



The Virtual Gardener—Book Review *The Winter Harvest Handbook*

Book Review: *The Winter Harvest Handbook*

A month or so ago I received a catalog in the mail from a discount book dealer. One of the books I found in the catalog was *The Winter Harvest Handbook* and I was intrigued, so I checked the online [catalog](#) of the Sierra Vista library to see if the book was available there (why buy when you can borrow?). It was.

The author, Eliot Coleman, is well-known in the organic gardening community, having served as the Executive Director of the International Federation of Organic Agriculture Movements (FOAM) and as an advisor to the USDA on the study that led to the 2002 National Organic Program in the U.S. In addition, he is the owner of the [Four Season Farm](#) in Harborside, Maine and the author of four classic books on organic gardening, including *The Winter Harvest Handbook*. You can watch Eliot on YouTube in several online [videos](#) and read more about him in [Wikipedia](#). Eliot's experiments with all-season gardening began more than 30 years ago in attempts to extend the growing

season on his Four Season Farm. Since the farm is located in Maine at 44.4 degrees north latitude where winter temperatures regularly plunge below zero, the challenge was daunting. Growing crops in heated greenhouses would certainly be possible but also very expensive, so Eliot decided to see if he could grow crops in unheated greenhouses. Years of experimentation showed that it can be done and the techniques he developed are described in this book. What Eliot can do nearly half way to the North Pole in Maine is certainly doable two-thirds of the way toward the equator in southern Arizona.

The three basic keys of Eliot's success are choosing the right crops to grow, sowing crops continuously throughout the season, and using frost-protective covers in unheated greenhouses he calls "cold houses."

In the [September issue](#) of the Master Gardener newsletter, I wrote about cool-season crops that are appropriate for winter gardens in southeastern Arizona, including cole, salad, and root crops. In this book Eliot adds

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Cochise County Cooperative Extension

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

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many names to my list—arugala, chard, endive, mâche, and pak choi—just to mention a few. The book not only lists a large number of potential crops and their varieties but provides specific guidelines for growing each of them.

Elliot was inspired by the French market gardeners of the 19th century who used intensive gardening techniques to keep Paris supplied with fresh vegetables year-round. By continuously planting new crops as maturing ones are harvested, Elliot maintains a constant supply of fresh vegetables to sell—his farm is a commercial enterprise, after all. He aims to harvest at least three crops a year in every cold house. The planting schedules are crop specific and described in detail in Chapter 4 of the book. Of course replanting the same crops in the same beds time after time, is not a good idea so the book also recommends crop rotation regimens.

Two major problems come to mind when considering winter gardening, particularly in the far north: keeping the plants from freezing to death and supplying them with sufficient light for growth.

After considerable study, Elliot found that the weak light of a northern winter was not really a problem for growing crops provided they reached a certain minimum size before the

number of hours of daylight dropped below 10. After that point the plants will grow much more slowly until the number of daylight hours rises above 10 again. For Elliot's location in Maine, the days drop below 10 hours in length at the first of November and don't rise to above 10 hours again until the first of February. Here in southeastern Arizona the number of hours of daylight never drops below 10.

To keep the plants from freezing to death, Elliot uses unheated greenhouses ("cold houses") constructed of single layer plastic sheeting over a frame. Inside the cold houses the planting beds are covered with a single layer of floating row cover. When the outside temperatures were -8°F, the temperature inside the cold house, but above the floating row cover, was +2°F and the temperature under the floating row cover was +20°F. Although this may seem too cold for plants, according to Elliot it is not. The mitigating factors under the row covers are elimination of wind-chill, protection from desiccating wind, and protection against large fluxuations in wet-dry/snow-ice conditions. If his techniques work well in Maine, they ought to work very well here in Cochise County. *The Winter Harvest Handbook* is chock-full of practical advice for winter vegetable gardeners, and I strongly recommend it. You can find it in the Sierra Vista library with the call number 635.0484 COL. Check it out!

Until next time, happy surfing.

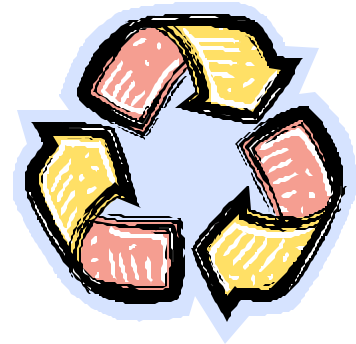
Gary A. Gruenhagen, Master Gardener
virtualgardener@cox.net

Eliot Coleman, *The Winter Harvest Handbook* (White River Junction, VT: Chelsea, 2009)

Cuttings 'N' Clippings

✧ The next CCMGA meeting is 5:00 p.m. Thursday, **January 6** at the University of Arizona South Campus Public Meeting Room. Mid-winter is the ideal time to prune your rose bushes. Master Gardener, Donna Blackburn will give a talk on the pruning and care of roses.

✧ On **January 8**, 9:00—11:00 a.m. the free Water Wise presentation presented by Tom Runyon, Ft. Huachuca Hydrologist will be *Why Does Saving the San Pedro River Help Save the Fort and Strengthen Our Economy*. The presentation takes place at the University of Arizona South Campus Public Meeting Room.



✧ Recycle your Christmas tree at the recycling center on Hwy 90 or by curbside pickup if you live in Sierra Vista. For information call 458-7530.

✧ **High on the Desert**

The **18th High Desert Gardening & Landscaping Conference** will be held **February 17 & 18, 2011** at the Windemere Hotel & Conference Center in Sierra Vista. For information contact the Cooperative Extension at (520) 458-8278 or ag.arizona.edu/cochise/mg/

Robert E. Call

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Area Horticulture Educator
Carolyn Gruenhagen
Editor

Oregano: Greek, Mexican, Cuban, Syrian...Marjoram???

An episode of The Andy Griffith Show (I know, remembering Andy Griffith dates me as being well into geezerhood) centered around Andy getting invited to multiple dinners on the same night. As a result of Goober's garbling of phone messages, coupled with the always curious inability of situation comedy characters to be unable to say no to even the most unreasonable request, Andy ate three meals that evening, each one a spaghetti dinner featuring the Cook's secret ingredient—oregano. As the show ended, Aunt Bee, concerned that Andy didn't look well, was fixing him yet a fourth spaghetti dinner.

Well, Andy may have been stuffed to the gills, but I'd bet that he had no idea just how confusing the world of oregano is. The world really was easier back in the late fifties and early sixties. My own oregano education began when I tried to find seed for Mexican oregano. None of my seed catalogs offered it, although almost all of them offered seed for Greek oregano (*Origanum vulgare v. hirtum*). Finally, I did a little Internet research and learned more than I'd expected.

First, there are several plants called Mexican oregano, none of which are in the *Origanum* genus. Further digging revealed that the variety sold in grocery stores as Mexican oregano (the stuff in the little cellophane bags next to the whole dried chiles) is typically *Lippia graveolens*, although *Poliomintha bustamanta* (aka *P. longiflora*) and *Lippia palmeri* are also called Mexican oregano sometimes. Also adding to the confusion are Cuban oregano (*Plectranthus amboinicus*), Rus-

sian Oregano (*O. gracile*) and Syrian Oregano (*O. Syriacum*, aka *O. maru*), plus many others. Then there's *O. majorana* which is sometimes sold in nurseries as oregano, but which when used for cooking is called marjoram. Marjoram, by the way, is more delicate than oregano and should always be used fresh, as its flavor doesn't stand up well to drying. In all, there are almost 50 members of the *Origanum* genus alone and all of the plants used as oregano are members of the family *Lamiaceae*, which includes mints, basil, and sages.

The primary chemical constituent of what we think of as the flavor and aroma of oregano is a phenol known as carvacrol. Carvacrol is produced by all of the plants used culinarily as oregano, hence the plethora of oreganos but not all members of the genus *Origanum* produce significant amounts of carvacrol. One herb expert, Dr. Arthur O. Tucker, says it's best to think of oregano as a flavor rather than as a genus or a species. Interestingly, the desert creosote bush, which has an aroma close to that of oregano, contains phenolic compounds similar to carvacrol. Oreganos and creosote have been used for a number of medicinal purposes for centuries. Today, oregano is touted by some as possessing significant anti-bacterial and anti-fungal properties.

Finally, it also turns out that many varieties of oreganos don't propagate true to taste from seed, hence my inability to find Mexican oregano seed; it's propagated by cuttings and only sold as a plant. There are a number of web sites that offer it; just do a web search and you should be able to locate some. I've not found any plants available locally yet, maybe some of the larger nurseries in Tucson will offer

some form of Mexican oregano plants this spring. Greek oregano, on the other hand, is readily available as a seed. If you do buy plants from a nursery, crush a leaf between your fingers to be sure the plant is aromatic enough. Most all varieties of oregano will do well in our climate and some can survive our winter with a little protection on chillier nights. They're generally tolerant of poor soils, too. As with many herbs, they produce stronger flavored leaves when stressed a bit, so don't fertilize them, don't water them too much, and give them full sun. Next spring, grow one or more of the oreganos, then whip up a big batch of spaghetti, throw in a tablespoon or two of minced fresh oregano leaves, and think of Andy Griffith and a simpler time.

Bill Schulze, Master Gardener

HAPPY NEW YEAR

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

Sierra Vista Compost Facility

In October, eleven Master Gardeners learned about commercial compost production at the City of Sierra Vista's compost facility. Mr. Darren Stensby and Mr. Dave Thomas gave us a tour. They said city employees make about 2,000 tons of compost each year from greenwaste: grass clippings, weeds, cacti, tree trimmings, other plant material, and cattle manure. This operation started several years ago with just a pickup truck and a tiny "tow-behind" chipper. Buyers purchased the compost as soon as it was made and demand kept growing. Now the city saves about \$100,000 yearly it would otherwise have had to pay in landfill fees for disposing of this greenwaste. Plus, it earns from \$200 to \$2,000 a day from selling compost and mulch to commercial operations and homeowners.

The process starts when residents of Sierra Vista drop off greenwaste at the Highway 90 facility or have it picked up curbside at no charge. Those of us who live outside of the city may also drop off our greenwaste for a small fee. It is placed in a clean field and city workers check to make sure there is no trash or rocks or other nonplant material that could contaminate the compost or damage machinery. The city has a gigantic grinding machine that can pulverize a pickup load of greenwaste in a matter of seconds. It is ejected from the grinder into a large dump truck that takes the chipped material to another clean area and drops it in very long and narrow rows.

If cattle manure is available, it is ground up and added as a source of nitrogen to help the composting process.

Once greenwaste has been ground and shaped into rows, another huge machine, called a Scarab, pushes the rows into a trapezoidal shape: broad on the bottom and narrow on the top. The row is periodically watered and turned, using the Scarab again, to keep it moist, aerated, and warm enough to sustain bacteria that helps the greenwaste break down into smaller sized pieces. If there isn't any manure for nitrogen, the city adds liquid nitrogen to the watering truck that keeps the rows moist. It takes 60 to 90 days for the material to reach a temperature of 150° F. City workers test the temperature of the compost using a thermometer that is taller than I am. The compost has to stay at 150° for 15 days to kill pathogens and seeds. Out of an abundance of caution, the city also tests its compost once a year to make sure it contains no heavy metals or pathogens.



Checking the compost temperature

Photo by Linda Gleeson

"Scary" the screener



After the compost has "cooked" long enough, it is screened into products of two-inch mulch, and $\frac{3}{4}$ inch and $\frac{1}{4}$ inch compost. The smallest size is sold in paper bags holding one cubic foot for \$3.00. All three of the products are sold in bulk for about \$8.00—\$15.00 a cubic yard (that's about a pickup load). The Master Gardeners had a terrific two hours at the compost facility. We left grateful to learn that Sierra Vista city employees have found a way to recycle organic material, reduce landfill costs, make money for the city, and produce a wonderful bulk product that can be found nowhere else in this part of the state.

Terrie Gent, Master Gardener

Sierra Vista Farmers Market

The Sierra Vista Farmers Market continues year around at the corner of Wilcox and Carmichael every Thursday from 11:00 a.m. until 3:00 p.m. Check out all the wonderful products brought to you by local vendors. Manager Valerie McCaffrey, a former Master Gardener, is retiring. Congratulations, Valerie for a great job! The new manager will be Diane Jones.

The Agent's Observations

Q I planted a 'Fuji' apple tree in 2002. I never seem to get many apples in spite of lots of flowers in the spring. Anywhere from four to ten apples are produced a season if I'm lucky. For some reason I thought they did not require a cross pollinator. I've discovered just the opposite. I don't have much room to add another fruit tree but I'm sure I could fit a small dwarf somewhere. What variety of apple would you recommend for this area that will bloom approximately the same time as the Fuji and can be purchased as a dwarf?

A Most apple trees need a pollinator tree for fruit production, but a pollinator like 'Gala' or 'Granny Smith' should improve fruit set. A white flowering crab apple like 'Snow Drift' will serve as a pollinator for many apple varieties. Do not plant a pink or red flowering crab apple because they will not pollinate apples. 'Fuji' does not seem to produce a lot of fruiting spurs even on a dwarfing rootstock. This is because it is considered a non-spur type apple and produces fruit on last year's wood as well as a few spurs. Be careful when dormant pruning and leave some wood for production. If severe pruning is done much of the fruiting wood and future apples may be laying on the ground!

Q We have purchased a 25 horse-power tractor. We need to know about buying a plow to break up the ground to establish a one-acre vegetable garden. Nothing has

ever been grown on the land other than native grasses and small vegetation. We plan on selling the produce at farmers markets. What type of equipment should we be looking for?

A An English agriculturalist, Jethro Tull (1674-1741), is credited with inventing a "horse-drawn hoe" for weed control and improving the plow which is still used today. However, the Chinese were using these types of implements in the 6th century B.C.! The general rule of thumb is it takes 15 horse-power to pull a one-bottom mould board plow. With your tractor one plow might be all it will handle. If your tractor is four-wheel drive you may be able to use a two-bottom plow. It's best to consult the tractor dealer or manufacturer to see what is suggested. If the soil is plowed when it is too wet, dirt clods may form. Clods may be very difficult to work down into a good seedbed. After the moist ground is plowed usually a disk or disk harrow is used to work the earth further. A disk is a gang of concave metal wheels with sharp edges mounted on an axle. Normally there are two sets of disk gangs mounted to a frame that is attached to the tractor. The gangs are off-set at an angle to each other forming a "V" when looking from above. The disk will break up the plowed earth and smooth it. Many times a harrow, either spring or spike-toothed, will be dragged over the ground after disking. Sometimes the harrow is attached behind the disk to drag over the ground. At times a piece of railroad rail or a railroad tie will be attached to the disk or harrow as a drag to level the ground. Using this equipment will

prepare a smooth seedbed for planting. Disc-plows are also made to prepare the soil for planting. Tractor implements can be classified into three major groups: 1) non-powered, like those mentioned above, 2) power take off (PTO) powered, and 3) hydraulic powered. If preferred, a one-step operation can be used employing a tractor mounted rotary tiller (roto-tiller). The effectiveness of a rotary tiller will depend on the soil type. If it is hard and heavy, plowing might be the best alternative. The rotary tiller is attached to the tractor and a drive shaft from the rotary tiller gear box is attached to the tractor PTO. The PTO shaft will turn the tines of the rotary tiller and prepare the seedbed. Some rotary tillers are powered by a hydraulic motor rather than a PTO. The tractor will have to be equipped with a hydraulic system to use hydraulic powered implements. Some tractors come equipped with none, one, two, three, four or more pair(s) of hydraulic hose attachments. Hoses are paired so the pumped outgoing hydraulic fluid flows to the implement causing it to do the desired work. Then the fluid returns to the tractor via the other hose. Certain implements may use a combination of PTO and hydraulic power to perform their tasks. Growers may do some or all of the above mentioned operations to prepare a seedbed for planting. As you can see there are many options available for preparing a vegetable planting bed.

Reference:

[http://en.wikipedia.org/wiki/Jethro_Tull_\(agriculturist\)](http://en.wikipedia.org/wiki/Jethro_Tull_(agriculturist))

*Robert E. Call
Area Horticulture Educator*

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High on the Desert

February 17 & 18, 2011

458-8278 Ext 2141 or

www.ag.arizona.edu/cochise/mg/

[Click here](#) for Registration Form

Hurry!!!

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 2011 High Desert Gardening & Landscaping Conference to be held at the Windemere Hotel & Conference Center, Sierra Vista, AZ, February 17 & 18, 2011. 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 UA South campus or from the Master Gardener web site: www.ag.arizona.edu/cochise/mg/
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 14, 2011.

Entries will be judged by the Cochise County Horticulture Extension Educator and a committee of Master Gardeners appointed by the President of CCMGA. The awardees will be notified not later than January 28, 2011 and their names published in the February 2011 Master Gardener Newsletter.