



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—Brrrrr . . . Baby it's Cold Outside

The low temperature at my house on 28 December was 17°F, six degrees cooler than the low reported from Fort Huachuca on the same date. Although the temperatures have rebounded, many of my plants are looking mighty unhappy.

The first real blast of winter cold has come and gone, but I'm sure we'll see some more, so I thought it might be a good idea to review some of the basics of cold weather gardening in the High Desert this month.

The first rule, of course, is to pick plants that are designed for this climate, but be careful. You can't always trust the labels on the plants you see in the nursery, and all too often the clerks in the stores don't have a clue about plant hardiness. The best test of which plants will survive here is to observe what is already growing in the area, but even that is not foolproof. That bougainvillea you see thriving up the street may only be surviving there because it's enjoying the benefits of a unique microclimate.

The second rule is to place the plants in the proper location. Remember that cold air is denser than warm air and flows down slopes like water, pooling in low-lying areas. Cold sensitive plants should be planted higher in the garden or on

slopes where the cold air can drain on past them. Also remember that your whole yard may be consistently cooler than the "official" low temperature for your area. Check it out by comparing your low temperatures with the reported lows. The reason the temperatures at my house are lower than the reported lows for Fort Huachuca are because it sits on the edge of a wash flowing out of the Huachuclas, and my yard is frequently 5-10 degrees cooler.

The third rule is to avoid fertilizing plants late in the growing season. Fertilizers, particularly high-nitrogen fertilizers promote new growth and new growth is more sensitive to cold than old growth. So...don't fertilize your plants after late August or early September. Since potassium is known to promote thicker (and therefore more resistant to freeze damage) cell walls in plants, the last fertilizations should be low in nitrogen and high in potassium (<http://www.crfg.org/tidbits/bkydfrostprot.html>)

So far so good, but what do you do when you have sensitive plants and the TV weatherman has just predicted a chilly night ahead? Here are some specific measures you can take:

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Water your plants thoroughly in the afternoon when the temperatures are still warm. Moist soils will store more daytime heat than dry ones and release the heat as they cool at night. If they freeze, they will release even more heat (heat of fusion). You can also store daytime heat by placing containers of water around your plants.

Covering your plants is also effective. Use cloth (old sheets work well), floating row cover, shade cloth, newspaper, cardboard, etc. Styrofoam cups can be used to cover the sensitive ends of columnar cactus. There are a couple of things to remember about coverings, however. First, if possible the coverings should drape clear to the ground to capture soil heat and prevent cold air from flowing under the covering. Second, do not use plastic sheets for coverings that touch the plants. If you use plastic, keep it away from the plants with a frame.

Roots are often more sensitive to cold than foliage. Root temperatures of 28°F can be fatal to even cold-hardy plants

(<http://hgic.clemson.edu/factsheets/hgic2350.htm>). Since the roots of potted plants are more exposed to the cold than plants in the ground, be sure to wrap the pots with insulating materials or even bury them in the ground to keep the roots warmer.

There are many more things you can do to protect your plants on cold nights. Check out some of these Web sites for additional ideas:

<http://www.thegardenhelper.com/frost.html>

<http://www.gardendesk.com/2008/11/building-stoop-houses-to-help-with.html>

<http://blog.ltc.arizona.edu/highelevationgardening/2007/06/floating-row-covers-and-frost.html>

http://www.arizonacactusallies.com/frost_protection.php

<http://hgic.clemson.edu/factsheets/hgic2350.htm>

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener
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Recycle!

Sierra Vista and Cochise County residents are able to dispose of their Christmas trees (free) December 22 through January 24, 2009 at Sierra Vista's Compost Facility located off Highway 90 at mile marker #325. It is open Monday-Friday 8 a.m. to 2:30 p.m. and Saturdays from 7 a.m. to 2:00 p.m. Residents of Sierra Vista can donate live trees to the City of Sierra Vista. For details call 458-7922.

High on the Desert

High Desert Gardening & Landscaping Conference Scholarship Application

The Cochise County Master Gardeners Association (CCMGA) is awarding up to three full scholarships to the 2009 High Desert Gardening & Landscaping Conference to be held at the Windemere Hotel & Conference Center, Sierra Vista, AZ, February 12 & 13, 2009. 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 1,000 words in length.
2. Double spaced and typed on plain bond paper — a disk or CD included.
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 available from the Cooperative Extension Office at the University of Arizona South campus or from the Master Gardener web site.
5. Entries must be received at the Cooperative Extension Office, 1140 N. Colombo, Sierra Vista, AZ 85635 not later than close of business on January 16, 2009.

Entries will be judged by the Cochise County Horticultural Extension Agent and a committee of Master Gardeners appointed by the President of CCMGA. The awardees will be notified not later than January 30, 2009 and their names published in the February 2009 Master Gardener Newsletter.

In a Desert Garden

White Ball Acacia – Fern Acacia *Acacia angustissima* – Leguminosae

I love plants that do not need any special care or water—who doesn't? When we had our home built, our back yard was scraped naked to the soil. The first summer I let everything come up naturally. By November, I had made up my mind about what could stay and what needed to be taken out. I had three stands of a plant that I really liked. This plant had a very airy look with its fern-like foliage and little white balls on it. I found a picture of it in the book *Plants of Arizona*, a very helpful book to identify plants that grow here. This plant was an Acacia, a Fern Acacia or White Ball Acacia.

This plant grows into a groundcover of about two to three feet tall and multiplies through runners. In my yard it slowly covered an area of about 3 to 4 feet. Because I liked what I saw and what I read in the book, I decided to keep it and told my landscaper to work around it and fit it into the design. It is a common plant here in Arizona and a delightful one, but I have never seen it in the nurseries. I have seen it at the Farmer's Markets.



The plant is not invasive and apparently long-lived. I have lived in my home now for twelve years and the three clumps I have, have only grown slightly and have never self-seeded themselves. The plant dies to the ground after a hard frost. Don't cut off the stems because they will leaf out again in spring. To me, this is the only disadvantage. I like evergreens, but I can live with this disadvantage. In spring the plant recovers quickly and puts out its fern-like foliage and by May the attractive ball-shaped flowers appear. The flowers are small plumes that form a ball; they are white, sometimes with a tint of pink. The leaves are deep green to bluish green and later in the year the flowers turn into flat, brown seed pods. White Ball Acacia has a long flowering season up to September. My plants are absolutely on their own, no additional water and never any fertilizer. They are still going strong after all these years. Another good thing to report, despite being an Acacia, the plant has no spines. In my yard, when in bloom, the plants are always covered with butterflies, predatory flies, wasps, and bees. In the book *Plants of Arizona* it states that the plant is attractive to horses and cattle. As I do not have any of those animals, there is never any damage to it, and it doesn't have problems with any other pests. Overall it is just a darling of a plant.

Angel Rutherford, Master Gardener

Robert E. Call

Robert E. Call
Extension Agent, Horticulture

Carolyn Gruenhagen
Editor

Cuttings 'N' Clippings

* The next CCMGA meeting is 5:00 p.m. Thursday, January 8 at the University of Arizona South Campus Public Meeting Room. Extension Agent, Rob Call will speak on the *Horticulture and Life in the Dominican Republic*.

* The next *WaterWise* workshop will be held on Saturday, January 10, 9-10:00 a.m. at the University of Arizona South Campus Public Meeting Room. *State of the Watershed*—Come learn about the Sierra Vista Subwatershed groundwater deficit, what is being done to address our water needs, and why it matters? Presenter is Dr. Holly Richter, Chair of the Technical Committee with the Upper San Pedro Partnership and board member with the Upper San Pedro Water District Organizing Board.

* The 16th High Desert Gardening & Landscaping Conference will be held at the Windemere Hotel & Conference Center on February 12 & 13, 2009. Mark your calendar now and plan to attend this educational experience. Scholarships are available—see details on Page 2 of this newsletter. Hurry! The deadline is January 16!

January Reminders

- ◆ Winter prune
- ◆ Remove old mulch/replace
- ◆ Dig tree holes
- ◆ Prepare soil for spring
- ◆ Water periodically
- ◆ Stratify seeds
- ◆ Fertilize asparagus
- ◆ General garden clean-up

Cacti 101: Chapter 4—What's A Purple Prickly Pear?

Before we get into our main subject let us look at one of the most prevalent problems when growing *Opuntia*. There are many plant diseases that we encounter in our gardens. When it comes to cacti, particularly prickly pears, the most noticeable is probably a white wooly like deposit we find on the pads of many cacti. This unsightly blight is the secretion of the female *Dactylopius confusus* or cochineal insect. The female inserts her proboscis into the pad of the cacti to feed. After feeding she covers the wound with a white wooly looking substance. While this makes our cacti look funny it is rarely a serious threat and can be easily removed with a strong water spray. Even more interesting than what we see on our cacti is the insect itself. *Dactylopius confusus* is the source of a brilliant scarlet dye that has been used in Mexico since before the Spaniards arrived in the 1500's. Today this insect is "farm grown" in some parts of the world to capture this dye.



Purple Prickly Pears

We have discussed in prior articles the problem of using common names for cacti. But using scientific names does not solve all our problems in plant

identification. The so called purple prickly pear goes by not one, or even two, but several scientific names. Lyman Benson's book *The Cacti of Arizona* lists four varieties of *Opuntia violacea* including *Opuntia violacea* var. *violacea*, var. *gosseliniana*, var. *santa-rita* and var. *macrocentra*. Other sources drop the word *violacea* from their scientific names. For our purposes we will focus our attention on two Cochise County natives. We will also refer to them by their shortened scientific names.

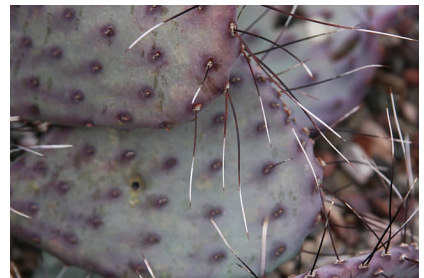
The most common of the purple prickly pears in local gardeners is the *Opuntia santa-rita*. This variety is found throughout Cochise County in numerous public and private gardens. *Santa-ritas* can grow to three to five feet high and as wide. Several specimens approaching this size can be seen on the campus of the University of Arizona South. *O. santa-rita* is often spineless but may have sev-



eral spines on the upper portion of the pads. Glochids are distributed over the entire pad. Flowers are lemon yellow, sometimes with a red base, from 2½ to 3½ inches in diameter. They are followed by purple fruits. Like all purple prickly pears the pad color can change from traditional green or blue-green to reddish purple during winter or drought periods.



Our second native is the *Opuntia macrocentra* often called the black spined prickly pear. This variety is not nearly as common as the *santa-rita* but is quite a nice specimen. It grows somewhat smaller than *santa-rita*, usually reaching only about 36 inches high and as wide. As you might expect from its common name



spines are black and can be 3 inches or longer. They tend to more widely spread on the pads usually one or two per areole. The flowers are yellow with brilliant red centers.

Doug Templeman, Master Gardener

Sierra Vista Farmer's Market

The Farmer's Market located at the NW corner of Wilcox and Carmichael will resume on January 8 from noon to 4:00 p.m. Look for the Master Gardeners table on the third Thursday of each month.

The Agent's Observations

Q We lost three century plant agaves due to them sending up flower stalks in the middle of the plants. We tried to save the century plant by cutting off the stalk before it had matured, but to no avail. All three had been in the ground for eight and a half years. They died this summer. Is it possible to take any action, when the stalks appear, to save the plants? Isn't eight years awfully early to send up a stalk? We are reluctant to plant another agave if it is going to die in eight years.

A The century plant, *Agave americana*, is classed in a group of plants that die after they flower and fruit. By fruit I mean producing some sort of organ containing seed (fruits or nuts). Plants which bloom only once in their lifetime and immediately die are called monocarpic plants. Some monocarpic plants, like annuals, live for a short time while others, like the century plant, some yuccas, and some bamboos can live for many years before they flower and die. Eight years of life is not unusual for the century plant—a very short century indeed! Most of these long-lived monocarpic plants produce offspring from sideshoots that emerge from underground. These sideshoots or “pups” are pro-



duced by the agaves and yuccas. Some species produce “off-sets” on the flower stock itself and look like miniature plants. Most botanists believe that the act of flowering and setting seed causes an irreversible path toward death. So in theory if you remove the flower stalk or flowers, before they open and become pollinated, the plant will continue to live. However, this usually does not forestall death

Source: *Extreme Horticulture*. <http://www.unce.unr.edu/areas/southern/files/pdf/newsletters/horticulture/XtremeHorticultureDec2008.pdf>

Q I was told by a nursery person that the imported cabbage moth will lay eggs on broccoli and if eaten will hatch in humans and cause health issues. Is that true?

A No it is not true! If insect eggs are consumed they will not survive the acid of the human stomach and cause health concerns. Perhaps I can explain the apparent confusion. The naturally occurring soft or organic insecticide *Bacillus thuringiensis* (B.t.) is used to control moths and butterflies (Lepidoptera order) pests. B.t. is used to control insect pests in the cabbage family like broccoli, cauliflower and Brussels sprouts among others. The bacterium produces proteinaceous

crystals, a CRY endotoxin, that causes ulceration of the insect's gut and death. Upon ingestion the larva stops feeding, dying in a day or two. B.t. is only active on moth and butterfly larva that have an alkaline gut. Humans and other mammals have acid guts and are not affected in any known way. The B.t. insecticide does not cause harm to the adult insects. There are several different strains of B.t. One is used to control mosquito and fly larva (Diptera order), and another to control beetle larva (Coleoptera order).

Source: http://en.wikipedia.org/wiki/Bacillus_thuringiensis

Research Report: Human Hair as a Nutrient Source for Horticultural Crops

Two pot experiments were conducted to evaluate non-composted hair byproduct as a nutrient source for container-grown crops. Lettuce (*Lactuca sativa* ‘Green Leaves’) and wormwood (*Artemisia annua* ‘Artemis’) were grown in a commercial growth substrate amended with 0%, 2.5%, 5%, or 10% by weight hair waste or controlled-release fertilizer (CRF) or were watered with a complete water-soluble fertilizer (WSF). The 5% hair treatment and the commercial fertilizer rates were calculated to provide the same amount of nitrogen (N) during production of lettuce and wormwood based on 50% N availability from hair. After har-

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vest, yellow poppy (*Glaucium flavum*) was grown in the pots and substrate that previously grew wormwood, and feverfew (*Tanacetum parthenium*) was grown in the pots and substrate previously containing lettuce. Yields in treatments containing hair or CRF or watered with WSF were higher than in the untreated control. The highest lettuce and wormwood yields occurred with CRF followed by WSF and 5% and 10% hair treatments. However, yield of yellow poppy was higher in the hair treatments than yields in inorganic fertilizer treatments or in the untreated control. Feverfew yields did not differ

among fertility treatments, but were higher than those of the control. Lettuce leaf moisture content was lower, but soluble solids were higher in plants in the hair waste treatments than in the WSF or CRF treatments. Total phenolics in lettuce did not differ among treatments. Total aerobic and coliforms plate counts were similar for all samples, averaging 6.0 and 1.2 log cfu/g, respectively. Results from this study suggest that non-composted hair waste could be used as a nutrient source for container-grown plants. Hair waste should not be used as a single nutrient source for fast-growing plants because of the time needed for degradation of the hair before the release of plant nutrients.

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As we begin the 20th year of the Cochise County Master Gardener Newsletter, we wish all of our readers a very Happy New Year—Happy Gardening!