

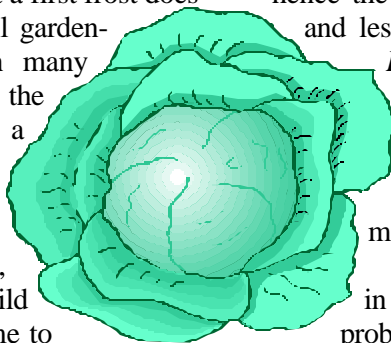


## The Virtual Gardener—Winter Gardening

I have good news and bad news this month. The bad news is that we here in Sierra Vista have about a fifty percent chance of getting our first frost on or before the 22<sup>nd</sup> of November. This means that as of the date I am writing this, there is an even chance that it will frost within the next month or so.

The good news is that a first frost does not mean the end of all gardening activity. Although many people believe that the only time to plant a garden is in the spring, savvy gardeners know that fall is also a great time to plant a garden, especially in our mild climate. Now is the time to plant “cool” season vegetables such as broccoli, Brussels sprouts, cabbage, cauliflower, kale, kohlrabi, and other crucifers.

Despite their differences in appearance, these interesting vegetables are all varieties of the same genus and species—*Brassica oleracea*. Variety names for this species include:



*gemmifera*—Brussels sprouts  
*capitata*—cabbage  
*botrytis*—cauliflower  
*acephala*—kale  
*gongylodes*—kohlrabi

One of the family names for this group of vegetables, *Cruciferae*, refers to their distinctive cross-shaped flowers, hence the name crucifers. An alternate and less memorable family name is *Brassicaceae*, which is derived from the classical Latin name for cabbage. The plants are also known as “cole” plants from a Middle English word meaning “stem.”

Cabbage and kale originated in Western Europe and were probably the first of the species to be domesticated. This probably happened around 3,000 years ago. Broccoli and cauliflower originated in the Mediterranean region and were also domesticated early. Brussels sprouts, the most recently domesticated of the varieties, was being grown in Belgium about 500 years ago (hence the name).

(Continued on page 2)

### Inside this issue:

Frost Protection	2
The 2012 Tomato Report	3
The Age of Enlightenment	4
Cuttings 'N' Clippings	4
Winter Tree and Plant Care	5
High on the Desert Scholarship Application	6



COLLEGE OF AGRICULTURE  
AND LIFE SCIENCES  
COOPERATIVE EXTENSION  
Cochise County

Cochise County Cooperative Extension

[www.ag.arizona.edu/cochise/mg/](http://www.ag.arizona.edu/cochise/mg/)

1140 N. Colombo, Sierra Vista, AZ 85635

(520) 458-8278, Ext. 2141

450 S. Haskell, Willcox, AZ 85643

(520) 384-3594

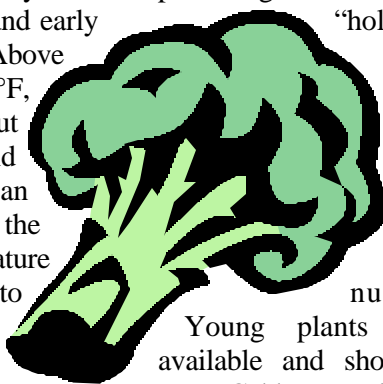
(Continued from page 1)

Cole crops grow best under cool, moist conditions as their Western European origins might suggest. The optimum temperature range for growing these cole crops ranges from 60 to 65 degrees Fahrenheit—typical daytime temperatures for the fall and early winter in Sierra Vista. Above about 75°F and below 32°F, plants will survive but growth will stop. Cold hardened young plants can withstand temperatures in the mid teens, although mature plants are less able to withstand temperature extremes.

Seed to harvest times for coles vary from about 10 weeks for cauliflower to about 16 weeks for broccoli and cabbage. That means that plants will need to be protected during the colder nights of December, January, and February when temperatures can drop to 10 or more degrees below freezing. Cold protection can be as elaborate as cold frames or as simple as newspaper, cardboard, or cloth tents. Avoid using plastic sheeting since it does not provide the same degree of protection as paper, cardboard, and cloth.

Cabbages and other coles prefer neutral to slightly acid soils (pH 6.0-6.8) and have high requirements for nutrients. Water requirements are about an inch per week evenly distributed throughout the growing season. Crops grown commercially on sandy soils are often drip irrigated and fertilized with soluble fertilizers through the drip system. If not fertigated, cabbages need about 1½ to 2 cups of balanced fertilizers per plant worked into the soil at planting time and broccoli

needs about ¼ to ½ cup. Crops planted in the fall should be sidedressed with about 1/8 cup of fertilizer mid-way through the growing season. High nitrogen fertilizers are to be avoided because they contribute to a pathologic condition called “hollow stem.”



Cabbage and broccoli can be grown from seed or from young plants purchased at a nursery store.

Young plants are currently available and should be planted now. Cabbage and broccoli seeds will sprout in the house in four or five days if the soil temperature is maintained at about 80° Fahrenheit and will be ready for transplanting in about 20 days. That means in order to have them ready for transplanting now you should have planted the seeds in September. Transplants should be spaced at about 18 inches apart.

There are a number of websites that have information about growing cole crops. Some of the information for this article was derived from the following:

[Wikipedia article on cruciferous vegetables](#)

[Wikipedia article on cabbage](#)

[Arizona Master Gardener](#)

[Manual--Broccoli](#)

[YouTube video—How to Plant](#)

[Broccoli, Brussels Sprouts,](#)

[Cabbage, Cauliflower, Kale, ...](#)

Until next time, happy surfing.

Gary A. Gruenhagen, Master Gardener  
[virtualgardener@cox.net](mailto:virtualgardener@cox.net)

Cochise County Master Gardener  
Newsletter Editor  
Carolyn Gruenhagen

## Frost Protection

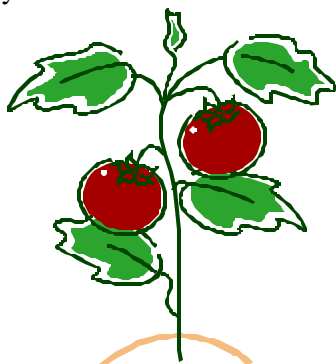
As the nights have been getting progressively colder, our plants have been moving gradually into dormancy. A drop in temperatures followed by a rise will often slow this move to dormancy, and increase the chance of frost damage. Watch for unusually warm periods followed by sharp drops in temperature. During the early winter and early spring when temperatures fluctuate is when most frost damage occurs. Warning signs of potential frost in Cochise County are the same as in other parts of the country: still air, no cloud cover, very bright stars, low humidity, and low temperatures early in the evening (45°F or lower by 10:00 p.m.).

The best frost protection strategy for Cochise County is to plant only those varieties that are hardy to frost. If you've already planted frost-tender ornamentals outside, you should probably move them to containers for the winter or replant them in warmer microclimates in your yard. Frost protection strategies are cardboard boxes inverted over plants at night (removed during the day), vertical water tunnels made of plastic and set upright around plants (sold in catalogs), and old quilts, blankets, or sheets laid over planting beds at night and removed each morning. An unusual cold spell or long, hard frost can kill or seriously injure mature trees that are only marginally cold-hardy.

(Note: we certainly learned that nearly 20 years after this article appeared. Reprinted from the November 1992 Cochise County Master Gardener Newsletter written by Jackie Dillon-Fast, Cochise County Master Gardener.)

## The 2012 Great (or not) Tomato Report!

The summer of 2009 was my first real attempt to grow tomatoes in quantity. I planted about 40 plants and did most everything wrong. My most egregious error was spacing them too closely. I put them into three rows only three feet apart, with the same three-foot spacing between plants within each row. By the time they were full grown I couldn't even reach the plants in the middle row to harvest tomatoes. Nonetheless, I only lost about 4 plants and had no weeds to boot—no sun reaching the ground means no weeds! It's still my best tomato season.



This year, I spaced plants, 64 of 'em, six feet apart, plenty of room for each plant. My reward was a field full of weeds and a lot of tomato plants that died before yielding even one tomato. Even proven personal favorites like 'Tommy Toe' and 'Stump of the World' failed to make it to maturity (both will still be in my garden next year). Then in September the grasshoppers came. Gee whillikers and gosh dang (and a few other words)! The more I know, the worse I do! In all the gloom, however, there were still a few real standouts this year.

One real trooper was a hybrid named 'Juliet'. 'Juliet' is a large grape-type, or perhaps a small

plum-type, depending on your perspective. I am absolutely serious when I say that it probably yielded at least 500 tomatoes. The plant itself is the most vigorous tomato I've ever seen, with the vines from 'Juliet' crawling into three adjacent cages. Remember, my plants were spaced six feet apart. The red fruits do not crack and they hold well on the vine. I think 'Juliet' deserves a place in any tomato garden. I don't recommend it as a container plant for sure; give 'Juliet' plenty of space and support.

Another nice variety this year was 'Virginia Sweet'. I planted this one last year and harvested just a few small, heavily cracked fruits, but this year it yielded about two dozen nice, big beefsteak style 'maters. It's a very pretty tomato, too, yellow with red streaks. I'm really glad I gave this one a second chance. This is the kind of tomato that deserves to be in a BLT, not to mention next year's tomato plot.

Perhaps my favorite tomato this year was 'Pruden's Purple', which a Safford Master Gardener recommended as an alternative to 'Cherokee Purple'. Boy oh boy, her recommendation was spot on. 'Pruden's' gave me about three dozen reddish beauties, with the earlier ones weighing a pound and a half. As the season wore on, the weight dropped to under a pound. The fruits did not split too much, either, which is nice. This is another BLT tomato—big, juicy, and tasty. There will be several 'Pruden's' in my garden next year.

Several cherry tomatoes did well, among them were 'Black Cherry', 'Sun Sugar' (a hybrid that produces medium to small bright orange cherry tomatoes), and 'Wild Galapagos' (a nice yellow

cherry of small size). All three of these produced fruits that resisted cracking. In particular, I will go with 'Sun Sugar' over 'Sungold' from now on as the fruits of 'Sungold' are very prone to cracking. Another cherry type worth considering as a container plant is 'Indigo Rose' which produces very unusual deep indigo-colored fruits that ripen to a combination of indigo (almost black) and red.

A Texas reader recommended 'Phoenix', which is a red determinate hybrid that gives very firm fruits that are somewhat larger than a baseball. 'Phoenix' exhibited no cracking and yielded a couple of dozen tomatoes. The fruits of 'Phoenix' seem to be held well into the plant, thus reducing the chance for sun scald. Another reader recommended 'Flamenco', 'Celebrity', 'Fox Cherry' and 'Grape'.

Favorites from previous years that did well enough to merit a garden spot next year include 'Moneymaker' (nice red round tomatoes of tennis ball size that don't crack), 'Japanese Black Trifele' (nifty pear-shaped and pear-sized "black" fruits), 'Gail's Sweet Plum', (a smallish red plum-type recommended by a gentleman from Willcox), and 'Wapsipinicon Peach' (a fuzzy, yellow, golf ball-sized tomato).

I had high hopes for 'Riesentraube', 'Wuhib', 'Cosmonaut Volkov', 'Vorlon', 'Evergreen', and others, but it wasn't meant to be. They'll have to wait until a repeat trial next year. Just remember, it's never too early to start planning next year's tomato crop. By the way, if you have any favorite varieties, I'd love to hear from you.

*Bill Schulze, Master Gardener*  
[billwithccmga@gmail.com](mailto:billwithccmga@gmail.com)

## The Age of Enlightenment and the Industrial Revolution

The Enlightenment period from the 17<sup>th</sup> to 19<sup>th</sup> centuries was a time when intellectuals used philosophical and scientific ideologies to reform the world. Europeans had moved into the New World and developed a new agricultural lifestyle based on what they had already known combined with what they were taught by the natives already living here. This hybrid style allowed them to survive in a difficult environment. During the Age of Enlightenment scientific innovation was applied to agriculture in Britain resulting in the Agricultural Revolution. This revolution dramatically increased crop yields in Europe and in the New World.

Charles Townshend, 2<sup>nd</sup> Viscount Townshend “Turnip Townshend,” introduced Britain to one of the most successful techniques of the revolution: four-field crop rotation. Crop

rotation was already being utilized by farmers in the early 16<sup>th</sup> Century in the Waasland region of Britain. Townshend’s method used wheat, oats, barley, clover, and turnips, hence his nickname Turnip Townshend, to rotate fields and add nitrogen back into the soil. Every year the crops were rotated one after the other with clover being rotated in last. Then the process was started all over again. Using this process, fields did not have to lie dormant wasting the land for a year or more because the clover added nitrogen back into the ground. Another perk to this method was that the grains could be sold at market, which made a profit for the farmer, while the turnips and clover were fed to livestock.

Henry Jethro William Tull (1674-1741) AKA Jethro Tull, a man from Berkshire England, is the man credited with being the pioneer of the Agricultural Revolution.

In 1701 he developed the horse-drawn seed drill that sowed seeds in straight rows. It is believed that this invention was first thought up by a man named John Worlidge in the late 1600s but no evidence exists to prove that he actually created anything. Jethro Tull also developed the horse-drawn hoe and altered the plow. Tull’s seed drill became widely used after 1731 when his book *Horse Hoeing Husbandry* was published.

Jethro Tull was also interested in controlling weeds. He believed that fertilizer would not be needed if enough nutrients were released in the soil by plowing and if weeds were prevented from stealing those nutrients. Although these beliefs were inaccurate, his creations paved the way for the Agricultural Revolution in Britain.

Next month: Eli Whitney

*Stefania Blanchette*  
Associate Master Gardener

## Cuttings ‘N’ Clippings

✿ The **Thursday, November 1** CCMGA meeting will feature Pamela Mowbray-Graeme, a member of the Southeast Arizona Butterfly Association. She will discuss the biology and life history of the over 300 species of butterflies we have in Arizona. Handouts about plants that attract butterflies will also be available. For information, contact Joyce at (520) 458-8278. Ext 2141 or contact Joyce at: [jwilliam@ag.arizona.edu](mailto:jwilliam@ag.arizona.edu)

✿ The FREE Water Wise workshop scheduled for **Saturday, November 3** from 9:00—11:30 a.m. will be Septic Care presented by Dr. Kitt Farrell-Poe, UA Water Quality Specialist. Proper care for a septic system will help prolong the life of the system and protect water quality. The presentation will be held at the UAS in the Public Meeting Room. For information call (520) 458-8278. Ext 2141 or contact Joyce at: [jwilliam@ag.arizona.edu](mailto:jwilliam@ag.arizona.edu)

✿ For well owners: a new Extension publication has been released: *Arizona Wells: Maintain-*

*ing and Troubleshooting Wells* by Janick Artiola. It can be accessed at:

<http://cals.arizona.edu/pubs/water/az1581.pdf>

✿ Cochise County Master Gardeners Association is planning their 20<sup>th</sup> annual High Desert Gardening & Landscaping Conference to be held February 14 & 15, 2013 at the Windemere Hotel & Conference Center in Sierra Vista. Registration forms will be available after the first of the year. Scholarships will also be available—see information on Page 6 of this publication.

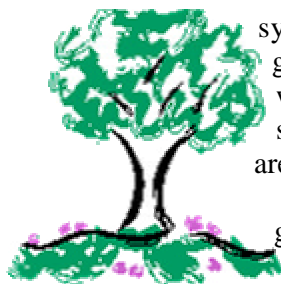


## Winter Tree and Plant Care

**Q** Should I fertilize and water my trees during the winter? How about my houseplants?

**A** Fertilizing of trees and shrubs during the winter in the high desert should not be done. Fertilizer could stimulate plants to come out of dormancy and start to grow during mild winter weather. This growth could be damaged when cool temperatures return. Deciduous plants are “resting” above the ground, but may have some activity in the root system if soil temperatures are warm. Applying fertilizers in the winter to outdoor plants is a waste of effort and resources.

Normally trees and shrubs go into winter with adequate soil moisture and do not need watering during the winter. If soil is dry before the onset of winter, a normal watering should be done to keep the root system moist. Usually winter rains or snow provide enough water. Deciduous plants do not need much water because leaves, where transpiration occurs, are gone and nutrients needed for growth are not required because there is no shoot growth. With no leaves photosynthesis has stopped. The same holds true for most evergreen plants such as pines, junipers, and native oak trees. When the soil and air temperatures are cool, normally below 45° F., and sunlight is reduced, why photo-



synthesize and grow? That is what spring, summer, and fall are for!

Houseplants are generally tropical in origin and survive best in warm humid environments, except most cactus and succulents. Houseplants need to be watered because of limited soil volume confining them. House temperatures are warm and allow continued plant growth. The best way to determine soil moisture is to stick a finger in the soil one to two inches. If the soil feels dry, water, if soil feels moist, don't water.

Fertilizing houseplants during the winter months is not encouraged because of reduced light from the sun. However, if you are “spoon feeding” your plants, that is giving a little fertilizer at each watering, cut back on the fertilizer by giving ¼ to ½ the normal amount given at each watering.

Many houseplants need high humidity to be “happy.” This is especially true with most ferns. With forced-air heating in many homes, house humidity can be lower during winter than during hot summer months where swamp coolers are used. Air conditioned homes also

have low humidity. Increased humidity can be created by placing the potted plant on top of a pebble filled, shallow dish. Fill the dish with water as needed, maintaining the water level near the top. The dish should have a diameter nearly as large as the entire plant diameter. The pebbles are important so the potted plant is not sitting in water, which will cause soil saturation leading to root rot by drowning. As the water evaporates, a humid environment is created which enhances tropical plant growth. This technique is much better for plants and easier than using a squirt bottle three times a day trying to humidify the plant!

*(Note: Reprinted from the December 1992 Cochise County Master Gardener Newsletter written by Robert E. Call, Horticulture Agent.)*

**High Desert Gardening  
& Landscaping Conference  
High on the Desert  
February 14 & 15, 2013  
Plan now to attend!!!**

### November Reminders

- ◆ This is a good time to install a drip system
- ◆ Replace summer mulch with fresh mulch
- ◆ Start a winter herb garden
- ◆ Protect plants from frost—see publication at:  
<http://ag.arizona.edu/pubs/garden/az1002.pdf>

Cochise County Master Gardeners Association in conjunction with  
The University of Arizona Cooperative Extension presents . . .



the 20<sup>th</sup> annual  
**High Desert Gardening &  
Landscaping Conference**



**February 14 & 15, 2013**  
**Windemere Hotel & Conference Center**  
**Sierra Vista, AZ**

An educational experience for everyone with an interest in gardening. ☼ For information contact  
U of A Cooperative Extension ☼ 1140 N. Colombo ☼ Sierra Vista, AZ (520) 458-8278, Ext. 2141  
[www.ag.arizona.edu/cochise/mg/](http://www.ag.arizona.edu/cochise/mg/) ☼ Registration and fee required for conference ☼

## 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 (value \$100 each) to the 2013 High Desert Gardening & Landscaping Conference to be held at the Windemere Hotel & Conference Center, Sierra Vista, AZ, February 14 & 15, 2013. 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. Represent original scholarship and be suitable for publication. All references and authorities cited must be properly attributed.
3. Please submit as an attachment (plain text format) to an e-mail to [ccmgasecretary@gmail.com](mailto:ccmgasecretary@gmail.com) Subject: Conference Scholarship.
4. Entries must be received not later than close of business on January 11, 2013

Entries will be judged by a committee of Master Gardeners appointed by the President of CCMGA. The awardees will be notified not later than January 25, 2013.

**By submitting your entry you understand that it becomes the sole property of Cochise County Master Gardeners Association and may be published in the Cochise County Master Gardener Newsletter\*.**

-----  
\*The Cochise County Master Gardener Newsletter is a publication of the University of Arizona Cooperative Extension. University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation in its programs and activities.