sheet of brown paper and give them crayons. Draw an outline of the garden, and

help the children decide where planting beds and paths will be located. The plan is easy to follow after putting the design on paper.

Next, get out those shovels and rakes! It's energy time—time to clear the area and physically mark the garden. When every child has his or her own tool to use, they can actively show their ownership in the garden plot by digging out weeds or raking up leaves, sticks, stones and other debris. In addition, the children lay out the planting areas and pathways by hammering stakes in the ground around the borders and connecting them with string. The last step in developing the site is for everyone to use a shovel to loosen and turn the soil, and if necessary add fertilizer or compost.

Everyone involved in the process gets excited at this point. It's time to decide what to plant. The third major step in the development of the garden is to have the kids look at calendars to see what plants to consider for the time of year and location. After they have chosen their favorite vegetables, fruits and flowers, the kids plant seeds or transplants with another round of wild enthusiasm. The children plant rows with curves and angles that are not on the original plan, and often the daisies are next to the cauliflower. Then after the planting is finished, the adult "Garden Fairies" water the garden as needed, and everyone looks forward to seeing the results. During this period the children can help maintain the garden, and can create journals of their successes and failures so they can learn from them.

The final step in the process, after the

crops have grown, is to invite the director of the local food bank and have the kids harvest food to donate. Then it's time for celebrating the garden with a feast at the school! Show the children recipes for the foods that were grown, and help them cook the fruits (or veggies) of their labor for their families. Invite a newspaper reporter to publicize your successful garden, and watch the children stretch their necks with pride as they tell about the tiny carrots and the giant squash they grew and then cooked.

When children grow an outdoor classroom, they become little scientists. They learn patience and critical thinking. The process of planning a garden for an elementary school fosters pride, responsibility, self-confidence, and community spirit in everyone who takes part in this hands-on educational experience. ■

“A gardener is never shut out from his garden, wherever he may be. Its comfort never fails. Though the city may close about him, and the grime and soot descend upon him, he can still wander in his garden, does he but close his eyes.”

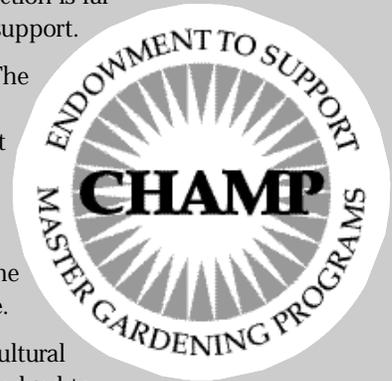
—BEVERLEY NICHOLS

A NEW WAY OF CONTRIBUTING

by Ron Mark, Master Gardener

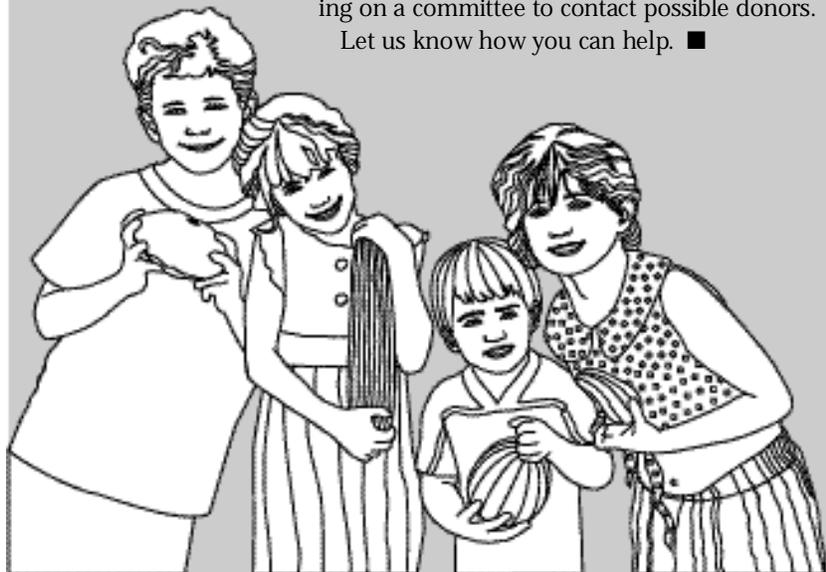
As a Master Gardener, I have experienced firsthand the incredible attitude of volunteerism from Master Gardeners. Being past president of the Arizona Landscape Contractors Association and having served on the boards of other non-profit organizations, I have never seen as much enthusiasm and willingness of people to give of their time. There has been another “Call for Action.” This call for action is far more difficult... the call for monetary support.

An endowment has been set up with The University of Arizona Foundation. The monies contributed will directly benefit the Master Gardening Program. The endowment is not meant to cover the temporary shortfalls that you have recently heard about, but to build on the successes of the Program for the future.



Our company last year started a horticultural service called CHAMP. CHAMP has pledged to donate a mere \$1.00 per service call each month to the endowment fund. It is not much now, but it is a start. As our business grows, the contribution will grow. It is also our plan to ask our clients to support the endowment by adding whatever amount they wish to their service amount as their contribution. We have requested that the money that CHAMP sends be spent for the Youth Gardening Program. The Master Gardening Program has given so much to me, and yes I have given some of my time, but now I really feel I can make a difference!

Is there a small way you could contribute to the endowment? Be creative! If you are unable, you may know individuals or companies that would be willing to help. Again be creative, make a list and send the information to Lucy Bradley. You might even contribute by serving on a committee to contact possible donors. Let us know how you can help. ■



Landscaping Responsibly

We see it in the newspaper headlines and hear it on the evening news... severe drought conditions, groundwater and soil contamination, rising levels of pollutants. As if that isn't troublesome enough our natural resources are in jeopardy; explosive population growth in Maricopa County along with the lack of substantial precipitation has many wondering how long we will have an adequate supply of water.

That's the bad news... the good news is that the manner in which we design and maintain our home landscapes can make a significant difference.

Establishing and maintaining a verdant landscape in the desert and being environmentally responsible can go hand in hand. Developing an earth-friendly

plan, choosing appropriate plants, irrigating efficiently, and limiting fertilizer and chemical use are the keys to responsible landscaping.

THE PLAN

Whether landscaping a new home, renovating your current landscape or making minor changes in your yard, develop a design that will have a minimum impact on the environment. Think carefully about how you use your yard. Be creative in finding ways to limit your water use.

Hardscape features such as patios, fireplaces and pathways can make your landscape more livable—and they don't need to be watered!

Maintaining a lawn requires a tremendous amount of water and fertilizer. Some will argue that a lawn is

necessary for those with small children or pets. If you must have one, consider limiting its size and make certain your sprinklers are directed at the lawn so you aren't irrigating your patio or sidewalk.

Pools are high priority items in our hot desert climate, but they involve using a considerable quantity of water and chemicals. A pool cover minimizes water evaporation and chemical requirements. If you love the idea of having a water feature in your yard, there are many attractive alternatives such as fountains and ponds.

Plan for a "mini-oasis" if you love growing roses or other plants with high water requirements. Plant them near patios and seating areas where you can enjoy them.

THE PLANTS

Select native and desert-adapted vegetation. These plants have evolved in ways that allow them to thrive in our arid climate. Small, narrow leaves, light green or gray foliage, and other leaf modifications are just a few ways that these unique plants conserve moisture. They survive in their natural habitat with little water and low humidity, and they tolerate the alkalinity present in the desert soil.

Take time to learn about the plants available in our area. Visit your local botanical garden, attend landscape classes, get on the Internet, and take advantage of the resources at your Cooperative Extension office or local library. Low-water plants are available in every size shape and color imaginable. Look around and you're sure to find some favorites.



Photography: Candice Sherrill

Layer your plantings. Use trees, shrubs and groundcovers in your plan. Many smaller shrubs and groundcovers will benefit from the shade provided by larger plants and trees.

Consider using plants to shade some of your paved areas. Paving materials absorb then release heat, which can increase the water requirements of nearby plantings.

Don't plant more than you can care for. It's tempting to stroll through a nursery and fall in love with every plant you see, but if you don't have time to properly maintain your landscape, you will waste water and energy.

IRRIGATION

It is estimated that over 60 percent of the water used by the average homeowner goes for landscape irrigation. Conserving water does not mean resigning yourself to a yard full of rocks, boulders and a few cacti. A flourishing landscape is attainable with careful planning.

• Irrigation equipment

Watering your landscape can be accomplished through flood irrigation, sprinklers, bubblers, or drip irrigation. A drip system is a very practical method to keep your plantings in tip-top shape. Since water is applied exactly where it is needed in a slow trickle, evaporation and runoff are greatly reduced.

Using an automatic control box to regulate your irrigation is an efficient way to get the job done. Adjust your watering schedule seasonally. Duration of the irrigation should not change, only the interval between irrigations.

Group plants with similar water requirements into separate zones in your system.

No matter what type of irrigation you use, remember to check it periodically. Look for leaks in the system, broken sprinkler heads and plugged emitters.

• Watering schedule

Knowing when and how long to irrigate is not an exact science. Water applied deeply and infrequently to the entire root zone will result in stronger, healthier plants capable of withstanding our searing summer heat. A consequence of irrigating too frequently is weak roots that are unable to absorb nutrients.

Water trees to a depth of 36 inches; shrubs to 24 inches; groundcovers, cacti, and annuals to 12 inches; and lawns to 10 inches. Use a soil probe to determine how deep the water is penetrating. The type of soil you have determines how fast water is absorbed and how far it spreads.

More plants suffer from overwatering than under-watering. Indications of water stress are wilted, curled, or drooping foliage; yellowed older leaves that drop; and dead stems or branches. Symptoms of excess irrigation include brittle leaves that remain on the plant; wilted shoots; soft, smelly tissue; and algae or mushrooms present in the area.

Mulching your landscape plants will decrease the amount of water needed to sustain them. Three to four inches of rock mulch or organic mulch such as compost, leaves, grass clippings, branches, or pine needles will cool the



soil, reducing water loss from evaporation and limiting the growth of weeds that compete for water.

Using organic mulch has the added benefit of improving soil structure.

FERTILIZERS

Using native plants will greatly reduce or eliminate the need for fertilizers. The desert produces little organic matter, and these plants have survived in the wild without soil amendments for eons. A minimum amount of fertilizer can be used to give the landscape a boost, but is not usually necessary.

The foliage color of plants is not necessarily indicative of the need for fertilizer. Plant diseases, insects and weather conditions can cause abnormal leaf color. Use a soil-testing kit when you are in doubt.

Too much fertilizer will stimulate excessive growth and promote the occurrence of disease and pest damage. Overgrowth leads to pruning, which adds unnecessary yard waste to our landfills.

A plant cannot tell the difference between organic and synthetic fertilizers. However, organic fertilizers such as manure, compost, fish emulsion, and bone meal are slow release, lasting over a longer period of time. They are less apt to burn plants and can actually improve soil conditions.

— continued page 10

CHEMICAL USE

By definition, pesticides include insecticides as well as herbicides. While it is sometimes necessary to resort to chemical use, it is easy to become dependent on them. The inherent danger in the overuse and inappropriate application of pesticides is the poisoning of our natural resources and possible disruption in the balance that normally exists in nature. Decide how severe a problem is and how much damage you are willing to tolerate. Use chemicals as a last resort.

- Read the labels... they're there for a reason! Chemicals are toxic. Safe use depends on following the directions and heeding the precautions on the label. Apply the correct amounts... more is definitely not better.
- Minimize insecticide "drift" by applying the chemicals on a windless day.
- Store chemicals in a cool, dry, well-ventilated place. It is imperative that these toxic materials are locked away from children and pets.
- Always keep chemicals in their original, labeled containers.
- Make sure bags or containers are not damaged or leaking.

• Insecticides

Follow Integrated Pest Management or IPM guidelines. Monitor the affected plant to determine what type of damage is being done. Verify that it is an insect causing the problem and identify the pest. Decide if any action is necessary. If you choose to correct the problem, use the least toxic solution possible.

According to the Master Gardener manual, "We generally associate insects with crop loss or disease transmission, but only a small number of insect species (less than 3 percent) are considered to be pests of humans, animals, crops, or fiber. Most insects are either outwardly beneficial or harmless." Therefore, the sensible solution is to control pests without harming other insects.

- Non-toxic solutions include mechanical traps and barriers, water and soap sprays, and removing and destroying large insects by hand. Home remedies such as hot peppers, garlic and herbal mixtures may be helpful.
- Another option is biological controls... predators, parasites, and diseases.

• Herbicides

Herbicides kill vegetation—both landscape plants and weeds—so utilize these chemicals with caution.

- Hand pulling or hoeing weeds is a tedious yet effective means of control. Make sure you remove the weeds before they go to seed.
- Boiling water and vinegar sprays are home remedies worth trying.
- Never use soil sterilants in a landscape setting. In addition to eliminating plant growth, they remain in the soil for long periods of time and may spread through the soil and kill desirable plants.

Landscaping responsibly should be a top priority for the homeowner. Show your appreciation for our beautiful desert environment by protecting it! ■

"On every stem, on every leaf, ...and at the root of everything that grew, was a professional specialist in the shape of grub, caterpillar, aphid, or other expert, whose business it was to devour that particular part."

—OLIVER WENDELL HOLMES



Photography: Candice Sherrill

Of Blue Skies and Brilliant Sunsets

by Sue Hakala, Master Gardener

When I first moved here from the Chicago area, I was amazed at the breathtaking blue of the Arizona sky. Even now, twenty-six years later, I still often sit in my yard with my chair tilted back, agog at the astonishing color display overhead.

Perhaps, like me, you've wondered why our sky is sooo blue. It's because somewhere in the earth's atmosphere there is a layer containing tiny floating water droplets called aerosols. These aerosols come in various sizes, and they scatter light coming to us from the sun to produce the color differences we see in our skies. They seem to scatter all the colors of the light spectrum about equally.

In climates more humid than the Sonoran Desert, such as in the Midwest and the East, the sky may look white, hazy, foggy, bright—but not blue. This is because there are more aerosols in the air in those parts of the country, and the light is more scattered. Here in the Valley of the Sun we have fewer aerosols in the atmosphere, so more of the color blue is allowed through to create, at least to our eyes, our fabulous blue sky.

Now, if we were looking at the sky through the eyes of, say, a honeybee or a hummingbird (both of whom see ultraviolet light which our eyes don't), the sky would appear to be a different color. And if our atmosphere were the same as Mars, I would be explaining why our daytime sky is such a beautiful shade of orange-red instead of blue.

Our state's spectacular sunsets—with the beautiful afterglow that we are fortunate enough to experience—are also related to aerosols in the atmosphere,



as well as to the distance sunlight must travel to reach us at different times of the day and the amount of airborne dust in the sky.

As light zooms at us from the sun, it bounces off air and water molecules as it is entering our atmosphere and scatters in all directions. At noon when the sun is near to us, sunlight scatters out and diffuses the warm end of the color spectrum (red, orange, yellow), so that blue dominates. At sunset the light has to travel further, bouncing off a greater number of air molecules and scattering out the cool end of the spectrum (blue, green, purple), so that the warm colors dominate.

In the desert airborne dust attaches to the water droplets—those old aerosols again. This dust intensifies the dominant reds bouncing off the aerosols at dusk, creating our famous sunsets. So ironically, days of high pollution and airborne dust contribute greatly to our bright red sunsets. During the calm of night dust settles out of the air, which is why the color of our sunrises aren't as spectacular as our sunsets. The best stargazing takes place after midnight, when skies contain the least amount of dust.

The next time you're enjoying a sunset, you may notice a blue band making its way across the sky. Relax. It's just the earth's shadow reflecting on our atmosphere, a comforting reminder that evening is on its way. ■

Computer Corner

by Candice Sherrill,
Master Gardener

DEPARTMENT OF STATE
Traveling abroad this summer? Check out the U. S. Department of State's Bureau of Consular Affairs website for the latest announcements, recommendations and warnings. Gives general advice on important travel issues...from preparing for a crisis abroad to bringing food, plants and animals back into the country. <http://travel.state.gov/>

GARDEN GLOSSARY
Gardening neophytes and adepts alike should find this handy reference useful. It currently lists 4400 terms relating to botany, gardening, horticulture, and landscape architecture. And it's updated regularly. <http://glossary.gardenweb.com/glossary/>

PALM ENCYCLOPEDIA
Have a particular interest in palm trees? This extremely comprehensive site is a virtual palm encyclopedia that lists palms found throughout the world. Includes many, many photos, as well as a wealth of horticultural information. http://www.planta-palm.com/vpe/vpe_toc.htm

ONLINE CONVERSIONS
Bookmark this site to quickly look up conversions. Includes length, temperature, speed, volume, weight, computer, cooking, energy, financial, and many more. <http://www.onlineconversion.com>

TURF TIPS
Summer is here and lawns are growing lush. The U of A's Dr. Dave Kopec discusses turf. <http://ag.arizona.edu/turf/tt.htm>

Summer Corn: A Tempting Tradition

BOTANICAL NAME

Zea mays

COMMON NAMES

Maize, corn, elote

ORIGIN, HISTORY & FOLKLORE

Corn is native to the Americas. It is descended from teosinte, a wild grass that continues to thrive in parts of Mexico, Guatemala and Honduras. Archaeologists have found 7,000-year-old evidence of teosinte in dry cave deposits in the Tehuacan Valley of central Mexico.

More than 5,000 years ago, prehistoric people were selectively cultivating maize, along with other plants native to the region (i.e., squash, beans, gourds, chili peppers, avocados, and amaranth).

By the time Columbus arrived in the New World, maize was grown through-

out the Caribbean and Americas, from southern Canada to the Andes of Peru.

The horticultural expertise of indigenous people has given us varieties that thrive in the "long day, short growing season" of the northern latitudes, as well as the hot and humid tropics. Other varieties flourish in cold growing climates with temperatures of 40 degrees or at elevations ranging from sea level to 12,000 feet.

Varieties grown by the Hopi and Navajo have the ability to emerge from a planting depth of up to 18 inches. This is truly amazing since most varieties fail to emerge if planted deeper than 3 or 4 inches.

An 1828 seed catalog listed one variety of "modern" sweet corn. By 1881, gardeners could choose from 16 varieties. Today, there are hundreds.

DESCRIPTION

Corn is a member of the Poaceae (*Gramineae*) family, which includes most grains and grasses. It is an annual and one of the most easily identified plants in any home garden or farmer's field.

Corn has an upright growth habit that can reach 15 feet in height. It is a monocot, which means it has vascular bundles scattered throughout the green stem. Plants may also produce secondary or side shoots that form at ground level or near base of the main stalk.

The dark green leaves exhibit parallel venation and grow to be 2 to 4 inches wide and 2 to 3 feet long.

The roots are that of a grass: a network of shallow, easily damaged roots that can spread a foot or more outward from the main stalk. To improve stability, plants may produce sturdy support roots.

Pollen is produced by specialized male flowers that form in terminal plumes, commonly called tassels. The female flowers, which are found on the lower leaf axils, consist primarily of two parts: the ear and a group of strands, called silks. One pollinated silk produces one kernel.

The fruit (kernels) are large, starchy grains on a thick and sturdy axis (cob). Depending on the variety, cobs may have 8 to 24 rows, with kernels appearing in straight lines or random patterns. Corn comes in a rainbow of colors, from white to red and blue to black.

Corn types are based on the shape of kernel. The most common are Flour, Flint, Flour/Flint, Dent, Sweet and Popcorn.



Illustration: Art Today

The Flour types tend to be soft grinding varieties typically used for cornmeal and hominy. The Flint types, which have hard pericarps, are difficult to grind when dry, but offer a greater resistance to insect damage and, therefore, have a longer storage life. The Flour/Flint types have kernels that are hard on the outside and soft on the inside.

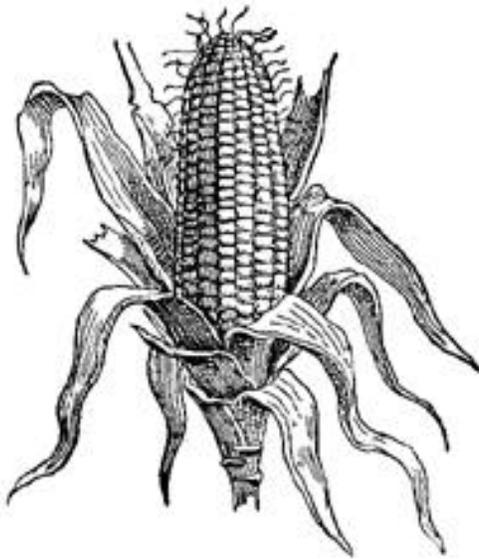
Dent types have a dent on the crown of each kernel and are usually grown for animal feed. Sweet types are grown for fresh eating since they are better at producing and holding sugar in the kernels.

Popcorn is a type of flint with colorful, small kernels that burst open when exposed to heat. There are two major kinds: pearl (smooth with rounded crowns), and rice (pointed crowns).

HOW TO GROW

Corn requires full sun, adequate water and benefits from rich, well-drained soil with a pH of 5.8 to 6.5. In the low desert southwest, corn can be planted in early spring (February/March) and late summer (July/August).

Those who prefer the conventional method for growing corn should sow seeds 1 to 2 inches deep in rows spaced 3 to 4 feet apart. Seed spacing depends on the chosen variety and the preferred practice of the gardener. Some garden-



ers sow 1 to 3 seeds in clusters spaced 12 to 18 inches apart. Others sow 1 to 2 seeds every 3 to 4 inches and thin until they achieve the desired spacing.

Because corn pollen is distributed by wind,

better results are achieved when plants are arranged in blocks or spirals with at least 4 plants in all directions.

Corn is a heavy feeder. Once plants reach 6 inches tall, they benefit from regular side dressing with nitrogen rich fertilizer. At a minimum plants should be fertilized 3 times: when knee high, when waist high, and when tassels and silks appear.

Most of the literature available today focuses on growing sweet corn by conventional methods. However, I prefer corn circles, a more traditional method closely associated with the Hopi and Navajo people.

A corn circle is a round basin with a raised ridge around it. The corn circles I use are typically 2 to 3 feet in diameter, 4 to 5 inches deep and spaced 4 to 5 feet apart.

—continued page 14

Corny Stuff!

THE STORY BEHIND STOWELL'S EVERGREEN

The original strain of this variety was bred by Nathaniel Newman Stowell, who was born May 16, 1793 in New Ipswich, Massachusetts. After years of refining the strain, Nathaniel sold two ears of seed for \$4 to a friend who agreed to use it only for his private use. His "friend" then turned around and sold the seed for \$20,000 and it was introduced to the seed trade in 1848. After 150 years, his variety is still the leading white variety for home gardens and market growers. —from the Seed Savers Exchange 2003 Seed Catalog, p. 16

Teosinte literally means "God's corn."

Got Texas Root Rot? Try corn, it's a monocot!

All corn types are edible in their milk stage. That's when you press your thumbnail into a kernel crown and out squirts a milky, sweet liquid.

Corn planted in July or August will ripen during cool nights, and this is said to increase its sweetness.

Corn circles allow water to be captured or applied and directed downward toward the roots. In addition, when seeds are sown in a spiral, the outer ring of plants creates a protective wall around plants in the center of the circle. Regardless of wind direction, pollen is carried into the center of the circle where it is more likely to land on exposed silks.

I love to grow native, desert-adapted or heirloom varieties. My current favorite is "Stowell's," which does well when planted in corn circles. I sow 12 to 15 seeds in a spiral pattern 6 to 8 inches apart and 2 to 3 inches deep.

I use the traditional companion planting technique of "Three Sisters." Between corn circles, I plant beans or black-eyed peas and squash. The corn provides afternoon shade, as well as support for the beans or peas. The beans or peas increase the amount of



Photography: Donna Atwood

nitrogen available to the corn and squash, which reduces the need for side dressing. The squash plants weave their way around the stalks and their large leaves shade the soil, which reduces moisture loss due to evaporation.

Whether you prefer growing corn by a conventional or traditional method, when temperatures soar above 90 degrees, it may be necessary to hand pollinate in the early morning hours to ensure a good harvest.

The method I use is to take a large stainless steel bowl and hold it next to the main stalk just below the tassel. Then tap the tassel so pollen falls into the bowl. Collected pollen is then distributed onto exposed silks.

VARIETIES & SEED SOURCES

Stowell's is an heirloom variety originally introduced in 1848. The plant grows 8 to 10 feet tall and produces two or more 7- to 9-inch-long ears per plant. These sweet-fla-

vored, white-kenneled ears mature in about 100 days.

I choose Stowell's for fall planting because it "holds" fresh-eating ears longer than other varieties. It is also unique in that should the weather turn unseasonably cold, the plant can be pulled up with immature ears attached and hung upside down in a cool place, such as a garage or storeroom, where the ears will continue to ripen until they can be harvested.

Most local plant nurseries or mail order seed houses offer a wide variety of corn seed. My favorites are Native Seed Search, Seeds of Change and Botanical Interest. Limited selections by Seeds of Change and Botanical Interest can be found locally at Whole Foods.

PESTS & DISEASES

Insect pests include the corn earworm, Southwestern corn borer, corn seed maggot, flea beetle, Japanese beetle, and corn sap beetle. Other pests include birds and raccoons.

Diseases include Stewart's wilt, stunt and smut. Smut is said to taste similar to mushrooms and is considered a delicacy in many parts of the world, including Mexico.



Illustration: Art Today

WHEN TO HARVEST & HOW TO STORE

Look at the silks, which darken and dry as the ears mature. Squeeze and feel the ear through the husk to check for kernel plumpness. If an ear looks and feels ripe, then gently pull back the husk to expose a small portion of the ear. Press your thumbnail into a kernel crown to see if squirts out a milky, sweet liquid. If the fluid is clear the ear is not yet ripe, so replace the husk and check again the following day. If the fluid is thick, the ear is still edible but past its prime, so harvest and use as soon as possible.

The method I use to harvest an ear requires both hands. I use one to hold the main stalk above the ear to be harvested. With the other hand I grab and twist the ear, then pull down and away from the stalk.

For short-term storage, leave ears in the husks and refrigerate. For longer storage, whole ears can be frozen unhusked and unblanched. Simply place them in the freezer for about 48 hours, then put them in freezer bags and return to the freezer. Janet Banchand Chadwick, in her book *The Busy Person's Guide to Preserving Food* details other ways to preserve quickly and easily your bountiful corn harvest.

SEED SAVING

According to Susan Ashworth, sweet corn varieties maintain 50 percent germination for 3 years. Flint, dent and popcorns retain high germination rates for 5 to 10 years. If you plan to save seed, please read the section on corn in Susan Ashworth's book *Seed to Seed*. It is a complex process, and Ashworth provides clear instructions and photographs that detail various methods, including hand pollination and "bagging" of ears and tassels.

NUTRITIONAL VALUE

Corn is a source of vitamins A, B1 and C, as well as phosphorus. Corn is also high in carbohydrates and contains protein and amino acids. In fact, when corn is eaten with beans and squash, the combination of amino acids creates a protein equivalent to that of meat.

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"Though I do not believe that a plant will spring up where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders."

—HENRY DAVID THOREAU

Grilled Corn in the Husks

One of the home gardener's greatest taste treats is that of freshly harvested corn that is immediately prepared and eaten! Almost everyone has a favorite way to prepare this delightful vegetable.

- 4 ears corn, unhusked
- 1-2 sprigs of fresh herb (such as basil, cilantro, oregano, thyme, and chives) or 1-2 teaspoons of dried herbs
- 2 garlic clove
- 2-4 tablespoons softened, unsalted butter

Peel back, but do not remove, the husks from the corn. Remove the silks and place ears in cool water to soak for about 15 minutes.

Finely mince the herbs and garlic. Add it to the butter and mix until you have a relatively smooth paste.

Drain the ears. Coat each ear with about 1 tablespoon of the butter mixture. Bring the husks back over the ears.

Cook on the grill over a medium high fire, turning frequently for about 10-20 minutes. The husks will be dry and the kernels will begin to brown. Pull back the husks and serve hot off the grill.

Based on a recipe in *The Vegetarian Grill* by Andrea Chesman.



Going to Bat for Bats

by *Marion Adams,*
Master Gardener Intern

Did you know:

- There are nearly 1000 species of bats worldwide.
- The United States has 44 species; approximately 18 species in the desert southwest.
- Bats are unique among mammals because they can fly.

Although bats are more likely than most small mammals to live out their full life potential, there is a serious decline in bat populations in the

United States, with some species in danger of extinction. Bats have many natural enemies, but the most significant cause of their decline is human activity. Destruction of the bat's natural habitat and contamination of their food and water sources are two factors that have contributed greatly to their decreasing numbers.

Bats are generally very shy creatures, and avoid humans whenever possible. Some live singly, while others live in colonies. Some hibernate in the winter; others migrate great distances. Some fly in daylight; others at dawn or dusk,

with some species flying only under cover of night. Contrary to popular belief, bats are not blind; most can see very well (only in black and white). Many also use a unique radar system called echolocation, which helps them to navigate in complete darkness. The continuous high-pitched sounds bats produce are far above the human range of hearing, but they allow the bat to receive echo patterns that help them locate food and warn them of obstacles.

There is a common misconception that bats are dirty. In reality, bats are very clean mammals and may spend as much as 30 minutes "bathing" before settling in to sleep.

Unwarranted fears have given bats a bad reputation and have led to unjustified attempts at eradication. Bats are very docile. Even rabid bats are rarely aggressive; they are responsible for only about one death per year in the United States. Comparing that to "mans' best friend," a greater number of human beings are attacked and killed by dogs in one year than succumb to bat rabies in an entire decade or longer. Left alone, bats pose little threat to humans.

The benefits bats provide are numerous. Some bats are primarily fruit and nectar eaters. This makes them great pollinators and seed dispersers. Less than 3 percent of all bats are carnivores, dining on small vertebrates as well as insects. Nearly all bats living in the United States feed on bugs. They are the primary predator of night-flying insects. A single little brown bat can eat 1200 mosquito-sized insects in an hour! If that's not amazing enough, a



Illustration: Art Today

Ask a Gardener

by Judy Curtis, Master Gardener

UNDERAPPRECIATED DESERT TREES

colony of bats living under the Congress Avenue Bridge in downtown Austin, Texas consumes approximately 40,000 pounds of insects nightly!! Another benefit, bat guano, is mined by the ton as one of the world's most valuable fertilizers.

There is an urgent need for bat conservation. Displaced bats need new homes. You can help attract bats to your yard by providing a suitable place for them to roost and raise their young in safety. The Bat Conservation International group web site (www.batcon.org) has good information on properly designed bat houses for purchase, as well as plans for building your own. They also provide information for the most successful placement of your bat house. Many catalogs offer artificial roosts, but generally these are of poor design with little information on proper placement.

Bats are fascinating creatures to watch, as well as wonderful natural pest controllers. Don't be discouraged if they don't take up residence immediately in your bat house. It may take several months or even a season or two before they move in.

Arizona bat species known to use bat houses are: Pallid bat, Big brown bat, Cave myotis, Yuma myotis, Mexican free-tailed bat. ■

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www.azwildbirds.com/bats
www.batcon.org

QUESTION:

I have a small yard. What are some suggestions for trees that won't get too large for the space?

How wise to consider the eventual size of the trees you are going to plant. Thinking ahead will avoid the expense of removing overgrown plants and repairing damage from invasive roots later on. Here are three trees that deserve more attention in our landscapes. They are all moderately fast growers to between 15 and 20 feet.

Local nurseries can order them if they are not in stock.



Prosopis pubescens

A Sonoran native, the screwbean mesquite sports unique spiraled pods that are edible like those of its close relatives. Pods can also be soaked and used in outdoor grilling for flavor. This tree has yellow flowers that bloom in late spring. The feathery foliage is deciduous and it is both frost hardy and heat tolerant. It provides filtered shade in summer, allows sunlight to come in during winter, and is considered a relatively clean tree because of its small leaves. The wood has been highly prized in the past, and was used to make gunstocks during World War II.

Eysenhardtia orthocarpa

The common name, kidneywood, refers to its historic uses for medicinal purposes. It has fragrant white flowers that smell of vanilla and are attractive to butterflies. Also a Sonoran native, it will take full sun, reflected heat, poor soils, and cold weather. Depending on the winter temperatures, it is semi-evergreen to deciduous.

Pistachia lentiscus

This Asian import, known as the mastic tree, is evergreen and provides more shade than the other two. It has a long history; leaf fossils from it have been dated back six million years. Its resin is used for chewing gum and perfumes, the small red fruits that turn black are ingredients in sweets in Asia, and the tannin is used to tan leather. It also withstands heat, drought, poor soils, and is hardy to about 20 degrees.

For more small tree suggestions go to tucsonbotanical.org. Click on garden info and links, and then click on "Think Small." This is an excellent site about small desert-adapted trees with photos and tables of the characteristics of various species. ■

The Prickly Pear: Handle with Care!

BOTANICAL NAME

Opuntia spp.

COMMON NAMES

Prickly pear cactus, beavertail, Santa Rita, Indian fig, bunny ears, cow's tongue, etc.

A beautiful desert garden can be achieved with a good mixture of desert-adapted trees, shrubs, succulents, and wildflowers. One great natural choice for an Arizona garden is the prickly pear. From treelike and shrubby to low-growing mound, there is a prickly pear to fit the needs of almost any landscape. Unfortunately, they don't often find a place in the garden due to the dreaded glochid, those nasty, nearly invisible bristles that become detached at the slightest touch. They're also prone to outgrow their welcome over time, but with proper pruning they can be kept in bounds.

CLASSIFICATION & RANGE

The genus *Opuntia* is the largest and most widespread of the family Cactaceae, subfamily Opuntioideae. It contains 181 species plus 10 naturally occurring hybrids, and is found from Canada to southern South America. It is divided into the *Opuntias* (prickly pears) and *Cylindropuntias* (chollas).

Opuntias and *Cylindropuntias* are distinguished from other cacti by four characteristics: First, their stems are segmented into distinct joints or pads called cladodes. Stems have determinate growth, that is, the onset of the dry season permanently stops the elongation of joints or cladodes. Second, although regular spines may be present or absent, they all bear glochids. (Some more than others!) Third, rudimentary leaves are present as new pads or joints are formed. They dry and fall off as the



spines become visible. Fourth, while most other cacti have shiny black seeds, *Opuntia* seeds have a pale covering called an aril.

HISTORY, FOLKLORE, & USES

Opuntias have been an important food source for many of the native peoples of the Americas. Native Americans in Mexico and the Caribbean were cultivating *Opuntia ficus-indica* (Indian Fig Cactus) prior to their conquest by Spain in the sixteenth century.

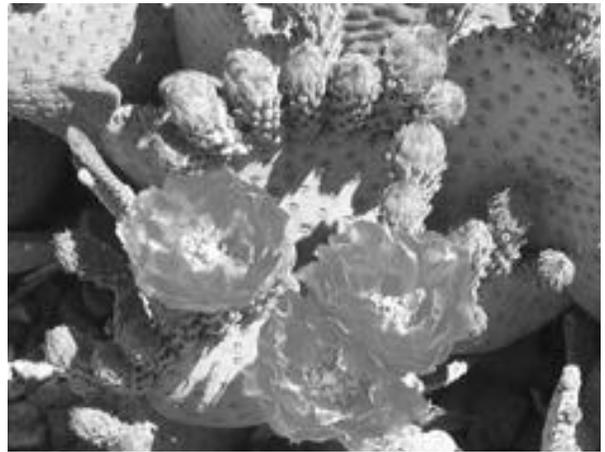
The Spanish took the Indian Fig Cactus back and introduced it to their country, and it spread from there to North Africa, Italy, Greece and other Mediterranean countries. It has since become naturalized in these areas.

Indian fig has been used for medicinal purposes as a treatment for diabetes, whopping cough, rheumatism and nosebleeds. The fruits (called tuna in Spanish) of some species are very tasty. With the glochids and spines removed, they can be eaten fresh, or the juice can be expressed to make jellies, drinks, and syrup.

The Aztecs had large plantations of *Opuntia cochenillifera* infested with cochineal scale, *Dactylopius coccus*, to support their dye industry. The dye, made from the dried crushed bodies of the cochineal insect, was used to color the robes of the Aztec emperors. Like



Photography: Candice Sherrill



O. ficus-indica, the Spanish brought the dye back to Europe. At the time, it was worth more than gold! Interestingly, the dye was used to color the “redcoats” of the British soldiers who fought in the American Revolution.

Opuntias have also played a part in the construction of Spanish missions in California. The mucilage from the stem joints was used to strengthen adobe mortar. It was most recently used in the restoration of the San Xavier del Bac Mission in Tucson.

People aren't the only creatures to find Opuntias useful. Javelina, rabbits, and packrats eat prickly pear pads. Packrats and some birds build nests in low growing prickly pears, safe from coyotes.

OPUNTIAS TO CONSIDER

Beavertail Prickly Pear (*Opuntia basilaris*) is a beautiful low-growing plant. The wedge-shaped pads are blue-gray and grow from the base of older pads. It spreads about 2 to 3 feet with a height of about 20 inches. Magenta flowers appear around late February or early March.

Santa Rita or Purple Prickly Pear (*O. violacea v. santa rita*) has blue-gray pads with a purplish coloration that intensifies in times of drought or cold weather. It grows about 4 to 5 feet tall and as wide, with more of an upright (rather than spreading) growth. Yellow flowers bloom from April through May.

Engelmann's Prickly Pear (*O. engelmannii*) makes an outstanding specimen plant. It grows to form a spreading mound about 4 to 5 feet tall and 10 feet wide. Yellow flowers bloom between April and June, but the real show starts with the formation of the dark red to

purple fruit, which persist for months.

Indian Fig Prickly Pear (*O. ficus-indica*), with its treelike growth and height of 6 to 18 feet, makes for an excellent border or background plant. Flowers are yellow or orange-red, and the fruits are edible. With its origins in tropical America, this prickly pear needs a little more water in the summer than the others listed.

PROPAGATION & CARE

Prickly Pears are a great plant to consider if you have a spot in your garden that is too hot to grow anything else. Purchase smaller plants, which are definitely easier to handle. Once established, they will grow pretty quickly (for a cactus, anyway). Remember to consider the mature size of the plants and pick a site away from pedestrians and play areas. Use beaker tongs, a piece of folded newspaper, or old (no longer in use) garden hose to handle the plants. Minimal water is needed. Once every 2 to 3 weeks in the summer is sufficient for new plants. When established they can generally survive on rainfall alone. As with any herbaceous plant, however, shriveling or wilting means they need to be watered.

Propagation couldn't be easier! Using beaker tongs or a piece of folded newspaper, just cut off a pad. (You can swap pads with a friend!) Let the wound dry for about a week, then plant the pad in a shallow depression cut side down. Water every 2 weeks to get the roots started.

Pruning your prickly pears is also a simple matter. First and foremost, be fearless but focused! Use either a clean

saw and tongs to hold the pad steady, or loppers. Forget the gloves! You'll only end up throwing them away. (Remember prickly pears have glochids). Step back and really look at the plant to determine which pieces you want to remove. Make sure you see all the pads that are connected to the ones you want to remove. (You can't reattach them)! For a natural look follow the line of pads to be removed and make the cut where the remaining pads will hide it. It's an easy process...just watch your fingers, elbows, knees, etc!

Should you notice white cottony masses showing up on the surface of your Opuntias, they are the aforementioned cochineal scale, there to feed on the plant's juices. A good blast of water from a garden hose should dislodge them. Since they need the plant to feed on, once they are dislodged they soon die.

So there you have it... the perfect plant (if you forget about the glochids)! They can take the heat, sun, cold, and lack of rain, and they don't have problems with pests. Better yet, if you plant them around the perimeter of your yard or under a vulnerable window, you can keep pests of the human type out! ■

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Birds in the Garden

by Mike Mekelburg, Master Gardener

Professional birder Tom Savage gave an exceptional talk on bird gardening at the last Ajo Garden Club meeting. It was immediately clear that Savage knows his Arizona low-desert birds; what they eat, where they nest, how to attract them.

What was of even greater interest were some of the hard-hitting points Savage made that brought an occasional gasp from the audience.

For instance not everyone should try to attract birds to their yard, and here's the reason: An estimated 12 million

birds are lost every year in the United States to cats. A further 100 million are lost each year to collisions with picture windows. Ergo, if you have cats or picture windows in your house, you may be doing more harm than good by bird gardening.

Sadly, all the birds killed by cats and windows is a drop in the bucket compared to those lost to destroyed habitat; namely development of the land.

Savage noted that there has been a tremendous decrease in bird popula-

tions, so bird gardening is definitely beneficial. But don't just do it, do it right.

The most basic ingredients of successful bird gardening are water and cover. A rock or perch of some kind can be placed in the water supply so small and young birds can partake. Cover can include plants that provide food, shade, and nesting. Prickly pear cactus and aloe vera are good choices.

Seed feeding is a mistake according to Savage. Desirable birds can forage for themselves. Seed feeding helps the house sparrow, the most common bird in Arizona, who tends to take over an area and drive off more desirable birds.

Remember that hummingbirds should only be given a sugar and water solution mixed at the ratio of 1 part sugar to 4 parts water. Honey, corn syrup, and food colorings are not recommended.

There may be nothing we can do about the rapid development of our low desert habitat, but we can take steps to bring that habitat back into our yards. Landscaping with native plants is generally a win-win situation. ■

“The man who has planted a garden feels that he has done something for the good of the world.”

—VITA SACKVILLE-WEST

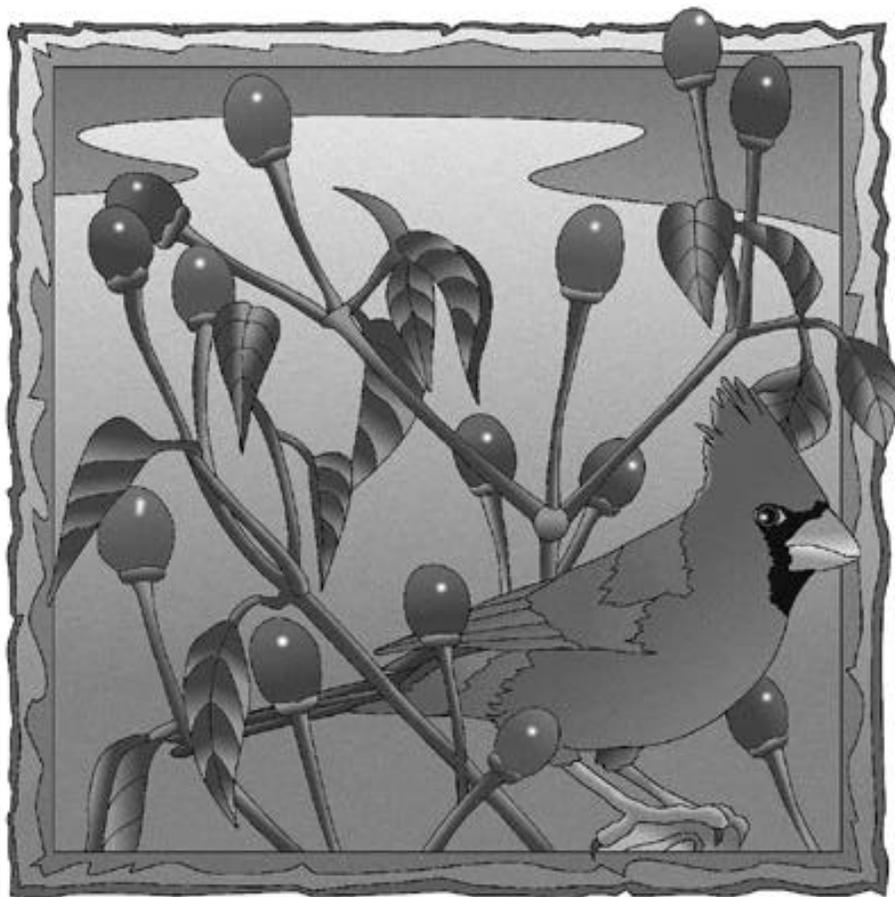


Illustration: Donna Atwood

Watering & Plant Care Tips for Summer's Sizzle

by *Donna DiFrancesco Master
Gardener, Water Conservation
Specialist City of Mesa*

Don't let our current spring-like weather fool you. Summer is just around the corner and the long, hot, dry conditions ahead can tax the endurance of many plants. For plant success this summer season, follow these tips:

ADJUST WATERING SCHEDULES

Water needs will increase as the temperature rises. Landscape watering guidelines are available from your city water conservation office. They are printed onto a handy, plastic card that can be placed right inside your irrigation controller box. Call your water conservation office for a free copy.

CHECK IRRIGATION SYSTEMS

Replace clogged drip emitters and repair leaks. Increase emitter numbers and adjust emitter placement on trees. For sprinklers, place cups or cans out in your lawn, turn your system on, and check for uneven coverage to determine problem areas.

MULCH PLANT ROOTS

Replenish organic mulches around your plants each year to improve soil, reduce moisture loss, and keep roots cool during the summer months. Keep mulch away from plant trunk or main stem and cover the mulch with granite if you prefer.

REMOVE WEEDS

Winter weeds can compete with landscape plants for water. Remove the weeds by hand or check with your local nursery for safe weed sprays.



FERTILIZE NON-NATIVE PLANTS

Follow product label recommendations to fertilize established non-native plants. Native plants usually do not require fertilizers and generally grow better without them.

PRUNE FROST-DAMAGED PLANTS

If plants have been damaged by the cold, wait until new growth emerges before you prune. Prune other plants only when necessary. Low tree limbs or branches keep plants shaded and cooler in summer.

REPLANT LOST PLANTS

If plants have died or are not performing well, plant new ones before the summer heat sets in. Be sure to select native or well-adapted plants to ensure future success. ■

Garden-Smart TIPS

EASY ID TAGS

for your vegetable garden can be made from the plastic tags that come with your transplants. I take a hole punch and punch a hole in the end of the tags and twist-tie them to my tomato cages, trellises or wherever I need to identify a specific variety. (from Bonnie Newhoff, Master Gardener)

KNOW WHEN TO WATER POTTED PLANTS

using those complimentary raw wood chopsticks that many oriental restaurants make available. One set of chopsticks takes care of two plants; just snap them apart and gently twist them down into the soil. A quick glance will tell you it's time to get out the watering can.

TIRED OF LOOKING AT THOSE WHITE, 60S-ERA SCALLOPED BORDERS?

Pull them out a few at a time, scrub them off, and paint them in earth tones (or even wilder colors if you prefer) once they're dry. Now put them back where you got them—only upside-down! Voila...an updated look that not only costs very little, but also keeps excess material out of the landfill!

MAKE YOUR BED AND BASK IN IT!

A clever friend recently put a rusty old bed frame to good use in her garden. She partially buried it and turned what would have been the mattress area into a mounded "bed" for her annuals. Each season, she creates the look of a patchwork quilt by planting the bed with 2 colors of annual plants.

Summers Past Farms

Summer has come and the charms of San Diego are nudging more persistently—cooler climes, surf and shoreline, cloud cover, and sweatshirts in the evenings. Or perhaps it's the zoo, Shamu, or Balboa Park that come to mind.

Although rural attractions are seldom associated with this coastal city, just a few miles to the east there is an incredible opportunity to relax and indulge the senses. For in the San Diego foothills is hidden a most colorful and charming countryside retreat, Summers Past Farms.

This is written from a distance of some four summers past, when I first discovered this enchantingly rustic collection of country stores and barn, theme gardens, fields of herbs and flowers, water features, and pets-at-large. While my recollections may be a bit hazy I am quite clear on my exceedingly reluctant departure following a full morning there—not because it meant returning to Phoenix, but because I was simply captivated!

Quite happily will I soon make a return visit to take in such recent additions as the lavender field with its Provence-style facade of fountains, courtyard and a Grand Allé of arches in the style of Monet.

It was suggested that a late spring visit shows the farm at its fragrant and colorful best. Sweet Pea Day was in late

April while the superb morning glories were just featured in *Sunset Magazine*. Perhaps this is true, but I knew no disappointment during a mid-July excursion. At the time, the many outdoor offerings

included an aromatic, octagonal-design herb plot, a Shakespeare Garden, an area for children's plantings, a Garden of Delights which led to the Wedding Arbor, a cutting garden, green houses and the obligatory potager (French for a kitchen garden). Then, beyond, are the fields of everlasting flowers and herbs.

A large post-and-timber barn is home to thousands of dried herbs and blooms suspended from the rafters, as well as books, swags, unique floral offerings and aromatherapy products. Crafting classes are held in the bright

loft area, from which you can gaze onto the colorful fields while hand selecting your materials from the beams. The nursery specializes in herbs and fragrant plants

with a growing collection of perennials, all available for purchase.

Equally impressive is Ye Old Soap Shoppe and Factory, purveyors of very fine vegetable-based soaps as well as bath and skin care products. The adventurous can purchase soap-making kits, cutters, molds and other supplies. You can always return for one of



the many soap-making classes offered.

A fairly large event area permits special festivals year round. Summer's programs begin with the Fairy Festival on June 7. Bring your gauze, wings and other regalia to participate in the Fairy Fashion Parade. Prizes will be awarded to the best wee garden, that patch considered most alluring to the farm's pixies. You can pretend you are in the fields of Provence on June 21, when the many varieties, smells, colors and uses of lavender are featured. Visitors are encouraged to dress in shades of purple then. Geranium Day is celebrated July 12, when the nursery will be filled with an array of varieties, and staff will be on hand to discuss uses and cultivation of these excellent plants. August 16 brings the Summer Salsa Competition. You don't have to share your recipe, but you must be registered a week in advance to compete.

Don't forget a picnic blanket. Gourmet box-style lunches are generally available on these festival days. Light refreshments are offered at the Espresso/Snack Bar. A hat and water are recommended, as it's often warmer in the highlands than in San Diego proper.

If your plans don't permit a visit to the farm, you can check out the products of the Ye Old Soap Shoppe at its sister outlet of the same name in Old Town San Diego, at the corner of Harney



Photography: courtesy Summers Past Farms

Street and San Diego Avenue.

There is no charge to visit Summers Past Farms, open Wednesdays through Sundays. From San Diego, travel east on I-8, exit Harbison Canyon/Dunbar Lane ramp. This is about 30 minutes from downtown. For more information call 619.390.9371, or take a virtual tour of the grounds at <http://www.summerspastfarms.com>

It's a perfect way to eke out just one more delightful day of vacation before halfheartedly returning to Valley's heat.



Summers Past Farms
15602 Old Highway 80
Flinn Springs, CA 92021
619.390.1523
<http://www.summerspastfarms.com/index.html>

Ye Old Soap Shoppe
<http://www.soapmaking.com/>

Word Wise

Definitions for terms used in this issue...

1-2-3 Rule (Things to Expect p.5)—a useful rule of thumb for watering plants: water small plants such as groundcovers and annuals to a depth of 1 foot; shrubs to a depth of 2 feet, and trees to a depth of 3 feet.

amaranth (Summer Corn p.12)—various annuals of the genus *Amaranthus*, having clusters of tiny green or red flowers. Includes weeds, ornamentals, and food plants. Also called pigweed.

carnivore (Going to Bat p.16)—a flesh-eating animal or plant.

deciduous (Underappreciated Trees p.17)—falling off, as leaves from a tree; not evergreen; not persistent.

evergreen (Underappreciated Trees p.17)—having green leaves through the winter; not deciduous.

guano (Going to Bat p.16)—dung used as fertilizer

herbaceous (Prickly Pear p.18)—having the characteristics of an herb (no above-ground woody stems); not woody

indigenous (Summer Corn p.12)—having originated in and being produced, growing, living, or occurring naturally in a particular region or environment.

leaf axil (Summer Corn p.12)—the angle formed between the axis of a stem and the leaf projecting from it.

mammals (Going to Bat p.16)—warm-blooded higher vertebrates that nourish their young with milk secreted by mammary glands, and usually have skin covered at least partially with hair.

monocot (Summer Corn p.12)—a plant with a single seed leaf or cotyledon (the primary or first growth that emerges from a seed); as opposed to a dicot, which has 2 seed leaves.

mucilage (Prickly Pear p.18)—a gelatinous plant substance similar to plant gums; often used as an adhesive.

naturalized (Prickly Pear p.18)—introduced from elsewhere, but becoming established in a particular geographical area.

parallel venation (Summer Corn p.12)—with primary veins running parallel to the leaf axis or to each other; as opposed to netted venation where veins run in different directions and resemble netting.

pericarp (Summer Corn p.12)—the wall or outer layer of the fruit; the ripened wall of a plant ovary.

resin (Underappreciated Trees p.17)—a sticky organic substance (usually transparent or translucent and flammable) formed in plant secretions and insoluble in water.

scale (Prickly Pear p.18)—an infestation by a prolific group of homopterous insects with winged males and wingless, scale-covered females that attach themselves to a host plant. The young suck the juices out of the plant.

side dressing (Summer Corn p.12)—to place nutrients on or in the soil near the roots of a crop, not directly on it.

specimen plant (Prickly Pear p.18)—a term used by people in the nursery industry to mean a tree or shrub large enough to significantly impact a landscape; a large, conspicuous plant.

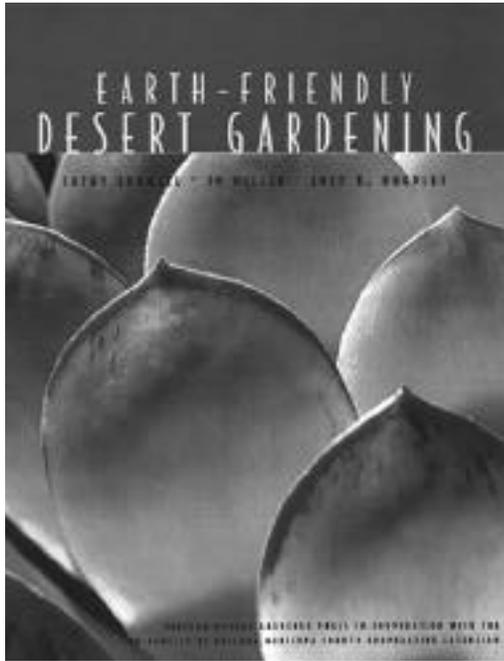
tannin (Underappreciated Trees p.17) Any of various soluble, astringent plant substances used in tanning, dyeing, inks, and medicines.

vertebrates (Going to Bat p.16)—organisms having a spinal column.

HOT OFF THE PRESS!

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An Arizona Master Gardener Press Publication



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