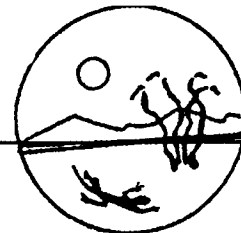


High on the Desert

Cochise County Master Gardener

Newsletter



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

A Few Good Books

Every spring the urge to plant the veggie garden hits and instead I read books to tide me through until the summer rains to begin planting. As a ritual the first book I read (or in this case reread) is Janice Emily Bowers' *A Full Life in a Small Place and other essays from a desert garden*. This delightful read covers 16 essays about her small Tucson garden that will make you laugh, cry, and perhaps change the way you look at your garden and the world.

Janice also has another great book titled *Fear Falls Away and other essays from hard and rocky places*. Janice tells of her adventures hiking in the desert mountain regions, which includes five chapters on the Huachuca Mountains. A suspenseful subplot is the story of her husband, Steve, who has turned in his tenure package at The University of Arizona. Will he get tenure or will he have to find and accept work elsewhere? And how will Janet adjust

and survive if she has to leave her beloved deserts and mountains?

A new book for me this spring was *Gathering the Desert* by Gary Paul Nabhan. It is as exciting as any mystery or romance novel and after starting it I could

fascinating. Gary Paul Nabhan also has two other books - *The Forgotten Pollinators* and *The Desert Smells Like Rain, A Naturalist in Papago Indian Country*.

Visit your local library and check them out! Better yet, visit the Sierra Vista Public Library on Saturday September 11, 10:00 am to 4:00 pm and not only check one of these books out, but visit the High Desert Garden Fair sponsored by the Cochise County Master Gardeners Association. There will be vendors, exhibitors and displays. Plan to sit in on one of the three free seminars scheduled for the day. Admission to the High Desert Garden Fair is free. See details on the back page of this newsletter.

Cheri Melton,
Master Gardener

Cuttings 'N' Clippings

- ✓ There will be no CCMGA meeting in August - monthly meetings begin Sept. 1.
- ✓ The Plant Sciences Center has a web page - check it out at:
www.ag.arizona.edu/cochise/lpsc/
- ✓ The Master Gardener web page will be up very soon - will keep you posted!

not put it down, missing dinner and finally finishing well after two o'clock in the morning! The book talks about desert plant foods, their uses, and the special relationship these plants have with the native people. I find the history of these plants just

Robert E. Call

Robert E. Call
Extension Agent, Horticulture
Carolyn Gruenhagen
Editor

Cochise County Cooperative Extension

1140 N. Colombo, Sierra Vista, AZ 85635
(520) 458-8278, Ext. 141

450 Haskell, Willcox, AZ 85643
(520) 384-3594

What to do . . . August

Fertilize: Give outdoor plants—roses, trees, flower beds—final fertilizing by the end of the month. Slow-acting fertilizers like ammonium sulfate, ammonium phosphate, fish emulsion, bone or blood meal, well-composted manure, and compost will break down during the following weeks and you should see healthy new growth in three to four weeks. This last feeding will help prepare your plant for the winter months ahead. If you wait too long to fertilize—mid-September or October—the new growth will be appearing in early November, much too close to the first frost date. New growth is always more susceptible to frost damage. Follow fertilizer directions carefully.

Start planning your spring wildflower garden: If you are planning a spring wildflower garden, start gathering the seeds this month. Ninety percent of desert wildflowers are of the “sow direct in fall” variety. Check with area nurseries for wildflower seed packets and be sure to check mail order suppliers as well. Spend some time preparing your wildflower bed. Although desert wildflowers self-seed in unimproved soil, you will increase your germination rate tremendously by loosening up the soil and adding a small quantity of organic matter. Most desert wildflowers require well-drained soil and full sun.

Watch for nutrient deficiencies: If you have been fertilizing your gardens through the growing season, you should not be seeing deficiency symptoms. The following is a review of some common symptoms.

► **Nitrogen** - leaves are pale green or yellow throughout, older or

lower leaves are more severely affected, top growth is stunted, leaves drop early.

► **Phosphorus** - leaves are reddish or purple tinted, growth slows, roots and seeds fail to develop, symptoms worsen in cooler weather.

► **Iron** - leaf veins are green but rest of leaf is yellow, newer leaves and ends of branches are more severely affected.

► **Zinc** - over-all yellowing of leaves though tips may stay green, leaves are small and clustered,

“Give weeds an inch and they’ll take a yard”

foliage clusters at ends of branches (“pom-pom effect”), much like iron deficiency in appearance. Severe iron and zinc deficiencies can be corrected quickly using a foliar spray. Make sure the iron is in the chelated form.

Other problems to watch for:
Sunburn - large white spots developing on tops of leaves, usually in the center which then turn brown.

Saltburn - burning starts at edges of leaves and moves inward, on narrow leaves it starts at tips and works down.

Overwatering - roots begin to rot, plant is wilted even if you give it additional water, soil around plant never dries, internal leaves yellow and drop.

Texas root rot - attacks quickly, initially resembles sunburn, watch for white sporemat beneath tree, plant dies but leaves remain on plant, positive diagnosis requires examining roots under microscope.

Cicadas - dead branch ends with brown leaves, look for chewing marks on the branches.

Chewing insects - random holes or skeletonized leaves indicates beetles, whole leaf being consumed except veins indicates caterpillars, tunneling between leaf surfaces indicates leaf miner.

Sucking insects - small white or yellow spots indicates presence of aphids, spider mites, plantbugs, leafhoppers, *etc.* The most positive identification you can make is to find the offending bug on the damaged plant. When you see damage, look for the source before resorting to a wide-spectrum pesticide. By targeting a specific pest, you may be able to avoid killing the “good guys”—ladybird beetles, praying mantis, lacewings—along with the bad.

Prolong annuals: Pinching off spent blossoms will encourage plants to continue flowering. You can cut back your spring planted tomatoes to encourage them to produce a fall crop. Cut them back to about one-third their current height. Remember to give them some fertilizer to fuel this new growth.

Plant cool-season veggies: Plant cabbage, carrots, chard, kale, lettuce, potatoes, spinach, and turnips.

Plant cool-season flower seeds: Sow calendulas, carnations, pansies, Iceland poppies, snapdragons, and violas for fall color.

Stay one step ahead of your weeds: When admiring your garden each morning keep pulling up those tiny weeds that pop up overnight. With all the rain we’ve had, tiny weeds can become BIG problems very quickly.

*Jackie Dillon-Fast
former Cochise County Master Gardener
(Reprinted from the Cochise County Master Gardener Newsletter, August 1990.)*

THE VIRTUAL GARDENER=

Chemical Warfare II

OK Warriors, how many of you were taken by surprise by the sudden onset of the monsoon and didn't get your pre-emergent herbicides out soon enough? Come now, don't be shy. Get those hands up. My hand is up too!

Well, I have good news and bad news for those of you who are faced with a massive invasion of our little green enemies. The bad news is that they're here in force and you have to deal with them. The good news is that right now they're young and tender, easily dispatched, and make excellent material for your compost pile. For those of you who just can't wait to tear into those masses of leafy green pests with your bare hands, the ground is soft and the roots are shallow. For those of you who are a little less enthusiastic about hand to hand combat, there is an excellent chemical weapon at your disposal, but as with all chemical weapons there are dangers. The weapon I have in mind are herbicides based on a chemical called glyphosate.

As I said last month if you have to resort to chemical warfare against weeds, use the least toxic, least persistent chemicals that will do the job. Glyphosate falls in that category. It is rated by the Environmental Protection Agency in the least toxic class of herbicides (Class E) and testing has revealed it is nontoxic to mammals, birds, fish, and insects. Unlike some other pesticides, it does not accumulate in animal tissues or crops. Although glyphosate itself is reported to be quite toxic to some bacteria, fungi, actinomycetes, and

yeasts in the soil, it binds so quickly to soil particles that it is not much of a real threat. There is a downside, however.

Herbicides based on glyphosate are often mixed with surfactants to enhance their effectiveness. Surfactants are detergent-like chemicals that lower the surface tension of solutions of glyphosate and allow them to be more easily absorbed into plant tissues. One of the most common of these is a family of chemicals known as *polyoxyethyleneamines* (POEA) which are much more toxic to animals than glyphosate itself, causing irritation to eyes, skin, and lungs. Newer formulations of these herbicides use other surfactants but are more expensive.

In addition to their toxicity, here are other downsides to the use of glyphosate and other post-emergent herbicides. Because of its effectiveness as an herbicide, glyphosate can have an indirect effect on animal and bird populations through habitat destruction. Be sure that the sprays you apply do not drift into other areas and kill plants you did not intend to kill. Also, there is concern about the possibility of the emergence of glyphosate resistant weeds through genetic mutation in a similar manner to the way antibiotic resistant bacteria have developed. All of these possibilities argue against over use of herbicides. If you must resort to the use of post-emergent herbicides, use the least amount required to do the job.

As with all biocide chemicals, read the label carefully before using the product and FOLLOW

THE INSTRUCTIONS CAREFULLY. Wear rubber gloves when handling the chemicals, and wear a long sleeved shirt, long pants, and eye protection when applying the herbicide. Do not breathe the herbicide vapors and do not smoke or eat during or after applying the chemicals unless you wash first. To minimize collateral damage to friendly plants, do not apply herbicides in windy conditions. Remember the Arizona Poison & Drug Information Center telephone number—1-800-362-0101.

Glyphosate is a systemic herbicide that interferes with growth chemistry in plants. Once applied to plant foliage it rapidly moves throughout the plant to roots, rhizomes, and the growing tips of shoots. It is highly effective against many different types of plants. Studies have shown that the highest absorption of glyphosate herbicides with surfactants occurs within the first 4 hours after application and continues at a fairly steady rate for the next 48 hours. According to John Begeman, the horticultural Cooperative Extension Agent for Pima County, the best time to apply glyphosate herbicides is in the morning at least three hours before irrigation or rainfall.

If you are interested in learning more about glyphosate and the use of other post-emergent herbicides, there are many Web sites you can visit:

<http://ace.orst.edu/info/extoxnet/>

<http://grove.ufl.edu/~mwe/>
Glyphosate

<http://www.greenpeaceusa.org/media/factsheets/glyphosatetext.htm>

Gary A. Gruenhagen, Master Gardener
gruenha@sinosa.com

Cheapskate Gardening

One of my mother's favorite quotes which she attributed to Will Rogers was, "The quickest and surest way to double your money is to fold it and put it back in your pocket." She was an orphan who grew up in the midst of the great depression and knew how to squeeze a penny until Lincoln was begging for mercy. From her I learned a lot about how to make my money work harder in all aspects of my life to include gardening. Her garden was magnificent and I remember how people passing down the road would stop and get out and take pictures of our yard with its huge magnolia, mimosa and tulip trees and flower beds full of gorgeous perennials and annuals. Most of this gardening bounty hadn't cost my mother a dime.

Cheapskate gardening requires you to be creative and to be willing to invest a bit more of your time and sweat equity than might otherwise be the case. Analyzing my mother's gardening techniques provided me with a few rules:

1. use readily available and FREE materials,
2. work with the environment,
3. select appropriate plant material,
4. take care of what you have,
5. and be creative.

If your budget is limited or you just don't want to part with your hard earned money, you must learn to get the most bang for the buck. Looking around you and using your imagination can save you a bundle. One of the things that is in plentiful supply around the high desert are rocks. I use them extensively in my garden. They are

used to delineate my gardening areas, for walkways, and for visual interest. And best of all they were free! I never throw anything away until I have exhausted my brain over how I can either reuse it or recycle it. Old nursery containers are decorated and used as planters, used as planting cages to prevent mole damage, or used for plant propagation.

I generally don't spend much money on fertilizers or pesticides. I can avoid such expenditures by:

1. using plants that don't need such "foo foo" care,
2. making and using my own compost,
3. and using readily available and low cost or free materials.



I do a lot of container gardening. Each winter I dump all the dirt from the containers and remix adding more compost that I have made from garden waste and manure that I have collected. I love collecting rabbit pellets with which I make manure tea. My plants love it. Of course this care is generally only needed by my non-natives. I never needed to provide any such care to my native plants.

A lot of the plants in my garden are from my own propagation efforts. Currently I have native bird of paradise, ocotillo, agave, and

cactus in containers being readied for my garden. The native bird of paradise is from seed; the ocotillo is from cuttings given to me by neighbors, and the cacti is also from cuttings.

One of the ways to quickly consume and waste your money is trying to fight the desert. You need to know your environment and work with it. This will allow you to be successful the first time you plant. For example, I plant water thirsty plants near the house and thereby can use water runoff to supplement their water requirements (I have very few of these plants by the way). I know my microclimates and plant appropriately. Even natives can suffer if you don't follow this practice.

The next gardening rule of selecting appropriate plants goes hand in hand with the previous rule of working with the environment. You will waste a lot of money by trying to plant flora that has no business in this environment. The plant will suffer and slowly decline, you will have to invest an inordinate amount of time, effort and money to keep it alive, and you will find yourself conducting a lot of plant funerals and doing a lot of unnecessary replanting. If you insist on planting water guzzling plants, you had better be prepared to pay the cost both environmentally and financially for this faux pas.

Next, take care of what you have. There are very few plants that you can just slap in the ground and walk away from in Arizona. Plant your plants correctly, maintain them properly, and you won't be constantly replacing them.

(continued on next page)

Drainage is a problem here. Take the time and effort to give your plants a good start. Make sure you have selected the appropriate location and that you have good drainage. Water appropriately! Most newcomers water too often and too little when they do. Water deeply and space it out. Slightly stressed plants will eventually develop a more extensive root system and thereby become more drought tolerant. Learn how to limit or avoid altogether using chemical fertilizers and pesticides. There are a lot of ideas on this subject in a previous article in the April 1999 *High on the Desert* newsletter entitled, *Minimizing Pesticide Usage*.

By all means be creative. Talking with other gardeners is free and will yield a lot of ideas. See how Mother Nature does it and emulate her. Don't be afraid to try new uses for old materials. Share plant material. My neighbors and I share cuttings, seeds, and most importantly information. If you have internet access, there is a plethora of free gardening information out there—take advantage of it.

And finally remember that gardening is meant to be fun and food for the soul. If it has become drudgery, you need to reevaluate what you are doing. Love the earth; its the only one we have.

John Phillips
Master Gardener

He who plants a garden,
plants happiness!

-Unknown

Call's Comments

Tomatoes with brown sunken leathery areas on the blossom end of the fruit, sometimes turning black, are infected with blossom-end rot. It is caused by a localized deficiency of calcium in the fruits. Calcium is required in large quantities by growing cells like those in the blossom end. When this rapidly growing tissue is deprived of the calcium needed for growth, especially cell wall construction, tissues break down resulting in blackened, dry sunken spots or areas on the blossom end of the fruit. Water stress usually creates this disorder because inconsistent watering will not allow the plant to translocate sufficient calcium. Also, high levels of nitrogen can cause vigorous growth early in the season which with water stress can compound the problem. Blossom-end rot is also seen in chili and bell peppers and members of the squash and melon family.

Control: It is important to regulate soil moisture and maintain that moisture at a relatively constant level where possible. Plenty of organic matter in the soil and mulching plants will help maintain consistent soil moisture. Also, avoid high applications of nitrogen to the plants. Some varieties of tomatoes are less susceptible to blossom-end rot. These include Early Girl, Floradel, Floradade, Tropic, and Jet Star. It has been demonstrated that foliar sprays of calcium chloride (1 lb./25 gallons of water) or calcium nitrate (2 lbs./25 gallons of water) can

help reduce this problem. Applications must be made before calcium levels fall below critical levels and must be applied weekly for three to four weeks.

Source: *Vegetable Diseases and Their Control*. A.F. Sherf and A.A. MacNab. 1986, pp. 689-691. John Wiley and Sons, New York.

Robert E. Call
Extension Agent, Horticulture



Insects in Your Feeder?

Since my garden and ramada had the only flowers in an otherwise drought-plagued environment this last winter and most of the spring, I seemed to have millions of bees, wasps, and what looked like ants with wings in or at the feeders. Because of the larger hole size on the oriole feeder, its contents often looked like a stew, dark with insects.

While in Tucson I stopped at The Wild Bird Store, 3526 E. Grant Road to look for insect-proof feeders. Instead of trying to make a sale, Shani Friedman, one of the owners, suggested I brush a little mineral oil around the port holes. Somewhat skeptical, I purchased the smallest bottle of mineral oil I could find, returned home, and did as instructed. It worked 100 percent! The insects at first approached the holes, turned around, and left. After that they did not even attempt to go near the feeders any more.

Giselheid Regner
Master Gardener Associate

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U.S. DEPARTMENT OF AGRICULTURE
Cochise County
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Willcox, AZ 85643-2790
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Cochise County Master Gardeners Association in conjunction with
The University of Arizona Cooperative Extension presents ...

Free!

High Desert Garden Fair

Saturday, September 11, 1999
Sierra Vista City Library
2600 E. Tacoma, Sierra Vista
10:00 am - 4:00 pm



Happenings

- ♦ Farmer's market
- ♦ Local nurseries
- ♦ Garden crafts
- ♦ Outdoor living
- ♦ Books
- ♦ Irrigation
- ♦ Food vendors
- ♦ and MORE!!!

Free Seminars

- ♦ Plant Health Care - 10:30 - 11:30 am
- ♦ Gardening With Native Plants - 12:30 - 1:30 pm
- ♦ Butterfly Gardening - 2:30 - 3:30 pm

Plant Diagnostic Table
Bring your plants/questions to our
Master Gardeners



Information booths

- ♦ Forestry
- ♦ Wildlife
- ♦ *Water Wise*
- ♦ Recycling
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