



High on the Desert Cochise County Master Gardener Newsletter

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

The Virtual Gardener—Cooperative Extension

As you probably know, this newsletter is brought to you at no cost by the Cooperative Extension of the University of Arizona. This month I'm going to tell you a little about the Cooperative Extension system and some of the services it can provide to you. But first a little history.

The story of the Cooperative Extension is the story of the winning of the West. In 1862, while the Civil War still raged, Abraham Lincoln signed two bills into law that got the ball rolling. The Homestead Act promoted settlement of the West by allowing families to claim 160 acres of public land and develop it. A companion bill, the Morrill Act, signed in the same year established land grant colleges in every state to teach engineering, agriculture, and military science. After the end of the war, a third piece of legislation, the Hatch Experiment Station Act signed into law in 1887, provided funding for agricultural research at the land grant colleges. These three pieces of legislation established the groundwork for the Smith-Lever Act of 1914 that provided for a cooperative effort by the U.S. Department of Agriculture and the land grant colleges to promulgate the results of agricultural research to the public. A network of county Extension agents was soon established to carry out this educational mission.

Although farmers and ranchers living in rural areas were the original targets for the Cooperative Extension outreach program, the benefits of the program were also available to city folks. In more urbanized counties, Extension agents often found themselves stretched very thin trying to service both the commercial agricultural community and home gardeners. One overextended agent, David Gibby of King and Pierce counties in Washington state, recruited and trained volunteers from the community to assist him in providing horticultural advice and assistance to the public, creating the first Master Gardener program. This program was so successful it has now spread throughout the United States and beyond. Cochise county has a very active Master Gardener program with trained volunteers available to answer all your gardening and landscaping questions. You can reach them by telephone at 458-8278 ext 2176, via the Web at <http://cals.arizona.edu/cochise/mg/question.htm>, or you can drop in and talk to a Master Gardener at the Master Gardener office at the University of Arizona South. You can also drop into or call the Cochise County Extension office in Willcox, Arizona. See addresses and telephone numbers below.

(Continued on page 2)

Inside this issue:

Taste the Desert	3
Tetanus	3
September Reminders	3
Cuttings 'N' Clippings	3
Natural Enemies of Insects	4
Agent's Observations	5
High Desert Conference	6

Cochise County Cooperative Extension

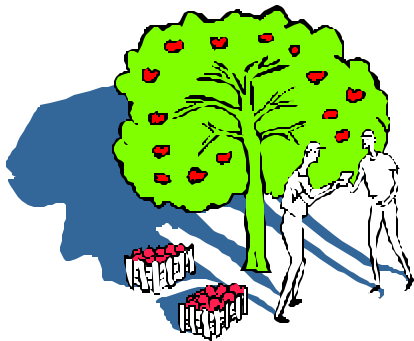
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(Continued from page 1)

In addition to the local Extension office, there is also a vast amount of information available at Cooperative Extension Web sites around the country. Here are some that I have found most useful:

> University of Arizona (<http://ag.arizona.edu/extension/horticulture.html#>). The U of A Cooperative Extension Web site offers focused information on gardening and landscaping topics applicable to Arizona. Of course the Cochise County Master Gardener Newsletter (<http://cals.arizona.edu/cochise/mg/newsletter.htm>) is mostly precisely focused information for gardeners in Cochise County and similar high altitude desert areas around the world. One of the best features of the newsletter Web site is the ability to browse the titles of past newsletters and link directly to the articles you are interested in.

> New Mexico State University (<http://cahe.nmsu.edu/ces/>). The NMSU Cooperative Extension also offers a large amount of information of use to High Desert gardeners. Check out their "how-to" horticultural publications (http://cahe.nmsu.edu/pubs/_h/) for bulletins on plants diseases, pecan trees, and growing chili peppers. Their publications are available for downloading in pdf format.

> Texas A&M University (<http://texasextension.tamu.edu/>). The

TAMU Cooperative Extension provides good information on water conservation and propagation techniques, as well as other landscaping topics in their Landscape Resources Web site (<http://aggie-horticulture.tamu.edu/extension/landscape.html>). They also have excellent information on growing specific vegetables on their Gardening Resources Web page (<http://aggie-horticulture.tamu.edu/extension/gardening.html>).

> University of California Agriculture and Natural Resources (<http://ucanr.org/>). The University of California Davis has a very active Cooperative Extension program and provides a wealth of information on many topics. I have found their publications on plant pathology to be very informative. Some of the best information on the glassy-winged sharp shooter and the diseases spread by this insect are available here. Check out their free publications (<http://anrcatalog.ucdavis.edu/InOrder/Shop/Shop.asp>) for information on vegetable gardening and garden pests.

> Colorado State University (<http://www.ext.colostate.edu/>). Colorado is another state with areas of similar elevation and climate to ours. I particularly like their discussions of insect pests (<http://www.ext.colostate.edu/pubs/insect/pubins.html>) which help you to identify insect damage, identify the culprits, and take appropriate defensive action.

> Cornell University (<http://cwmi.css.cornell.edu/>). Although not formally attached to the Cooperative Extension at Cornell, the Waste Management Institute

maintains the best Web site on composting (<http://compost.css.cornell.edu/CompostingHomepage.html>) you will find anywhere. The site includes all the information on the biology, chemistry, and physics of composting you will ever need as well lots of practical advice for the home composter.

> University of Minnesota (www.sustland.umn.edu). The Sustainable Urban Landscape Information Series (SUSLIS) coproduced by the Department of Horticulture and Extension Service provides a mini course in landscape architecture. Although the plant selections for Minnesota are not appropriate for the desert Southwest, the discussions of landscape design principles make this a great site well worth a visit.

> University of Georgia (<http://www.caes.uga.edu/extension/>). Least you think we in the Southwest have a monopoly on xeriscaping, check out this site (<http://pubs.caes.uga.edu/caespubs/pubcd/B1073.htm>). Although once again, the plant selections listed here are not appropriate for our climate, the discussion of xeriscape principles is excellent. Check it out.

The great thing about Cooperative Extension Web sites is that you can always trust the information found

(Continued on page 3)

Robert E. Call

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Editor

(Continued from page 2)

there because it is unbiased and based on solid scientific research. To find more Cooperative Extension sites, do a Google search on “cooperative extension” or on a topic of interest and look for results from Cooperative Extension services.

Until next time Happy Surfing. Greetings to Celal in far-off Turkey.

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

Taste the Desert

Saturday, September 30, 2:00 — 5:00 p.m. at Sierra Vista Public Library Native Seeds/SEARCH Director, Kevin Dahl, will present *Desert Foods for Diabetes, Blood Sugar & Obesity*. Dahl will explore nutritional aspects of desert foods such as prickly pear cactus, mesquite pods, chia seeds, cholla cactus buds, and tepary beans that all have properties that regulate blood sugar and have been used to help prevent and control diabetes and obesity. Cookbooks using these foods will be for sale. Mesquite Muffins and Prickly Pear Punch will be available. For more information e-mail vallimac@cox.net or call (520) 378-2973. Funding for this event comes from a mini-grant for Desert Foods for Diabetes & Health from the Cochise County Health Department’s STEPS Program.

Before Heading to the Garden, You Might Want a Tetanus Shot

30 June – Canada.com reported that Tetanus is rare, but it's everywhere—in soil, dust, animal waste, and anything that comes in contact with them. When did you get your last tetanus vaccination? If it was 10 years ago or more you should call your doctor. You could be at risk of getting a dangerous and deadly disease for which there is no cure. Most people link tetanus with rusty nails. You can get it from insect bites, animal bites, scratches from claws or thorns, or through the tiniest crack or puncture in the skin. More than 30% of all tetanus injuries occur in the garden.

To read the entire article go to <http://www.canada.com> and search on the word “tetanus.”



September Reminders

- ◆ You can always plant something-try cool-season veggies
- ◆ Keep on watering!
- ◆ Start shopping for bulbs (Bulbs for Southern Arizona bulletin is available from the Cooperative Extension offices.)

Cuttings 'N' Clippings

* The *WaterWise*/Master Gardener fall Xeriscape Garden Tour is scheduled for **Sunday, September 3 from 1:00 p.m. until 4:00 p.m.** Five low-water landscapes on the outskirts of Sierra Vista will be open to the public. Cochise County Master Gardeners will be at the sites to answer questions and give out plant lists. For a map to this free self-guided tour, contact the Cooperative Extension 458-8278, Ext. 2141 or e-mail jwilliam@ag.arizona.edu

* The next CCMGA meeting is 5:00 p.m. Thursday, September 7, 2006 at the University of Arizona South campus, Room 505. The guest speaker will be Mark Weber, Director, Cochise County Fair Board, in charge of marketing and advertising.

* The Cochise County Fair will be held in Douglas on September 21—14. Fair booklets are available at the Cochise County Cooperative Extension offices. The Santa Cruz County Fair in Sonoita is September 15—17. On September 2—4 the 91st annual Sonoita Labor Day Rodeo will be held at the Santa Cruz County Fairgrounds in Sonoita.

* The Highlands Garden Conference will be held at the Hondah Resort near Pinetop on October 13 & 14. For information contact Jeff Schalau, Yavapai County Extension Agent at jschalau@ag.arizona.edu

Encouraging Natural Enemies of Insects

Natural enemies of insects are animals that prey on insects. There are many of these 'control agents'. Some mammals, birds, reptiles, and even some other insects such as lady beetles are known to keep pests under control. Encouraging these natural enemies makes economical, ecological and aesthetical sense. Economically, this approach saves money and time while reducing the amount of pesticides used. Ecologically, the 'good' guys are not at risk of being sacrificed while killing the 'bad' guys. And, aesthetically, our lives are enriched and deepened with a variety and diversity of species of inherent values.

Here are five easy methods to encourage these natural enemies in your yard:

- 1) Get to know your insects;
- 2) Provide food, water, and shelter;
- 3) Cut down on pesticide use;
- 4) Avoid electrical 'bug lights'; and
- 5) Leave some pests as food.

In Arizona, there are 11,000 known species of insects. A large percent of these, over 95%, are harmless and some are even beneficial. Many of us know that lady beetles feed on aphids. We encourage them. Unfortunately, many of us do not

know how to identify the larvae or pupae of the soon-to-be adult. The larvae are black and dragon-like and the pupae orange and black resembling bird feces. We don't encourage the larvae or pupae perhaps because we don't recognize it or because we think it is ugly.

Often by simply providing food, water, and shelter we can encourage birds; excellent predators of insects. A flowing water source can encourage insect-eaters such as phoebes, gnatcatchers, flycatchers, sparrows, and wrens. Birdhouses placed near these bodies of water will encourage tree swallows. The caterpillar-eating oriole can be encouraged by placing slices of orange, apples and pears nearby. Providing shelter such as nesting boxes or bat boxes can encourage owls and bats to take up residence in your yard. Bats will consume more insects for their size than most birds!



The annual flower alyssum, dill, and Queen Anne's lace attracts flower flies and tiny parasitic wasps. The adult flower fly is yellow and black and looks like a bee. Their larvae feed on aphids. Another visitor to these plants are parasitoids wasp whose

larvae feed on caterpillars, leafhoppers and cicadas.

An area of your garden can be set aside for insect plants such as wildflowers and native shrubs. Sunflowers and desert marigolds are favorites of insects. Zinnias and butterfly bush provide food for beneficial insects.

Many pesticides kill many kinds of insects, not just the pests. Some pesticides are non-selective in what they destroy. So, reducing or choosing alternative methods will help encourage natural enemies.

Avoiding the use of electrical 'bug lights' will encourage natural enemies. In fact, these lights have been shown to kill more beneficial and innocuous insects than harmful pests. Some studies have shown that 60-70% of the bugs killed were of the beneficial type.

Leaving some pests as food seems to be counterintuitive, but logic says the 'good' guys have to eat something. Here is an example. The bright yellow oleander aphids usually cause no harm. If you leave them alone lacewings, lady beetles, flower flies, and parasitoid wasps will soon be near your plants. Another example was seen in the California pecan orchards. Scientists discovered a wasp that feeds on the honeydew of aphids. If the pecan growers do not control for the aphids, the wasp are there to attack a more serious moth pest and thereby keep the moths in check.

David Davis
Associate Master Gardener

The Agent's Observations

Q My tomato plants were dying slowly at first and faster now. The lower leaves have small brown spots that enlarge and dry up. The dead tissue may fall out leaving a hole in the leaf. Eventually they dry up and die. This progresses up the plant until all the leaves are dry. I have tried changing the watering schedule. The drip system waters some plants every evening and other plants every other morning. I have withheld water and I have added water so the plants don't dry out at all. They are all mulched and fertilized periodically. I have sprayed with 'Dipel,' among other things. I have even gone out late at night with a flashlight but have not seen any insect pests.



There are quite a few diseases that can damage tomatoes. These can come from the soil or transmitted through the air or by insects. When planting vegetables though, one needs to take one precaution right away to minimize disease problems. This is to rotate crops with other plants not in the same family. If plants in the same family are planted in the same spot year after year, pests will intensify. It is very important to move vegetables into different spots every year, rotating at least three or four years between planting the same family of plants in the same location to avoid pest problems. Agriculturists call this **crop rotation** and this technique helps minimize disease, insect, and weed problems in their fields. Maintaining a gardening notebook or file will aid in remembering where plants have grown in the garden in the past to establish proper rotations.

Many disease organisms are soil-borne or stay in the soil and infect plants from this soil. Soil borne

disease diminishes if left unplanted with plants of the same family for just one year. Disease problems increase when the same crop family is planted in the same soils in successive years. Annually rotating vegetables from different plant families can help reduce the severity of diseases. Rotation may also help curb weed and insect infestations by decreasing populations and thus plant competition and damage.

Obviously, crop rotation in a small garden may be difficult. However, home gardeners should rotate their vegetable crops as best they can. To assist in rotation, the following vegetables in the families (**bold**) should be rotated:

- > **Nightshades**—tomatoes, peppers, eggplants and potatoes;
- > Gourds—cucumbers, melons and squash;
- > **Legumes**—beans, peanuts and peas;
- > **Mustards**—cabbage, broccoli, cauliflower, Brussels sprouts, radish and turnips;
- > **Onion**—chive, leek, onion and shallot;
- > **Umbels**—carrot, celery, dill and parsnip;
- > **Sunflower**—endive, Jerusalem artichoke, lettuce and salsify; and
- > **Goosefoot**—beet, spinach and Swiss chard.

(Continued on back page)

A What you are describing is Early Blight (*Alternaria solani*) and it is a fungus. To control Early Blight apply a fungicide containing the active ingredient chlorothalonil, (trade names include Daconil, Bravo, etc.). The spores are in the soil and are splashed onto lower leaves during the rainy season. You can also remove the infected leaves on the bottom of the plant and a few of the healthy leaves. Pruning leaves works best if the tomato plants are growing in cages or are trellised. This will stop the movement of the disease upward in the plant.

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Keep these vegetables rotated in different spots separated by several feet and keep soil in these areas contained during the rotation cycle. Look for varieties that have inbred disease resistance. For example tomatoes disease resistance is designated on the seed packet or label as V-verticillium, F-fusarium, N- nematodes and CTV- curly top virus. These are great choices when faced with possible disease problems. Stay with varieties that you know have done well like 'Champion', 'Jetstar', 'Patio', 'Early Girl', 'La Roma' and 'Celebrity'. Some have had luck with 'Solar Set' and 'Heat Wave'. If you have had trouble growing tomatoes in the past try growing easier cherry tomatoes like 'Sweet 100' and 'Yellow Pear'.

Modify your soil with compost and fertilizer prior to planting to maintain plant health in tip-top condition. Sidedress tomatoes with nitrogen when the first flowers appear. Proper irrigation is very important. Healthy plants ward off pests better than unhealthy plants.

Sources: <http://www.ipm.ucdavis.edu/PMG/r783100311.html> and *Xtreme Horticulture Newsletter*, July 17, 2006. Robert Morris, Area Horticulture Agent, Clark County Nevada Cooperative Extension.

Robert E. Call, Extension Agent, Horticulture

High on the Desert

**Mark your calendars —
the 14th Annual High Desert Gardening & Landscaping
Conference is scheduled for February 15 & 16, 2007!
Watch for details!**