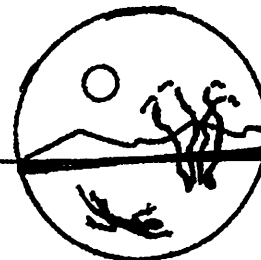


High on the Desert

Cochise County Master Gardener

Newsletter



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

The Grand Experiment Results

(As we finish the tale of the vegetable bed experiment from last month) . . . in the middle of the grand experiment I abandoned one plot for the other. Why? Because one plot was clearly outperforming the other in terms of growth, general performance, and ease of work. Which one did I choose? The Native American way—the sunken bed concept.

Here are a few notes that stood out from my garden diary comparing the two beds.

Raised Bed: Mulch—poor results, mulch kept blowing off the beds. Irrigation—average watering was 2-3 times a week. Weed abatement—good when the mulch stayed put!

Sunken Bed: Mulch—excellent results, mulch was under or at soil surface so it stayed in the bed during winds. Irrigation—average watering was once every 7 to 14 days for the 1998 growing season. My records for the 1994 growing

season showed that seeds were watered in at planting time (July) and no supplemental irrigation was applied until late September. The rainfall was very good that year. Another discovery was the water would “roll off” the raised footpaths and “fall” into the sunken bed (this water-harvesting technique detected after the fact was a definite bonus!). Weed abatement—very good, hardly no weeding at all.



Through trial and error I have found other “good things” to share. Herbs prefer the raised bed method, they just don’t like having their feet so wet. By the way, I wouldn’t plant trees or shrubs in a sunken area as the standing water around the trunk could promote rot. I like to plant trees and shrubs with the base of the trunk at or

just above soil level and dig out berms (I happen to have a slight slope so I build eyebrow shaped berms to catch rainwater runoff) no deeper than a foot deep around the dripline of the plant. When it rains the berms fill up with water but leaves the trunk “high and dry.” Every couple of years I re-dig and move the berms out with the dripline until the plant reaches its mature spread. Hard work—yes. Worth the effort—definitely.

Last fall I planted sweet acacias (*A. farnesiana*) and shoestring acacias (*A. stenophylla*). They were in one gallon pots and 8-12 inches tall. I hand watered them from September to December and then let them go to fend for themselves. They are now 3-5 feet tall. Not bad since they had to depend totally on rainfall this year.

For mulch in the veggie garden I’ve used straw, pine shavings, and alfalfa hay. I love the alfalfa hay. After the growing season is over I use my pitchfork and turn the soil, mulch, and plants over in the beds. After a good rain I’ll go out and turn the beds over again.

(Continued on next page)

Cochise County Cooperative Extension

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What I am doing is composting straight in the beds. I figure why make a special compost pile when I can do it in the garden plot and save time and effort hauling stuff around. I must say that I'm fortunate enough to have ample room to let plots that have been gardened in to lay fallow over the next growing season. Sometimes I will plant a cover crop or beans in the plots. This adds additional organic material, and in the case of planting beans I get a double whammy of organic material and harvest a crop of dried beans.

My records for the past three years showed I planted the same crops in two separate beds at different times—in late May/early June and at the start of the summer rains in July. The May/June plots struggled and struggled. The July plots just burst out crazy and blew the May/June plots away! From now on I'll wait until the summer rains to plant the warm season veggies—it just works. Interesting, the indigenous inhabitants of the Southwest also waited until the summer rains to plant their crops. Thinking about it now, it's not surprising to assume that they tried different methods of gardening, housing construction, and other things to find what worked best for them. And their method of gardening works best for me. The best method for you could be different—high desert soils, micro-climates, and other conditions vary from yard to yard.

The moral of this story is if you're not happy with the way your garden is performing don't be afraid to experiment and find out what works best for you.

*Cheri Melton
Master Gardener*

High on the Desert

The Cochise County Master Gardeners Association (CCMGA) is awarding up to five full scholarships to the 1999 High Desert Gardening & Landscaping Conference to be held at the Windemere Hotel & Conference Center on February 11-12, 1999. Applicants are invited to submit an essay on one of the following topics:

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

Essays must meet the following criteria:

1. 750 to 1000 words in length.
2. Double spaced and typed on plain bond paper.
3. Represent original scholarship and be suitable for publication. All references and authorities cited must be properly attributed.
4. Entries must be accompanied by an official cover sheet obtainable from the Cooperative Extension Office at the University of Arizona Sierra Vista campus.
5. Entries must be received at the Cooperative Extension Office at the University of Arizona Sierra Vista campus not later than close of business on January 15, 1999.

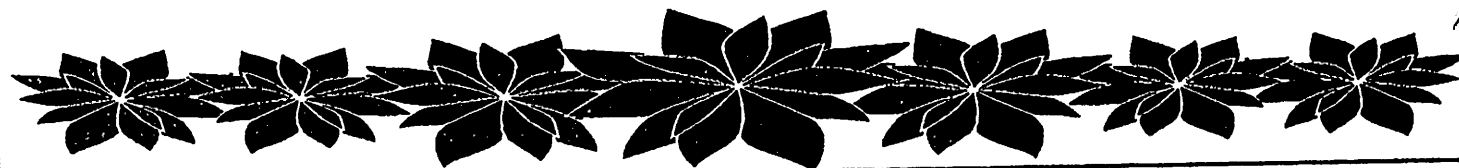
Entries will be judged by the Cochise County Horticultural Extension Agent and a committee of Master Gardeners appointed by the President of CCMGA and the names of awardees announced not later than January 29, 1999.

Cuttings 'N' Clippings

➤ CCMGA will be holding a Holiday Party December 11 at the Mesquite Tree Restaurant. Members and families are invited to attend. RSVP forms and menus are available at the Sierra Vista Cooperative Extension Office. Please contact Joyce by December 4. Note: there will not be a CCMGA general meeting in December. The next CCMGA general meeting will be in January 1999.

➤ In September The University of Arizona Cochise County Cooperative Extension Master Gardener Program Policy was mailed out to those who have completed the Master Gardener Course. If you have not received your copy please contact the Cooperative Extension Office. Remember to sign and return the attached Memorandum of Agreement to the office by January 15, 1999.

➤ The Sierra Vista Area Gardeners Club will visit Arizona Cactus and Succulent Research in Bisbee on December 19 to help hang their holiday lights. For information call 456-1437.



Solving Plant Problems— A Book Review

Always on the lookout for books to help me understand the myriad questions asked by the public (and myself!) on plant problems, I came across a candidate on the shelves of the UA/SV campus bookstore. The revised edition of *Pests of the West* by Whitney Cranshaw caught my eye. Cranshaw is a professor of entomology at Colorado State University at Fort Collins. He describes himself as a life-long bug watcher and assists the CSU with its Master Gardener program teaching about pests and diseases.

The 448-page soft cover book is broken down into nine chapters with seven appendices, and has a sense of humor to it. Chock full of black and white pictures, tables, side-bars and diagrams, Cranshaw begins the book by emphasizing the most important element of a healthy garden—soil. The *pouvoir hydrogene* (pH) of the soil, salts, nutrients, texture and structure are discussed with techniques on correction of these problems and what deficiencies they cause in plants.

Taking a more environmental tact on pest control, Whitney then launches into three chapters addressing abiotic, biological, cultural, mechanical and finally as a last resort, chemical controls in the garden. Within the cultural control chapter, an example of secondary pest problems caused by

over watering is pictured by a small crocodile in the garden munching on the toe of his youngest child (the croc is plastic of course!).

If you want to know why your bean's leaves are ragged or have small pits chewed in the upper surface, turn to Chapter 5 on Common Disorders of Garden Plants. Listed in alphabetical order from asparagus to fruit crops, annual flowers to roses, each plant type is followed by an extensive list of symptom, cause and reference to control as found in Chapter 6, Management of Common Garden "Bugs." Damage, life history, and habit, controls, with identifying pictures, make this section very understandable and user-friendly.

If bugs aren't what are bugging your tomatoes, Management of Common Plant Diseases will help you identify and control that spotted wilt or impatiens necrotic spot. Here, as with the bug chapter, the reader is given damage and symptoms, life cycle and development, cultural, mechanical and chemical controls for various viral, bacterial, and fungal diseases.

Finally the book wraps up with a discussion on "weeds" (mulch, mulch, mulch!—he's my kind of guy!) and large vertebrate pest control.

The appendices include a list of common garden pesticides—common name, trade names, scientific names, pesticide class, toxicity, uses and notes on the product, and an appendix on dilution rates for small quantity sprayers in non-metric measurements. Informative, friendly and easy reading, this may be a book you'll want to add to your library. I did!

Cado Daily
Master Gardener

Robert E. Call

Robert E. Call
Extension Agent, Horticulture

Carolyn Gruenhagen
Newsletter Editor



Introduction to Entomology *Arizona Master Gardener Manual*

We generally associate insects with crop loss or disease transmission, but only a small number of insect species (less than 3%) are considered to be pests of humans, animals, crops, or fiber. Most insects are either outwardly beneficial or harmless. A number of them are predators, like lady beetles which live by feeding on pestiferous aphids. Others, like certain wasps, may be parasitic on pest insects. Still others, such as the honey bees, act as pollinators of crops and also provide us with honey. Many insects are responsible for the decomposition of plant and animal matter. Termites are an example of this. Obviously, when they are attacking the timber of our home termites are a pest; however, when they are in the woods breaking down old "felled" trees, they are a part of nature's recycling program. Insects are also food for other creatures such as fish, frogs, birds, and bats. Some keep weeds in check. Our life would be much more difficult without insects.

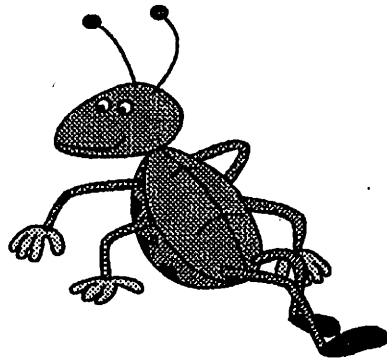


The Agent's Observations

Q There are tiny insects that crawl through our screen doors and bite or irritate my arms and legs. What are they and how can I control them?

A I looked under the dissecting scope at these insects and saw a piece of dirt. It looked like the smashed body and leg of a flea-like creature but was unidentifiable because of the poor specimen. Later a local pest control operator was called out to the home. He sprayed indoors and around the house. After a week the gentleman was still "affected" by these insects. The pest control man was disappointed because he said this was the first time he had ever failed to control the target pest. I explained to him that in these types of cases there are not any insects involved. No insects are found in Arizona that feed on living human flesh. Mosquitos, ticks, fleas, lice, kissing bugs, and others feed on mammalian blood. What occurs, primarily in the elderly, is the skin becomes dry, because of reduced skin oil production. Low relative humidity can also cause dry skin. With the onset of winter forced-air and other types of heaters are used, further drying out the air.

Control: Liberal use of your favorite lotion, moisturizing bath soaps, and lip balm are advised to alleviate dry skin.



Q My wife and I have several bites on our arms and legs. I have a sample of the insects that I think caused these irritations. Could you please tell me what they are and how to control them?

A After examination under a dissecting microscope it was determined that they were insects from the Dermestidae Family. There are several species known as carpet beetles and furniture beetles. They can do great damage to home furnishings and clothes containing wool, hair, fur, feathers, or other animal products. They can also survive on dead insects and food products such as cereals. The adult insects are rarely more than 6 millimeters long except the black carpet beetle, which can be 12 millimeters long and are broad or an elongated oval in shape. When they are disturbed they play dead. The adult black carpet beetle is black with brown legs, but other species can be black to brown in color and may have a dull red band running down the center of the back. Others may be mottled with patches of white, yellow, and black and are light colored underneath. The larvae of all species are oval

except the black carpet beetle, which is elongated with long tufts of golden to chocolate brown colored hairs at the end of the body. Other species are covered with black, brown, or tawny hairs and three tufts of bristles on each side of the posterior end. Adult beetles can fly and are attracted to light and are often found crawling on curtains and windows. On warm spring days they will feed on pollen of flowers and may fly from house to house. Females will lay up to 100 eggs which will hatch normally in 8 to 15 days. Larval growth depends on temperature and food supply and molt 6 to 10 times or more. The old exoskeletons are often seen on clothing and furniture and may cause itching in sensitive people. The pupal stage may last almost 2 weeks. The life span period from egg to adult depends on environmental conditions and species, but can be from 126 to 657 days. Usually there are only 1 to 2 generations per year.

Control: Remove or cover food sources like grain or animal food. In this case open dog food was the insects feeding source. If infestations are severe then treatment with residual pesticides may be necessary, but carpet beetles may be difficult to kill. Treat only the edges or under carpets and around baseboards and floor moldings. Tank-type vacuum cleaners may be helpful in reaching cracks and crevices to eliminate sources of food and developing life stages.

Source: *Insect Pests of Farm, Garden, and Orchard*, 7th Ed. Ralph H. Davidson and William F. Lyon. 1979. pp.518-520.

Robert E. Call
Extension Agent, Horticulture

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THE VIRTUAL GARDENER= Propagation from Stem Cuttings

For the past several weeks, some Master Gardeners of Cochise County have been attending an advanced training course on the techniques of plant propagation where they have been learning the secrets of making new plants from old ones. The most recent class, propagating plants from stem cuttings, was presented by Elizabeth Davison who teaches the subject at The University of Arizona, Tucson. Her lecture inspired me to hit the cyber surf and see what the Web has to say about the subject.

Most of us have had some experience rooting herbaceous houseplants from stem cuttings but many people don't realize that you can propagate all types of plants from cuttings, including trees and shrubs. One of the advantages of this method of propagation is that you know that the new plant will look just like the "parent." You can't have that assurance with seeds. Although the "mother" may have all the characteristics you want, you generally have no idea what the "father" was like.



According to the Arizona Master Gardener Manual (<http://ag.arizona.edu/pubs/garden/mg/>), "a cutting is a vegetative plant part which is severed from the parent plant in order to regenerate itself, thereby forming a whole new plant." Cuttings may be taken from

roots, leaves, or stems. As the name suggests, stem cuttings are taken from a piece of a growing limb or shoot. The basic techniques for propagating a plant from a stem cutting are fairly simple. Cut a piece of stem from a plant, stick it into a rooting medium such as course sand, keep the medium moist until the new roots appear, and transplant the rooted plant.

Understanding the underlying science will help improve your success rate.

- There are only certain places, called meristematic areas, where plants can generate new roots. Meristematic areas occur at the tips of shoots, buds and roots. In order to successfully root a stem cutting, you have to wound a plant near a bud and make sure that the wounded area is in close contact with the rooting medium.
- Rooting occurs in response to a hormone called *auxin* which is produced naturally by the plant. In order to insure that there is enough auxin to get new roots started, most horticulturists dip the cut tip into a product containing either indolebutyric acid (IBA) or naphthalene acetic acid (NAA). These products are generally sold in powder or liquid forms. Trade names include "Rootone," "Dip 'N Grow," "Hormonex," and others.
- Since roots are the plant organs that are responsible for providing water to plants and new cuttings have no roots, it is necessary to take extra care that the cutting does not dehydrate before the new roots

develop. This is done by surrounding the leaves of the cuttings with highly humid air to cut down on the loss of water by evaporation from the leaves and removing all but a few leaves from the cutting. Moisture can be trapped around the leaves by enclosing the cutting in a transparent or translucent covering such as plastic wrap or a plastic container. Replenish the moisture inside the covering by misting with a spray bottle. Remember, however, to remove the covering briefly at least once a day to allow fresh air to enter.

- Before roots develop the cuttings also have no way of getting nutrients. This means that they must subsist off the sugars that were stored in their tissues when they were cut. To generate the maximum energy for root formation remove all flowers and flower buds from the cutting that would divert the limited energy supply to the formation of fruit and seeds.

Other considerations.

- In order to cut down on the risk of transmitting a disease to your cutting, sterilize your cutting blade with rubbing alcohol or a dilute solution of bleach before making a cutting.
- Do not use ordinary soil as a rooting medium. Instead use sand, vermiculite, perlite, or peat moss which do not contain potentially pathogenic organisms.
- Keep the temperatures of the rooting medium and air around the plant fairly constant—55-65°F air temperature and 65-75°F for rooting medium temperature.

(Continued on back page)

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- Keep the rooting medium constantly moist but do not submerge the tip of the cutting in water. Submerging the tip deprives the cutting of oxygen.
- Do not place the cuttings directly in the sunlight. Too much sunlight will cause the temperatures to rise to lethal levels inside the covering.

Some useful Web sites for propagation include:

- This site from the Cooperative Extension of the University of Florida provides a general introduction to the subject of propagation from cuttings (<http://edis.ifas.ufl.edu/scripts/>

[htmlgen.exe?body&DOCUMENT_MG275](http://www.htmlgen.exe?body&DOCUMENT_MG275))

- This is a commercial site sponsored by a company that makes a rooting hormone. In addition to product information, however, it also includes an extensive collection of articles on propagation techniques (<http://www.rooting-hormones.com/SITEMAP.HTM>)
- This site from the University of California at Davis provides a database showing propagation data for an extensive list of plants, including the type of cutting, time of year, rooting medium used, rooting hormone,

temperatures used, percent of success achieved, time to root, and other data (<http://telework.ucdavis.edu/root/pchome.htm>)

Until next month, happy surfing!

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