



High on the Desert Cochise County Master Gardener Newsletter

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

Edible Desert Plants—Part I

Picture yourself out on an enjoyable hike one morning. Suddenly, with a start, you realize you're lost and can't find your way back to the road or car. After finding shelter, you notice you're out of water and getting hungry. If ever you were caught in a survival situation like this in your local county, living "off the land" might become a necessity rather than just a scenario. To that end, I'd like to detail here some of the edible plants that are found in a desert environment.

Always remember to learn as much as possible about the plants you intend to use for food beforehand, along with their unique characteristics. **Note:** some plants have both edible and poisonous parts. Many are edible only at certain times of the year. Others may have poisonous relatives that look very similar to the ones you can eat. **Accurately identifying plants before using them as food is essential**, as many have died from eating poison hemlock, which looks similar to its relatives, the wild carrot and wild parsnip. Also,

never eat mushrooms in a survival situation! There is never room for experimentation with a fungus.

To avoid potentially poisonous plants, here are some general guidelines. Stay away from any wild or unknown plants that have:

- Milky or discolored sap
- Beans, bulbs or seeds inside pods
- Bitter or soapy taste
- Spines, fine hairs, or thorns
- Dill, carrot, parsnip, or parsley-like foliage
- "Almond" scent in woody parts and leaves (this could be evidence of cyanide compounds)
- Grain heads with pink, purplish, or black spurs
- Three-leaved growth pattern

By following the above criteria when choosing a plant, you will avoid some edible plants also. But more importantly, these criteria will help you avoid plants that are potentially toxic to eat or

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UNIVERSAL EDIBILITY TEST:

- 1) Test only one part of a potential food plant at a time.
- 2) Separate the plant into its basic components – leaves, stems, roots, buds, and flowers.
- 3) Smell the food for strong or acid odors. (Remember, smell alone does not indicate that a plant is edible or inedible.)
- 4) Do not eat for 8 hours before starting the test.
- 5) During the 8 hours you abstain from food, test for contact poisoning by placing a piece of the plant part on the inside of your elbow or wrist. Usually 15 minutes will be enough time to allow for a reaction.
- 6) During the test period, take nothing by mouth except water and the plant part you are testing.
- 7) Select a small portion of a single part and prepare it the way you plan to eat it (boiled, roasted, etc.).
- 8) Before placing the prepared plant part in your mouth, touch a small portion to your lip to test for burning or itching.
- 9) If after 3 minutes there is no reaction on your lip, place the plant part on your tongue and hold for 15 minutes.
- 10) If there is still no reaction, thoroughly chew a piece and hold it in your mouth for another 15 minutes. Do not swallow yet.
- 11) If no burning, itching, numbing, stinging, or other

irritation occurs during this time, swallow the food.

- 12) Wait 8 hours. If any ill effects occur during this period, induce vomiting and drink lots of water.
- 13) If no ill effects occur, eat about ¼ cup of the same plant part, prepared the same way. If you still feel fine after 8 hours, the plant is safe for eating.

Note: Many valuable wild plants have high concentrations of oxalate compounds, also known as oxalic acid. Oxalates produce a sharp burning sensation in your mouth and throat, as well as damage the kidneys. Baking, roasting, or drying usually destroys these oxalate crystals, thus making the plant edible.

Next month I will discuss some of the edible desert plants.

*Julianna Stangland,
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Riparian

Riparian is a word heard more and more frequently in the Southwest. What does it mean and why should we care about the future of riparian areas?

The term “riparian” has been defined to include vegetation,



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habitats, or ecosystems that are associated with bodies of water (streams or lakes) or are dependent on the existence of perennial, intermittent, or ephemeral surface or subsurface water drainage.

To put it more simply, riparian areas are the green ribbons of trees and shrubs growing along water-courses. The cottonwood grove you like to picnic under while the kids play in the sand along a dry river bed and the stream’s edge where they chase tadpoles and dragonflies, are among the riparian habitats we enjoy.

Riparian ecosystems take on many forms depending on the local physical conditions (soil, temperature, water flows, etc.) and on where they are found (elevation, valleys, canyons, etc.).

Riparian Facts:

- ◆ Arizona encompasses 73 million acres.
- ◆ 5,000 miles of perennial streams and 260,000 acres of alluvial floodplain occur in the state. This means less than 1% of Arizona can potentially support riparian habitat.
- ◆ Cottonwood-willow association is the most productive wildlife habitat in the U.S. It hosts the highest number of species of breeding birds.
- ◆ Destruction and degradation of riparian ecosystems and cottonwood-willow forests in particular has resulted in many plant and animal species becoming threatened or endangered. Of the federally listed threatened or endangered bird species that occur in Arizona, riparian obligates comprise 60%.

-Arizona Riparian Council

The Virtual Gardener—Root Camp III



Last month we learned how to give our new plant recruit a physical examination. This month we want to take a look at the proper procedures for installing the new plant once you get it home.

The first order of business in installing a new plant is to dig a planting hole. For many people this is a no-brainer. Just dig a deep hole big enough to accommodate the plant, mix in lots of organic amendments, and bury the plant nice and deep. To finish the job, stomp down the soil around the plant so it's well compacted and pour on some water. If the plant is tightly bound to a stake in the pot don't remove it when you put the plant in the ground.

"No-brainer" is an apt description of that method because it is totally wrong and almost guaranteed to lead to poor results. If you want your new plant to live a long and healthy life, you need to use some smarts when you dig a hole for it.

Years of careful research by many horticulturalists and arborists have shown that the best results are obtained if the planting hole is shallow and wide rather than deep and narrow and the backfill is not amended. Here is some specific guidance.

First, make sure that the location you have chosen for the new plant has good drainage. If the drainage is poor water will pond in the planting hole, depriving the roots of needed oxygen and perhaps causing them to rot. To test the drainage dig a hole about as deep as the root ball of the

plant is tall at the planting location and fill it with water. If the water has not disappeared in 24 hours, the drainage is poor and you will either need to pick another planting location or construct something to drain away the ponded water (more about that in a minute).

Assuming for the moment that you don't have a drainage problem, you need to dig no deeper than the height of the root ball of the plant. For trees, at least, erring on the side of a little too shallow rather than a little too deep is better. Starting at the planting location, till an area three to five times the diameter of the root ball (or more!). Loosening the soil deeper than the height of the rootball, especially under where the plant will be placed, can cause the plant to subside when it gets bigger, shearing off roots, burying the root collar (the area where the topmost roots emerge from the trunk), and ultimately causing the plant to die.

The edge of tilled area should be rough, not smooth. If the edge is smooth, the roots may circle inside the hole and never penetrate into the soil outside the hole. The technique I use when digging a planting hole is to turn the shovel so that it's at right angles to the edge of the hole rather than parallel to the edge. This leaves an irregular edge that roots are more likely to penetrate.

Now, let's revisit the problem of poor drainage. Depending on the situation, there are several ways of attacking this problem. For example, if you have a relatively shallow layer of imper-

meable soil near the surface, you can pierce it with a drainage hole in the bottom of the planting hole. The drainage hole should be deep enough to penetrate the compacted soil and reach a more porous layer beneath. If you do this, however, don't dig the drainage hole directly under where the plant will be but locate it off to the side. That will prevent a future problem with subsidence.

Now it's time to place the plant in the ground. First, remove it from its container. Remember to do this by inverting the container instead of pulling the plant out by its stem or trunk. Then dig a hole in the center of the tilled area that is slightly wider than the root ball and reaches to the undisturbed soil at the bottom (which is only as deep as the root ball is high, remember?).

Many nursery plants are now grown in artificial media—wood chips, compost, *etc.* Not everybody agrees with me, but I find I get better results if I remove all of this medium before I put the plant in the ground. I either spray it off with the hose or dunk it off in a bucket of water. Although the plants tend to look a little stressed (and may require a little shading from the direct rays of the sun) for a few days after planting, in my experience they establish faster and develop into stronger plants when the potting medium is removed before planting.

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Cuttings 'N' Clippings

* The next meeting of CCMGA is 5:00 p.m. August 5, 2004 at the University of Arizona South campus, Room B158 located in the new building (enter the front door, go straight through the building and out the back door—room is the second door on the right past the coke machine). The guest speaker is Darcy Tessman, Extension Agent, 4H Youth Development, explaining the Jr. Master Gardener Program.

* Saturday, August 7 from 9:00—11:00 a.m. a free *Water Wise* workshop will be held at Cochise College, Room 305 (**NOTE change of location**). Jan Groth, Arizona Certified Landscape Professional will present *Water Wise and Winter Interest Plants*.

* Cochise College is offering *Pond Building Basics for the Do-It-Yourselfer*, with instructor Angel Rutherford on August 30 from 6:30—9:30 p.m. For information or to register call 515-5492. There is a fee.

* Cheri Melton, Cochise County Master Gardener, will present a workshop on Saturday, August 7 at the Bisbee Farmers Market entitled *Create Bird & Butterfly Habitat in Your Garden*. The market is located in Vista Park and open from 8:00 a.m. until noon every Saturday from May through October. August 15 features compost demonstrations and August 21 celebrates herbs. For more information call 520-378-2973.

* Fresh produce and other items are also available at River

Tribes Produce located in Ramsey Canyon (just inside the gate of 35 Ramsey Canyon). Hours are 8:00 a.m. until 3:00 p.m. Fridays and Saturdays. For information contact Willow Elliot at 803-1234.

* Harvest time continues in SE Arizona. For a free *Fresh Farm Produce* brochure that includes a map, harvest calendar, and a list of all the farms, send a self-addressed stamped business envelope to: Willcox Chamber of Commerce and Agriculture, Produce Brochure, 1500 N. Circle Rd. Willcox, AZ 85643 or contact the Willcox Chamber of Commerce and Agriculture at **willcoxchamber@vtc.net** or by telephone at (800) 200-2272. Their web site is **www.willcoxchamber.com**

* Ever wondered what “that” grass is? If so, join botanists Mimi Kamp and Dr. Cecile Lumer of the Cochise County Herbarium on Saturday, August 28, for a grass and late summer wildflower identification walk. Carpool to sites in the SV valley and Huachuca mountains to leisurely walk with Mimi and Cecile while learning about local flora. Meet at the University of Arizona South, 1140 N. Colombo in Sierra Vista at 8:30 a.m. Destinations will be announced upon arrival. Please bring a hat, water, a light snack and be prepared for potentially warm temperatures. The duration of the walk is flexible, participants can leave as they desire. There is a fee to support the Herbarium. For more information, call Dr. Lumer at 458-8278 x 2172. Registration is not necessary. This ID walk is replacing a previously scheduled mid-September walk.

* The fall Xeriscape Garden Tour is scheduled for September 4. Maps will be available from the Sierra Vista Cooperative Extension office approximately mid-August.

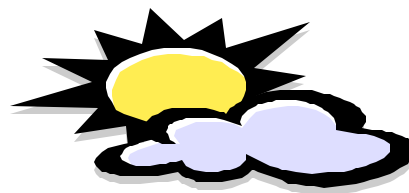
Be Water Wise!

The following are available free of charge through the University of Arizona Cooperative Extension:

- ◆ *Water Wise* bulletins
- ◆ *Water Wise* audits
- ◆ *Water Wise* consultations

Call 458-8278, Ext. 2139 with your questions or to make an appointment.

Cado Daily
Water Wise Educator



August Reminders

- ◆ Keep pulling the weeds
- ◆ Fertilize
- ◆ Prolong annuals
- ◆ Plan your spring wildflower garden
- ◆ Watch for nutrient deficiencies, sunburn, saltburn, overwatering, and insects
- ◆ Plant cool-season flowers and veggies

The Agent's Observations

Q I have several cottonwood trees that are being eaten up by June bugs. These trees are over 40 feet tall, provide shade and are a windbreak on the south and west sides of our home. We have invested a lot of time and water to grow these trees and do not want to lose them. What can we do? Is there an insecticide spray that will control the beetles?

A The height of your cottonwood trees (*Populus fremontii*) makes it difficult to spray. However, there are some new insecticide products on the market for trees that will control the beetles. The active ingredient is imidacloprid, a systemic insecticide. This is the same active ingredient found in Admire7 and used in commercial agriculture. The effectiveness of this insecticide was noted when used against whiteflies in the low desert on cotton and vegetable growing areas of the Southwest, over a decade ago. Now imidacloprid is formulated and approved for commercial fruit and nut orchards with a trade name of Provado7. Homeowners may use this same insecticide in ornamental trees and shrubs and is trade named Merit7. The dosage is determined by measur-

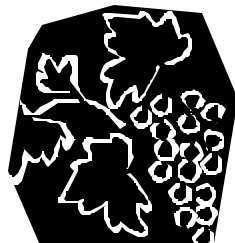
ing the tree trunk circumference and following the chart on the label to apply the proper amount of product. This mixture is poured around the soil near the trunk and watered in. Tree roots will absorb and translocate the insecticide inside the tree systemically. When an insect feeds on the treated leaves they will be poisoned. This product is a targeted insecticide that will protect the plant and not harm beneficial insects or other animals.

Source: *Crop Protection Reference, 19th Edition*. 2003. Chemical and Pharmaceutical Press, Inc. Washington, D.C. pages 372-378.

Q The leaves of my apple tree, grapes, and roses are drying up. The leaves have a white-grayish fuzzy material coating them. What is this and what can I do?

A Powdery mildew is affecting your apple tree, grapes and roses. Powdery mildews are common, widespread, and affect many crop and ornamental plants. The total loss by these organisms each year, because of decreased photosynthesis, probably surpasses the losses caused by any other single

class of plant disease. There are many species of powdery mildew. Your apple tree was probably infected by *Podosphaera leucotricha*, grapes by *Uncinula necator* and your roses by *Sphaerotheca pannosa*. These fungi are common and can cause



problems in cool and warm-humid areas. They can be even more of a problem in warm, dry climates like Arizona. Powdery mildew spores (fungal "seeds") can be released, germinate, and cause infection when the relative humidity is fairly high, but with no free water on plant surfaces. This spring, with abnormally high rainfall in April, has favored the growth and spread of powdery mildew into the summer. Once infection has begun the fungus spreads on plant surfaces regardless of the moisture conditions in the atmosphere. These organisms send haustoria (feeding organs) into the epidermal cells of plants to obtain nutrients. Powdery mildews are obligate parasites; meaning they cannot be cultured on artificially growing media in the laboratory but must grow on their specific hosts. Powdery mildew seldom if ever kills its host but utilizes their nutrients, reduces photosynthesis, increases respiration and transpi-

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(The Agent's Observations continued from page 5)

tion, impairs growth and can reduce yields by as much as 20 to 40 percent.

Control: When planting apples, grapes, roses or other susceptible plants place them in a location with good sunlight and air flow, i.e., not up against a building or wall. Prune plants properly—opening them up to ensure good air flow through the plant may reduce the disease incidents. A rose or euonymus planted on the shady north side of a home or in total shade will surely have powdery mildew problems. Many new rose varieties have disease resistance to powdery mildew. This resistance will help, but may not completely eliminate the need for chemical control. Chemical controls include spraying a fungicide or dusting sulfur. Care must be taken not to apply sulfur on hot days because of potential plant tissue burn.

Source: *Plant Pathology*, George N. Agrios. Third Edition, 1988, pp. 337-342

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Some instructions say to score the root ball by making shallow cuts around its circumference to cut circling roots but I've found that isn't always effective. I usually spread out the roots, carefully teasing out any that circled the container. If a long circling root stubbornly wants to maintain its crooked path, cut it off. As long as you don't remove too many roots, the plant will not be harmed. Once the roots are spread out, place them on a small cone of soil in the center of the planting hole and cover them with the soil you removed from the hole. Build a small dam of soil around the plant that is about the diameter of the root ball and gently water the soil around the plant to settle it around the roots.

If the plant needs staking, use two stakes instead of one and place them on opposite sides of the hole so that the line between them is perpendicular to the direction of the prevailing

wind. Do not use ties that will cut into the trunk or stem. I use the plastic tape that is made especially for tying up plants. Loop the ties loosely around each stake and the trunk so that the tree has a little latitude to sway in the wind. The flexing of the trunk will help strengthen it and allow the tree to soon stand on its own.

For more information about planting techniques, check out the Web site I referenced in my last article (<http://hort.ifas.ufl.edu/woody/planting>) or take a look at the Arizona Master Gardener Manual at <http://ag.arizona.edu/pubs/garden/mg/arboriculture/index.html>

Until next time. Happy surfing.

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