



# THE YOLO GARDENER

Winter 2012

A QUARTERLY PUBLICATION BY THE YOLO COUNTY U.C.C.E. MASTER GARDENERS

## Bats with Benefits

Jim Fowler, Yolo County U.C.C.E. Master Gardener

If you've ever crossed the causeway on Interstate 80 between Sacramento and Davis at dusk in the summertime, you have probably seen one of the area's most fascinating sights – the emergence of more than 250,000 free-tail bats from under the causeway off for their nightly forage. The Yolo Basin Foundation, a local educational organization, sponsors watching tours of this spectacular flight, which has become a minor tourist attraction. It also presents bat educational programs throughout the summer.



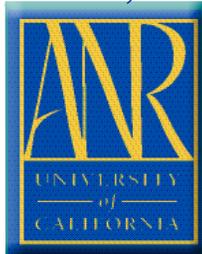
Causeway Bats  
Photo Courtesy of Davis Enterprise

Some specifics taught by the Foundation: bats are of the order *Chiroptera*. Next to rodents they are the second largest group of mammals in the world. They have one offspring per year. (Unfortunately for the mother, it usually weighs about 25% of what the

mother weighs.) They can live as long as 30 years. Different species feed on different things. There are frog-eating bats, fruit bats, and bats that feed on pollen, but the bats in this area of California eat mostly insects. Bats use echolocation (the ability to emit calls out to the environment and listen to the echoes of those calls that return to locate and identify objects) to help find their prey but, contrary to popular lore, they also have excellent eyesight.

In this area of California there are primarily six species of insect-eating bats: Mexican free-tail bats (*Tadarida brasiliensis*, the ones that live under the causeway); red bats (*Lasiurus blossevillii*); hoary bats (*Lasiurus cinereus*); big brown bats (*Eptesicus fuscus*); little brown bats (*Myotis lucifugus*); and pallid bats (*Antrozous pallidus*). All of them survive the winter either through migration or through hibernation. They can eat their weight in insects (mostly moths) in a given night. It is estimated that a colony of 150 bats can eat more than a million insects over a season. But they rarely consume beneficial insects; perhaps because when bats are active, beneficials are not. For this reason they are considered one of the essential elements in a program of integrated pest management. The equation is simple: the more bats there are around, the less insecticide is

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needed.

For years Rachael Long, U.C.C.E. Yolo County Director and Farm Advisor, has been encouraging local farmers to create bat habitats as a natural way to aid in pest control. She says that you can encourage the presence of bats on your property by building proper housing. Bat houses should be located in areas with morning sun but afternoon shade. Houses mounted on poles in open areas usually remain uninhabited. It is better to place them on structures rather than on poles, as it gives them more consistent temperatures. To avoid predators the habitats should be located at least ten feet off of the ground and at least twenty feet from other structures, wires, or trees, and they should be no farther than a quarter mile from water. (See additional information in Rachael's article, found at <http://ucce.ucdavis.edu/files/repositoryfiles/ca6002p91-69245.pdf>.)

Bats have been unfairly associated in the popular mind with rabies. Rabies is a deadly disease that attacks the central nervous system of mammals. When symptoms appear, it is too late for treatment: the result in virtually every case is death. World health organizations report some fifty-five thousand deaths annually from rabies. (In the United States the death toll is only about two per year.) Most cases are from dog bites rather than attacks by wild animals such as bats. Recent research indicates that the incidence of rabies in bats is less than one-half (0.005) percent. Infected bats rarely attack people. Instead most bites from bats are from "found" bats. The best advice, as with any wild animal, is to avoid handling an injured or ill bat and to make sure that your pets are vaccinated.

Corky Quirk, who leads bat tours for the Yolo Basin Foundation and who has established NorCal Bats for the purpose of rescuing injured and ill bats, has some advice on how to handle bat problems. If a bat gets inside your house, don't try to net it while it is flying. You risk damaging its wings. Let it land first. Try turning off the house lights, turning on the porch light, and opening the door. Insects will be attracted to the light and the bat to the insects. If you have them in the attic, find where they are coming in and install one-way doors (perhaps just a flap of cloth so that they can get out but not back in). (See: <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74150.html>) After a few days, to be certain that they are all gone, seal the entry. If you insist on handling an injured bat, be sure to use heavy gloves because, like any wild animal, they will defend themselves. For more information on local bats and what to do if you find an injured one, please go to <http://www.norcalbats.org/aboutbats.shtml> and click on the flashing "Emergency" in the header menu. 



*Pallid Bat Rescued by Corky*

## *Edible Landscaping*

*David Studer, Yolo County U.C.C.E. Master Gardener*

**W**ho says you can't have your landscaping and eat it too?

Many urban and suburban home owners divide their garden strategies between an ornamental landscape and a vegetable garden. These two plant worlds exist on opposite sides of some very rigid boundaries, including fences, hedges, even walls. Often one finds the vegetable garden hidden out of sight in a sunny spot behind the garage. Why do gardeners separate their plants into segregated communities? How did we get to this state of vegetation apartheid?

For the most part, gardens began as food producers. Early gardeners employed techniques such as topiary, espalier and pollarding to prune fruit crops for enhanced production. Early gardens, known as parterres, organized food plants into companion plantings separated by low, clipped hedges. Ornamental landscaping borrowed these techniques and replaced the vegetables with ornamental plants. Food production was relegated to the farm and ornamental gardens became beautifying aspects for the manor intended to

impress the neighbors.

Vegetable gardeners pushed back. Eighteenth-century garden designer, Stephen Switzer, coined the phrase ‘ferme ornée’ (pronounced fair-mornay), meaning ‘ornamental farm,’ to promote the rebalancing of gardens into attractive edible landscapes by mingling the pleasure of ornamental plant beauty with the production of food. The “edible landscape” was born. These ideas influenced several 18<sup>th</sup> and 19<sup>th</sup> century



Want ideas? Visit the U.C. Davis Good Life Garden at the Robert Mondavi Institute for Wine and Food Science



*Ferme ornée*

Image Courtesy of [www.nationaltrust.org](http://www.nationaltrust.org)

gardeners, including King George III at Kew Gardens and Thomas Jefferson at Monticello. Frederick Law Olmstead Sr. employed these ideas of productivity and beauty in his landscape designs.

Unfortunately, the movement didn’t last and today the vegetable garden retains a reputation for untidiness that challenges the average homeowner’s idea of attractive landscaping—think property value. City ordinances and homeowner association CC&Rs (covenants, conditions and restrictions) govern much of today’s urban and suburban landscapes. These policies appeal to property value goals, and the concept of an “attractive vegetable garden” escapes the conscience of the average home owner.

History and reputation aside, advantages to a landscape made up of food-producing plants abound; convenience, for one. Picking fruit and/or vegetables from the yard just before putting together a salad, stew, or baking a pie is much quicker and easier than going to the grocery store with a list, putting up with the crowds and lines, spending money and getting home only to

discover that you forgot some key ingredient. Yikes! How often has that happened? Be honest.

Incorporating food plants into the landscape reduces the consumption of fossil fuels and their related negative effects on the local environment and global climate. Even the smallest effort helps. Even if you ride your bike to the grocery store (good for you!), how about all of the fossil fuels expended to produce, pick and transport the food to that store? No one advocates the elimination of the farm economy. Bless those farmers for all of the effort they go through to put food on our table—especially the small farm and the local farmers’ markets. However, acquiring food from local producers as much as possible is a good thing (as Martha Stewart would say), and how much more local can you get than the front yard?

Health benefits of edible landscaping include the therapeutic effects of working out in nature with your hands and the pride of self reliance, reducing exposure to food-borne pathogens and the healthy food choices available just outside the door—one is less likely to seek out the less healthy choices that bombard us on a daily basis. Knowing where your food comes from and how it was planted, fertilized, harvested and processed for the table takes a lot of the anxiety out of the daily quest for nourishment.

In order to achieve the benefits of the edible

landscape, one needs to overcome some of the vegetable garden's reputation. Compromise exists. Edible landscaping need not look messy, and it also need not be all vegetables. Think about trees, bushes, ground covers and vines. Many flowers are edible and taste good too!

California Master Gardeners gathered in September on the campus of U.C. Davis in the first of several statewide Master Gardener-sponsored workshops to "Train the Trainer" and promote incorporating edible plants into the urban and suburban home landscapes. Edible landscapes do not demand that vegetable gardeners give up their vegetable gardens. The training encouraged expanding the vegetable garden into the landscape with plants that possess both edible and attractive qualities.

Some advice when planning an edible landscape: Review the existing landscape first and identify areas where edible plants would flourish—most vegetables require six hours of sunlight. Think about grouping plants with similar water needs to simplify irrigation. Use edible plants as ground covers, hedges, canopies and shade trees. Avoid monocultures if possible. Mix it up. Get creative! Put popular seasonal vegetables in easily accessible locations to facilitate seasonal plant rotation activities—perhaps annual flower beds, rotating the flowers and the vegetables at the same time if possible.

Maintenance activities may need modification. Fertilizing the roses in the midst of the zucchini could be a challenge. Going organic may be the best solution. Increase diversity and create habitats for beneficial insects. Use more compost and organic fertilizers to eliminate the need for chemical fertilizers. Sow cover crops like legumes to address edible plants' need for more nitrogen.



Note that water usage issues also need consideration whenever contemplating changes to the landscape. For now, let's leave it at that because it brings up MWELo—the Model Water Efficiency Landscape Ordinance—and enough other irrigation and water usage issues to write a whole separate article...Hmmm.

Think about food safety. The neighborhood is full of varmints, including the neighbor's dog who has staked out a spot on the lawn to do his business. While protecting the family from chemical fertilizers, processing plant pathogens and environmental degradation, one has inadvertently allowed the neighbor's dog to spoil the salad. Incorporate access challenges to the neighbor's dog like an attractive hedge or planting in containers above the ground. Avoid planting edible ground covers in exposed areas. Instead use trellises, espaliers, fruit trees or other plants that keep the edible parts off the ground. Even with all of this effort, wash produce thoroughly before cooking, preparing and/or serving.

Finally, do edible landscapes mean more effort? Perhaps, but to the gardener, gardening isn't effort. It's relaxation. It's fun. It's the challenge that motivates and the benefits for one's health, the community environment and world climate...all gravy.

Happy gardening!



## *Horticultural Whodunits and other Bookish Escapes*

*Ann Daniel, Yolo County U.C.C.E. Master Gardener*

You have readied your garden for winter and now may have time for other pursuits—not that gardening and horticulture are ever far from your mind. How about turning your attention to finding a “good read” for yourself or a fellow gardener that incorporates a horticultural theme? Gardens and deadly plants play roles in many works of fiction and whodunits. Many a detective or amateur sleuth has contemplated their case while tending their roses or perennials.

Escape with one of the following books, or get a holiday gift for that gardener on your list who never wavers from thinking about plants or gardening. If you are like me and sometimes find that you enjoy the characters in a novel and want to read more about them, I have made note with a \* if the book is part of a series. This is just a short list of suggestions; please share with me any other books that feature gardening that you have enjoyed.

Catherine Aird, *PASSING STRANGE*, (Doubleday). Inspector Sloan, a rosarian, deals with murder at a flower show.

Susan Wittig Albert, *THYME OF DEATH*,\* (Berkley). Successful Houston attorney abandons her career to run an herb shop and solve murders in a small Texas town.

Susan Wittig Albert, *THE DARLING DAHLIAS AND THE CUCUMBER TREE*,\* (Berkley). Ladies of the Darling Dahlias Garden Club deal with life in a southern town during the Depression.

Reginald Arkell, *OLD HERBACEOUS*, (Modern Library Gardening). A classic British novel about an English head gardener, interspersed with gardening wisdom.

Marian Babson, *GUILTY PARTY*, (St. Martin’s). An American artist rents a gardener’s cottage and later discovers his body in the bushes.

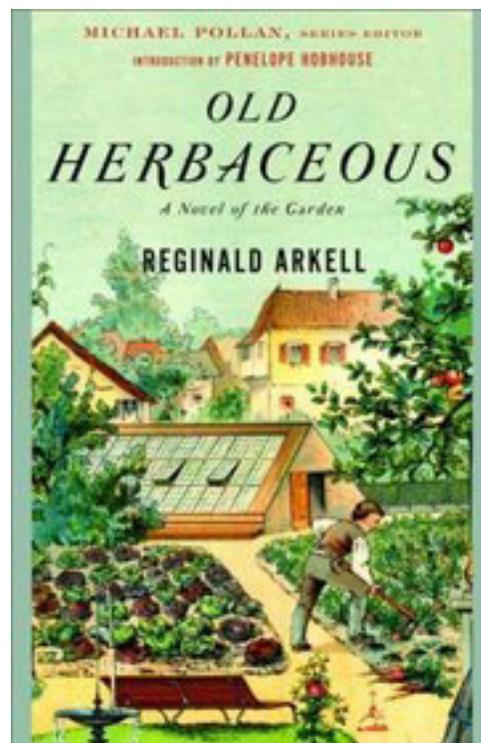
Dorothy Cannel, *DOWN THE GARDEN PATH*, (St. Martin’s). Things are not as they appear at a manor house in the Cotswolds.

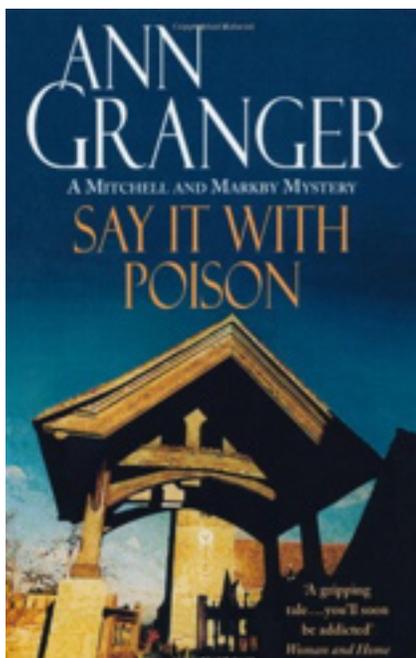
K.C. Constantine, *THE MAN WHO LIKED SLOW TOMATOES*, (Godine). Jimmy produced tomatoes that ripened earlier in the season than normal, and then he went missing.

Alisa Craig [pen name for Charlotte MacLeod], *THE GRUB-AND-STAKERS MOVE A MOUNTAIN*,\* (Doubleday/Avon). Features the Grub and Stake Gardening and Roving Club of Lobelia Falls, Ontario.

Marjorie Dorner, *FREEZE FRAME*, (Morrow). College professor on sabbatical in Cambridge, England, enjoys her passion of visiting and photographing formal gardens.

Anthony Eglin, *BLUE ROSE*,\* (Minotaur). New home owners discover a blue rose in their walled garden and are engulfed in a world of coded journals, genetic experiments, greed and murder.





Caroline Graham, *THE KILLING AT BADGER'S DRIFT*, (Morrow). Emily Simpson has found a coral root orchid and is then found dead.

Ann Granger, *SAY IT WITH POISON*, (St. Martin). Chief Inspector and passionate gardener Alan Markby investigates a murder committed with poisonous herbs.

Reginald Hill, *DEADHEADS*, (Macmillan). A rose-loving accountant kills to move up the corporate ladder.

Helen Humphreys, *THE LOST GARDEN*, (W.W. Norton) A story of friendship and the restoration of an estate garden in a time of war.

Emma Lathen, *GREEN GROW THE DOLLARS*, (Simon & Schuster). A successful Wall Street banker and amateur gardener mixes it up with professional plant developers.

Rebecca Rothenberg, *THE BULRUSH MURDERS*,\* (Mysterious Press). Microbiologist Claire Sharples conducts agricultural research in California and gets involved with murder.

John Sherwood, *GREEN TRIGGER FINGERS*,\* (Ballantine Books). Landscape designer and garden center owner Celia Grant also finds time to be an amateur detective. Books contain lots of horticultural information.

Happy Reading! 🍅

## Mystery Crop

*Betsy Lurie, Yolo County U.C.C.E. Master Gardener*

What's that growing in the field at the corner of Roads 98 and 24 in Woodland?

My favorite kind of question--one for which I didn't have an immediate answer! Yes, I too drive by this field and a few others like it, not quite sure what I'm seeing. It looks a little like stunted corn. Perhaps some kind of animal feed? But why the alternating segments of tall and short stalks? Really, we Master Gardeners should be familiar with the crops growing under our very noses! I decided to do a little digging outside my own yard. I took some photos, called a couple of local growers, and confirmed the identity of this mystery crop with Kent Brittan, our own expert at the U.C. Cooperative Extension Office in Woodland.



*Sorghum sudanese seed heads*

What we're seeing here is a variety of *Sorghum bicolor* (the shorter stalks) planted alongside sudangrass, *Sorghum sudanese*. This particular crop is probably being grown by Pioneer seed company for hybrid seed production. There are several fields of different sorghum varieties in Yolo County right now. The field at the corner of Roads 98 and 31 has two cultivars with an even more striking height differential.

Sorghum is an annual grass native to the tropical and subtropical regions of Africa and Asia. One species is found in Mexico. It is believed to have been introduced to the United States by black slaves in the 17th century. Known for its ability to thrive in harsh environments, sorghum is the third most important cereal crop in the United States and the fifth most important cereal crop in the world. Many varieties exist. Their uses can be broken into

#### SORGHUM AND APARTHEID

An interesting side story about grain sorghum is the role it played in the history of South African apartheid. African sorghum beer is an unfiltered brownish-pink beverage with an alcohol content varying from 1% to 8%. In addition to the steps used for traditional beer brewing, African sorghum beer undergoes a lactic acid fermentation. Initiated by yogurt, sour dough, or spontaneous environmental cultures, this additional step gives the beer a distinctive sour taste. A high protein content provides the beverage with a stable, milky head.

Under apartheid, black South Africans were prohibited from alcohol consumption (lifted in 1962). There was one exception--sorghum beer. Insidiously, profits from white municipal monopolies on sorghum beer were used to fund segregated housing for the black population. Known as the "Durban System" after one of the first towns to devise this means of footing the bill for segregation, the practice became widespread after the passage of the 1923 Natives Act, which legalized enforced segregation in all South African municipalities.

four general categories: 1) Grain crops that provide a food source for humans and animals; 2) Grass crops for hay or livestock forage; 3) Sweet sorghum used for syrups, "beer," or biofuels; and 4) Broom "corn," which I grew in my own yard this summer (more to come)!

Grain Crops. While sorghum remains an important food source for people in poorer countries (almost three-quarters of the world's crop is used for human consumption), here in the United States it is mostly grown for animal feed. It is, however, seeing a bit of a resurgence as a component of gluten-free diets. The gluten-free trend has even spurred a few American breweries to use it in the production of gluten-free beer.

Grass Crops. Varieties like sudangrass and other sorghum hybrids are cut green and harvested for hay or forage. They can also be used as a cover crop, but one study done at U.C. Davis found that sudex, a sorghum hybrid used as a cover crop, can kill or stunt subsequent tomato, lettuce or broccoli plantings. Researchers recommend waiting six to eight weeks for the sudex residue to leach from the soil.

Sweet Sorghum. Sweet sorghum is also grown locally (see photo below of Steve Kaffka, a Cooperative Extension Specialist in the Department of

Plant Sciences at U.C. Davis, in a field at Knights Landing). Steve and others like him are involved in researching the uses of sorghum as biofuel. Says Jeff Dahlberg, Director of the U.C. Kearney Agricultural Research and Extension Center in Parlier, California, "Sorghum is one of the few crops that span all the different renewable fuel options. You can use the grain to convert into ethanol. We have sweet sorghum, a specialty sorghum which is very similar to sugar cane. You can press the juice out and convert it into ethanol. And we can produce a lot of biomass."

Sweet sorghum is still grown for syrup in the southeastern U.S.



**Broom Corn.** Once identified, I realized that I myself had some of this mystery crop in my yard. Some of my plantings this year were done with an eye to wreath-making and dried flower arrangements. To this end, I grew a fairly large crop of Amish Rainbow Blend Broom Corn, another variety of *Sorghum bicolor*. A success! Six- to ten-foot stalks barely an inch wide topped with panicles just loaded with seeds in a beautiful array of shades from light peach to a deep mahogany brown. I humbly submit a photo of my novice wreath. The seeds grow along curly straw-like fibers that are used to make traditional brooms. The web has videos of the Amish demonstrating this craft and discussing assorted designs and patterns. Mother Earth News (December 29, 2008) offers clear broom-making directions, and I'm hoping to give it a try soon.



Researching this question, I am reminded of Michael Pollen's *Botany of Desire* and the way that individual plants have woven their way into and continue to thread their way through so much of human history. It has been a real pleasure to discover some of the story behind this humble plant that grows in a field I pass daily. If you happen upon other such mysteries, send them my way! 🍅

(Photos: Kent Britten, Doug and Betsy Lurie.)

## *Adaptive Gardening: How to Adapt Gardening to "Challenged" Bodies*

*Cid Barcellos, Yolo County U.C.C.E. Master Gardener*

Life can throw us many curves. Accidents happen, diseases occur, and aging is a given. It doesn't mean we have to give up gardening. Gardening is adaptable to bodies which are changing as we get older. Our heart says "let's do it." Our bodies may say "not so fast." Our mind can choose to do it. Even in the face of aging bodies, accidents or diseases, we can keep gardening. Gardening is therapy. Let's use it.

There is active gardening and passive gardening. On the active side, gardening is a stress reducer providing physical exercise, and will leave you with a positive tiredness. It builds character and you are proud of its success. It is a great teacher of patience and persistence.

The passive garden is a plus, too. One learns to appreciate plants even when viewed through a window.

The mind is stretched to identify plants, birds and bugs. It sparks creativity and curiosity. The garden is a wonderful place to socialize with your friends and family. And it often brings peace of mind and a spiritual calm into our lives.

One of the best things about gardening is its adaptability. Garden tools can be adaptable, beds can be raised, and the infrastructure can be changed. If there is a will, there is a way. Let's think outside the box and look at ways to keep on gardening even when our body talks back to us.

Basic rules: 1) Do not over-do it. For safety and your health, respect pain. It's your body telling you to stop, take a break. Remember that it does not have to be done in the next few hours or even today. Pace yourself. Try one hour per day, not four hours; 2) Use your strongest muscles. Use your legs, not your back; use your forearm and elbow, not your wrist or fingers.

Use your palms to push levers or tools, not your fingers. Avoid staying in one position too long; 3) Carry smaller, lighter-weight objects.



*Reversible Kneeler/Bench*

Make it easier to get around. A reversible kneeler/bench, a garden cart, and a garden seat caddy help the gardener by making it easier to sit and prune or plant. An empty five-gallon bucket makes a great tool carrier, and will support a seat cushion. Add mailboxes around the yard to hold small tools. It's convenient and you won't have to carry tools very far.

Adapt tools for your needs. 1) Use tools with extended handles. These can lengthen your reach. You don't have to bend over so far, so it's easier on your back. 2) Choose a steel tubular handle rather than wood, which is heavier. 3) Wrap self-adhesive tape or foam tightly around handles for a nonslip gripping surface. Use bike grips or crash bar pads to give a wider and softer handle. Pipe insulation also makes a nice soft grip. 4) Kneepads contoured to your knee are comfortable. Buy some or make your own by attaching pieces of foam to your knees with sturdy fabric, or use velcro to hold them in place. 5) Use kitchen tools such as tongs, strainers, and salt shakers (good for planting small seeds). Think about lightweight plastic cups, spoons, and forks. 6) Use children's tools, which are lighter, have longer handles, and may be just right for your hands. 7) Ratchet pruners are easy to use. Your hand makes several smaller squeezes, thus sparing arthritic hands. 8) When weeding, *length means strength*. Long-handled hoes allow cultivating and weeding from a standing position. Three-pronged cultivators are easy to use. And last but not least, make sure the pruners, loppers and saws are sharp.



*Gardening Knee Pads*

### **Raised Beds.**

Raised beds are a big plus; you avoid bending over so far, so your back is not screaming at you. Beds are usually 12," 24," or 36" high. (We have both 12" and 24" in our Grace Garden.) Raised beds are attractive and easy to use. A ledge can be added so you can comfortably sit on the edge of the bed, which is easier on your back and legs.

Raised beds can yield up to four times more harvest, whether flowers or vegetables, compared to an in-ground bed. The soil stays light, provides good drainage, is easier to work with, and requires less strenuous digging. Raised beds can be planted earlier in the season because they warm up more quickly than the ground. Add a trellis for vertical growth. You can make your own with PVC pipe. It is sturdy, lightweight, rot resistant, and easy to assemble and disassemble. Use at least 1" diameter PVC.

The down-side to raised beds is that they can dry out faster than ground-level beds. Adding mulch helps keep the moisture in. Tall plants, however, may grow out of reach.

Before you put in a raised bed, be sure you can reach the center from both sides if it is located out in the open. If the raised bed is built up against the house or fence, make sure you can reach the back. Add mulch to prevent weed growth, retain moisture, feed the plants, and keep the soil from compacting. Beds should run



*Raised beds*

potting soil lengthwise down the center and plant. Put the bag on a table first, and remember to poke holes for drainage on the bottom. Consider window boxes so you can see them from inside. Maybe containers fitted to a railing would work for you. Hanging boxes or pots look lovely. They work best when lined with sphagnum moss or coco fiber liners.

### **Small Plant and Seed Planting.**

Planting seeds can be frustrating when they are tiny. Some seed packets recommend planting two or three seeds per hole. You can hardly see the seeds, much less count them. Seeding tools can be quite useful for small or large seeds, or you can make your own. To make your own seeding device, use a funnel or a piece of PVC or bamboo to drop the seeds into the planting holes. Try mixing the seeds with sharp sand, fine soil or coffee grounds to prevent clumping. Place in a salt shaker or hand-held seed dispenser for easy planting. Make a seed tape with newspaper and a flour/water paste. Glue the seeds on strips of newspaper and plant the whole thing. For planting small plants, use a large-diameter PVC pipe (large enough to push the plant through). Slide the plant down the pipe into the hole. It may be helpful to cut a notch in the pipe to help land the seedling.

### **Watering & Weeding.**

Have a water source near the bed(s), if possible. Install the hose bib at a higher level to make watering easier. For weeding and cultivating, use a push/pull motion from a standing position.

### **Physical Considerations.**

Tips for success protect your joints by using your largest and strongest muscles. Use splints if needed. Maintain joint flexibility, range of motion, and quality of life. Avoid slouching and resting your weight on one arm or one leg for any length of time. Wear a carpenter's apron to carry tools, or push a cart on wheels with tools in it. Weed after it rains or after watering. Exercise is important to physical and emotional well being. Keeping muscles in shape improves flexibility. Work with a friend or someone who has strength and dexterity. This provides companionship and fun. Nature is a wonderful stress-reducer just by observing it. Walk in your garden and enjoy what you have created. Notice the birds, bees, butterflies and bugs: they are enjoying your creative endeavors. ❁

### **Some Useful Websites:**

Everything Ergonomic [www.handhelpers.com](http://www.handhelpers.com)

Fiskars Tools [www.fiskars.com](http://www.fiskars.com) Arthritis Foundation Seal of Approval on some tools, lifetime warranty

Florian Tools [www.floriantools.net](http://www.floriantools.net) Ratchet pruners

Garden Tools [www.lifewithease.com](http://www.lifewithease.com) Ergonomic garden tools

Gardener's Supply [www.gardeners.com](http://www.gardeners.com) gardening tools, including adaptable tools

Amazon: [www.amazon.com](http://www.amazon.com). Look under arthritis gardening tools (Ergonomic Gardening Tools Set, Garden Weeds, Kneeler & Seat).

American Horticultural Therapy Association: [www.ahta.org](http://www.ahta.org).

Arthritis Supplies: [www.arthritissupplies.com](http://www.arthritissupplies.com). Garden Seat Caddy, Easy Grip Arm Support, Forks, Cultivators, Hoes, Trowels (short & long handled).

Chicago Botanic Garden: [www.chicagobotanicgarden.org](http://www.chicagobotanicgarden.org).

#### Additional Resources:

Adil, Janeen R. *Accessible Gardening For People With Physical Disabilities: A Guide To Methods, Tools and Plants*.

Dennis, Lynn. "Horticulture For People With Special Needs." *Gardening For Life*.

Kramer, Jack. "No Stress, No Strain." *Easy Gardening*.

Woy, Joann. *Accessible Gardening: Tips & Techniques For Seniors & The Disabled*. 

## ***PHENOLOGY: What is it and Why Should we Care?***

*Diana Morris, Yolo County U.C.C.E. Master Gardener*

Through trial and error, Native Americans observed in centuries past that ideal corn planting came when oak leaves are the size of a squirrel's ear. Now corn planting has nothing directly to do with the size of oak leaves. However, the Native Americans knew the soil was warm enough to prevent the seed from rotting, but still early enough to harvest a suitable crop by following the lead of the oak leaf. If they waited and planted later, the yield would be less. By watching the seasonal changes of trees leafing out, shrubs blossoming, flowers blooming, and wildlife appearing, the Native Americans were practicing phenology, which is the use of natural indicators to read the progress of climatic cycles.

*Plant corn when young, pinkish oak leaves are the size of a squirrel's ear.*

According to the University of Wisconsin Cooperative Extension, the first paper on phenology was written in 974 B.C., and the Japanese began recording the first bloom of the cherry trees in 812 A.D. Once dismissed as folklore by the scientific community, phenology has gained greater respect through many years of close scrutiny and study by scientists following seemingly unrelated events of emerging and changing flora and wildlife, weather conditions or climate changes. Among the many signs setting the schedule for creatures and plants, changing temperatures signal wildlife to mate, migrate, hibernate, and store food at the same time that vegetation is putting out blooms, producing food sources, losing leaves, or going dormant.

*Plant perennials when maple leaves emerge from buds.*

When a seed packet says plant "as soon as the soil has warmed," how do you know for sure when that day has arrived? By using a soil thermometer? Possibly, but calendars have become our go-to source for the spring's arrival; must be time to plant, summer always arrives on June 21. Phenology gives us a more accurate gauge for

many garden chores. If two species need the same number of warm days, they will activate at the same time. During a cool spring, appearances will be later or earlier than in a warm spring, but they will appear together. When the colonists arrived from Europe, they needed a new set of phenological guidelines to accommodate the crops they brought with them. Those that farmed in Kentucky found that green peas grew best if planted at apple blossom time. Northern farmers observed that Irish potato yields were largest if planted when the dandelions began blooming in open, sunny spots.

*Control gypsy moth caterpillars by applying Bt when the redbud blooms.*

In the interest of promoting Integrated Pest Management (IPM), phenology helps reduce the use of pesticides. Hit the insect pest at its most vulnerable state, and you can control its numbers with far less lethal measures. For example, during years when gypsy moth caterpillars are abundant, they can completely strip leaves from a wide range of trees and shrubs. The conventional treatment, spraying with the pesticide carbaryl, is devastating to bees and many other beneficial insects. However, the caterpillars can be controlled by applying *Bacillus thuringiensis* (a bacterium that attacks only caterpillars and is harmless to other forms of wildlife) soon after the caterpillars emerge from their eggs. Bt is only effective, though, if applied at the critical time. You'll know just when it's time by coordinating the application of Bt when the redbud blooms.



*Redbud*

*It's time to prune roses when forsythia blooms.*



*Forsythia*

Our own U.C. Davis IPM site references phenology models and explains in more detail the scientific methods used in obtaining phenological data. Additionally, it states, "Because of yearly variations in weather, calendar dates are not a good basis for making management decisions." But record keeping of daily temperature gives a biologically more accurate assessment for gardening. The site also gives guidelines for informal or formal modeling, which involves charting the changes in flora and wildlife for a specific occurrence. Harvard University has set up a program of long-term phenological observations to study and better understand climate change in forests. Harvard also has supplemental programs for K-12 teachers, schoolyard phenology study, and summer research programs.

*Control two-spotted spider mites by spraying with insecticidal soap and horticultural oil when ragweed blooms.*

Google "phenology" and a wealth of websites come up from universities, the North American Bird Phenology Program, U.S. Geological Survey, National Climatic Data Center, and much more. Phenology is

becoming an essential garden tool once again. It can help us get more out of our plantings while reducing our dependence on toxic chemicals. As every good gardener knows, timing is everything.

*Plant squash and beans when lilacs bloom.*



## *Life is Sweet (Potatoes)*

*Willa Bowman Pettygrove, Yolo County U.C.C.E. Master Gardener*

### **Step 2: Plant into the garden**

**R**ight about now I hope you have had at least one opportunity this fall to enjoy sweet potatoes (orange, yellow, or white, your preference) baked in their own skins with just butter on top. The best, and so good for you!

I'm not going to bore you with the yam versus sweet potato discussion. You can call them yams, but what we grow in the states is sweet potatoes (*Ipomoea batatas*). They are related to morning glories and bind weed, which may explain in part why they grow so well in local gardens. If we let them.

Why not let them? You may have tried to buy sweet potato starts online, and then read the fine print that the seed companies cannot ship them to California. If you can, find an organic grower who is willing to ship to California. You may have tried to start them, in a glass of water that becomes slimy and root-filled, until you throw the whole thing away in disgust. Let me tell you a better way to get started that, with luck, may leave you with a beautiful crop, as I had this summer.

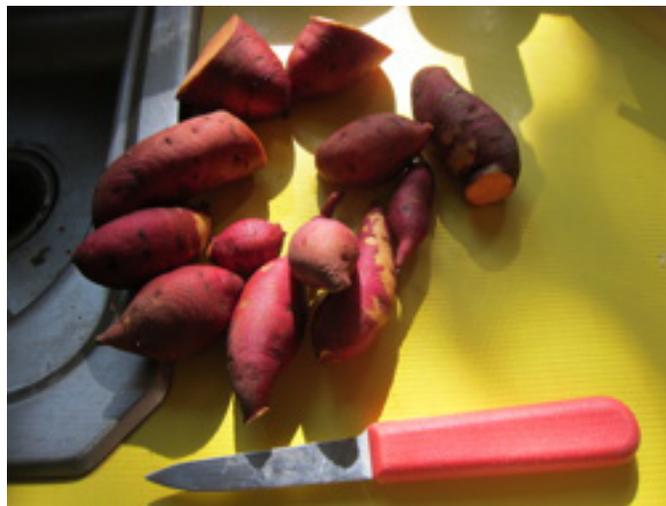
### **Step 1: Propagating starts**

Mark Kochi, one of the staff at the Yolo County Cooperative Extension, has a great method (no muss, no fuss) for starting sweet potatoes. Begin in early spring to allow time for the starts to grow. Choose one to two healthy ones of the variety you prefer, and soak them overnight in water. Put each one in a well-sealed plastic bag and put it on a window sill in indirect light. Wait for sprouts to start. When several leaves appear at each node, cut the potato carefully to retain some flesh on each sprout, and transplant into moist potting mix. Keep transplants warm.

Wait until the garden soil warms, and plant out your babies. I'd wait until the low temperature is at least 50 degrees Fahrenheit. (This is also advisable for pepper plants, by the way.) The soil should be as rich with organic matter and nitrogen as possible, and well drained. Some sources recommend planting in hills because sweet potatoes grow down, in contrast to white potatoes, which form tubers on the stems growing up. I learned the hard way one year that it was almost impossible to make hills that could be easily irrigated, and my potatoes died for lack of water.

### **Step 3: Harvest**

Harvest your potatoes with care in late October, or when the weather starts cooling. (Mark Kochi also advised here. Don't take the chance that they might rot.) Dig them carefully; sweet potatoes are very perishable and any injury to the skin can quickly lead to rot. Spread the newly harvested potatoes in a cool, dry place, spread on newspaper so they don't touch each other. Remove any pieces or cut potatoes, to use immediately (what I call "fun size").



When the soil on the potatoes has dried, brush them gently (I rubbed them while wearing ordinary garden gloves) to remove the soil.

You may find some unusual shapes that wouldn't pass the USDA, but they are yours. In my collection, there were a couple that seemed to grow in a complete 360 degree arc. What fun to eat these!



**Step 4: Store and enjoy**

My sweet potatoes have a place of honor in my kitchen in a wire basket. Unlike white potatoes, the sweets don't turn green and bitter when exposed to light. Do not store them in the refrigerator.

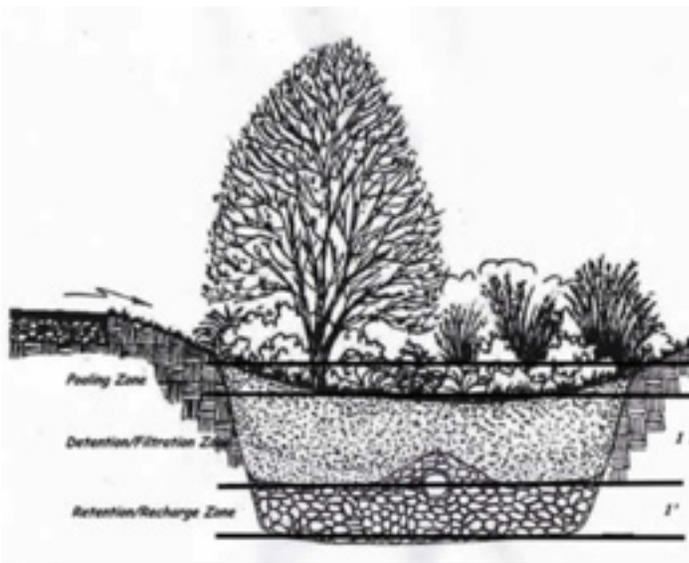
Marshmallows, in my humble opinion, are a desecration! Sweet potatoes are sweet! Life is sweet! 🍅

***Installing a Rain Garden:  
A Win-Win Situation!***

*Jan Bower, Yolo County U.C.C.E. Master Gardener*

Storm drains remove excess rainwater quickly and efficiently from our roads and around our homes. While the system is effective, new green technologies are being developed and put into practice to use this water as a benefit. Installing a rain garden is one useful step in this direction.

A rain garden is a plant bed that collects rain runoff from your roof, driveway, patio, or walkway, usually from a pipe connected to a downspout or an above-ground channel. It is built in a shallow depression, usually about six to eight inches deep. The ground in the depression must be level or just slightly sloped (less than twelve degrees on a string level). The down-slope side of the garden is built on an incline and has a low earthen berm to help the garden hold the collected water. The slight depression allows water to be held in the garden for a short period of time while it is absorbed into the soil, usually less than 24 hours. This is true even after a heavy downpour. If the native soil in the depression does not absorb water quickly enough, the soil needs to be reworked by adding a combination of sand, topsoil, and compost to increase its water-absorbing ability before the rain garden is installed.



*Example of a rain garden plant bed.  
Photo courtesy of FernGarden Designs.*

A rain garden is different from an ordinary garden because of its ability to absorb excess water. It is designed to allow rainwater to follow the natural course of the water cycle (absorbed into the ground, taken up by plants, and evaporated into the atmosphere). A rain garden allows the rain that falls on your property to stay on your property, where it recharges the groundwater and irrigates your trees, shrubs, and other plants. An existing drainage swale makes a good rain garden.

A rain garden should be sited in a sunny location so it can accommodate showy flowering plants, mainly perennials, as well as native prairie plants. An emphasis should be placed on combining plants that complement each other in color, shape, size, and texture. It is also nice to have something in bloom throughout the seasons. Grasses, ferns, and even small shrubs can be added to the garden to provide contrast to the flowering plants. To prevent erosion, the berm should have a covering of organic mulch, such as shredded bark, or a low-growing ground cover, such as wild strawberry or sedum. In buying perennials and grasses, it is best to go with plants in containers of at least four inches so the root systems are well-established. If cost is a concern, consider using plugs, which are small two-by-five-inch potted plants, and bare-rooted shrubs in the spring. Sundials, birdbaths, and handmade decorations are a nice addition to a rain garden, as long as they don't impede the flow of water.



Once installed, a rain garden planted with native species should never require fertilizer or pesticides to thrive. Instead, it will reduce pollution, save water, and create a beautiful and useful habitat for birds, butterflies, honey bees, and predatory insects that eat harmful bugs.

Once installed, a rain garden planted with native species should never require fertilizer or pesticides to thrive. Instead, it will reduce pollution, save water, and create a beautiful and useful habitat for birds, butterflies, honey bees, and predatory insects that eat harmful bugs.

For ideas and advice on developing a rain garden, consult the book *Rain Gardens*, by Lynn M. Steiner and Robert W. Domm, Voyageur Press, 2012. 🍅

## Winter Gardening Tips

Linda Parsons, Yolo County U.C.C.E. Master Gardener

We have been blessed with a long and lovely autumn. This has given our summer fruit and flowers a longer than normal growing season. Tomatoes continued producing into early November and many flowers, especially roses, will continue to provide color well into December. Leaving the last flush of roses on your bushes will encourage setting of colorful rose hips. They provide colorful accents in your winter garden until you are ready to prune your roses in anticipation of their spring bloom. Showy rose hips can be found in the Davis Central Park Garden and the U.C.D. Arboretum. Generally, the best rose hips grow on species and shrub rose varieties. You will find more information on selecting and viewing roses with showy rose hips at <http://www.heirloomroses.com/care/roses-with-hips/>. In addition, there is a delightful video on using rose hips and other seasonal plant material in winter arrangements.



Colorful rose hips

While you enjoy the beauty of your winter garden, take note of the areas in your garden that need winterizing. This is the best time of year to make changes in your garden, and to take care of pest and disease problems. This will ensure that your garden remains healthy through the warmer spring and summer months.

### WINTER CLEANUP

- Continue to remove fallen leaves, spent annuals and vegetable plants.
- Add disease-free plants and leaves to your compost pile.



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- Clean garden pots and store for future use. Turn all unused pots on end to prevent standing water and the creation of breeding areas for pests and diseases. Treat pots with a dilute solution of bleach.

- Sharpen, clean and oil garden tools.
- Lawnmowers need a yearly tune-up and blade sharpening. Now is a good time.

### WATER

- Watering can be eliminated once the rains begin. Until then, most lawns and plants do well with weekly watering. If it is very windy, the temperature drops significantly, or there has been no rain in several weeks, check for signs of dehydration in your garden. Additional watering may be necessary.
- Check the plants under tall evergreens, and under eaves of the house to see that they have sufficient moisture.
- Potted plants need to be checked often. Too much water in the saucer can cause your plants or bulbs to rot.

### PROTECT

- Protect frost-sensitive plants. Move potted plants to a more protected area of your garden or patio. Shelter them under the eaves of your home or place them under a table or a garden chair. This will help

to minimize damage from the wind and cold.

- Cover sensitive, larger plants and small trees with sheets or burlap when the temperature approaches freezing at night. Adding strings of electric lights can also be helpful.
- Anti-transpirant sprays such as Cloud Cover can also be used to reduce frost and freeze damage.
- Cover sensitive ground cover with layers of newsprint at night and remove in the morning.
- Plastic sheeting is not recommended to protect plants because it cannot breathe and collects moisture.

### PLANT

- December is the last month to plant spring blooming bulbs such as daffodil, tulip, anemone and crocus. Plant bulbs three times deeper than their greatest diameter. Use bulb fertilizer.
- What to plant now:
  - Cool season annuals: Primroses, pansies, violas, snapdragons, dianthus, sweet peas, calendulas and Iceland poppies.
  - Cool season perennials: Helleborus, Daphne and Iberis.
  - Annual vegetables: Peas, spinach, kale, loose leaf lettuce, radish, carrot, and broccoli.
  - Winter herbs: Cilantro, flat and curly parsley.
  - Bare-root fruits and vegetables: Strawberries,

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berries, rhubarb, grapes, fruit trees, artichokes, asparagus, horseradish, onions and garlic.

- Use row covers to protect seedlings, if plants are bothered by pests or cold nights.
- Extend your harvest time by planting vegetables every two weeks through December.
- Late winter is the best time to plant or transplant most any garden shrub or tree. Both deciduous and evergreen shrubs can be planted or transplanted, including roses. Your local nursery will be stocked with many varieties of potted and bare-root trees and plants.
- After you have discarded your summer vegetable plants, turn the soil over before it becomes too wet. This will help to disturb the over-wintering tomato worm larvae and other over-wintering insect larvae that live in your garden soil.
- Sow seeds in early February for your summer garden. Favorite selections include tomatoes, squash, eggplant, peppers and herbs. Seedlings can be transplanted in your garden after the soil temperature reaches 50° Fahrenheit. Begin planting spring annuals: Alstroemeria, lobelia and alyssum. Summer bulbs such as callas, dahlias, cannas, tuberous begonias, and lilies are now available at your local nursery.

### FERTILIZE

- Mid to late February is the time to fertilize trees, shrubs and evergreens. Use an acid-loving plant fertilizer to feed evergreens such as junipers, conifers, broadleaf evergreens, azaleas and camellias. Use a rose or all-purpose garden-type fertilizer to feed roses, fruit and flowering trees, plus other deciduous trees and shrubs. If you use granular fertilizer, keep it off the foliage and water it in thoroughly.
- Extra nutrients for roses can encourage healthier growth. Try using a top dressing of steer or chicken manure and eight ounces (one cup) of plain alfalfa pellets for each plant. Apply both around the drip line. In addition, adding a top dressing of compost will provide nutrients and keep the roots cooler in the summer months. Alfalfa contains the growth stimulant triacontanol, which encourages basal breaks.

### PREVENT DISEASES, PESTS, AND WEEDS

- Early winter is a good time to make an application of dormant oil spray on your roses, fruit and deciduous trees and shrubs. It is best to prune these before you apply this spray. Dormant oil spray helps prevent over-wintering of insects and diseases in your garden.
- Peaches and nectarines need to be sprayed with lime-sulfur or copper sulfate to prevent leaf curl and blight. An easy way to remember this schedule is to spray on or near Thanksgiving, New Year's and Valentine's Day. The spray should be applied when the temperature is above 45° Fahrenheit and when there will be dry weather for at least twenty-four hours. Complete spraying before buds begin to open.
- Snails, slugs and earwigs need periodic checking. Handpick, bait or trap if they become a nuisance.
- Mulch your garden. This is the easiest way to prevent new weeds. Place several layers of newspaper under a thick layer of mulch to provide superior weed control. Remove weeds while they are small for easiest control.

### PRUNE

- Roses can be pruned from late December through early February. Prune according to the type of rose (*e.g.*, floribunda, hybrid tea, climbing, *etc.*).
- Deciduous fruit trees and ornamental shrubs and trees need pruning. Winter pruning stimulates more growth. Fruit trees pruned in early summer will require less winter pruning.
- Wait until February to prune woody plants such as *buddleia*, *artemisia*, and Mexican sage. Prune ornamental grasses. Cut these fast growing plants close to the ground.
- Late winter or early spring blooming shrubs such as quince, forsythia, and spirea should be pruned after they

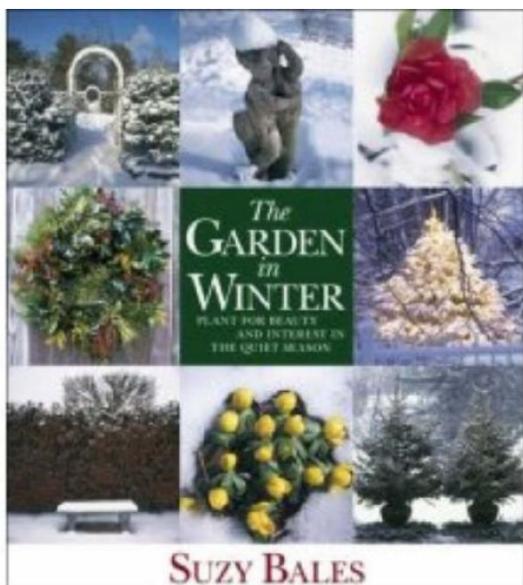


complete blooming.

- Garden shrubs and hedges, such as boxwood and viburnum, should be pruned before they put out their new spring growth.
- Basic pruning is done to remove dead, decaying and dying branches, as well as to remove unwanted growth such as sprouts, suckers and crossed branches. Pruning can improve the shape, vigor and appearance of plants and trees.
- Lawns will need little or no mowing until early March. Mowing on soggy soil will ruin your lawn.

## FAVORITE THINGS

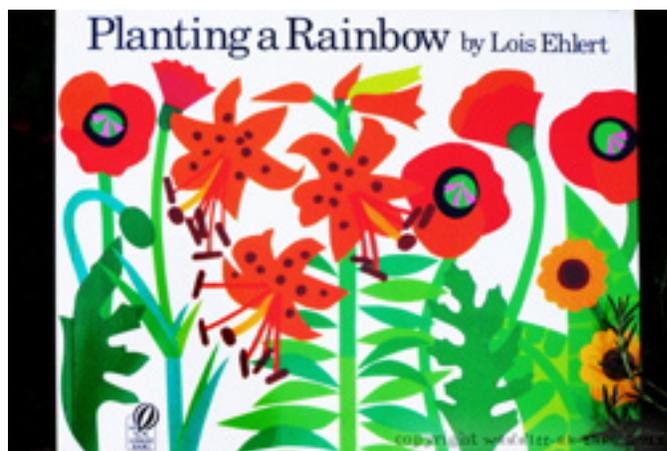
An inspirational book for winter gardeners is *The Garden in Winter: Plant for Beauty and Interest in the Quiet Season* by Suzy Bales. Suzy presents a wide variety of plants, trees and bulbs with accompanying garden and container designs. I especially enjoyed the chapter on Christmas from the Garden with its inspiring holiday ideas and the inclusion of roses and rose hips for winter gardens.



Bonnie Worth is one of a large set of nature and science books in The Cat in the Hat Learning Library. This is a treasure that can be enjoyed at any age, but is geared for elementary school children. The prose is fun, the content is substantial, and there is a glossary that supports the rich content. “Plants are so useful to me and to you. Can you think of the ways? I will name just a few.” This is classic Cat in the Hat!

## RECOMMENDATIONS FOR OVERCOMING THE WINTER DOLDRUMS

- Get out and explore our larger backyard, or learn about gardening in our area. One of my favorite places to visit, especially in the quiet of winter, is the Effie Yeaw Nature Center in Ancil Hoffman Park ([sacnaturecenter.net](http://sacnaturecenter.net)). It is a peaceful sanctuary to visit and explore on your own, or check out the lectures, classes and self-guided tours.
- Learn more about local gardening and garden events. On Sunday mornings, if you aren't in the garden, try listening to our local garden gurus. Farmer Fred (Fred Hoffman) hosts the KFBK Garden Show from 8:30a.m-



For pure delight and the beauty that each season in the garden unfurls, Freeman Patterson's *The Garden* is the perfect book to curl up by the fire with or give as a gift to gardeners and nature lovers. From Patterson's book: “Beauty is invariably a positive factor, an enriching presence, a healing influence.”

This is a truly beautiful and inspiring book.

In addition, I found several fun children's books. What is more natural than introducing your love of gardening to the kids in your life? These also would make great gifts.

For the younger reader, *Planting a Rainbow*, by Lois Ehlert, is a colorful and engaging basic introduction to botany and colors. This book is a wonderful introduction to selecting and planting seeds, plants and bulbs for the young gardener.

*Oh Say Can You Seed: All About Flowering Plants* by

10:00 a.m. on 1530 AM. Get Growing airs on KSTE (650 AM) from 10:00-noon. Bob Tanem hosts *In the Garden* on KSFO (560 AM) from 7:00am-10:00a.m.

- Enjoy a Master Gardener class at Davis Central Park Gardens. For additional class offerings, visit [centralparkgardens.org](http://centralparkgardens.org).
  - January 5, 2012 9:30 a.m. Dormant Pruning; 11:00 a.m. Rose Pruning.
  - Sacramento Old City Cemetery: <http://www.oldcitycemetery.com/calendar.htm>.
  - The last class of the season is on December 1, 2012: Rose Pruning Class, 10 a.m. This is a venerable cemetery and garden that always has something beautiful in bloom and is worth a visit in any season.
- Explore the U.C. Davis Arboretum: <http://arboretum.ucdavis.edu/calendar.aspx>.
  - December 1: 2:00 p.m.–3:30 p.m.: Guided Tour: Garden Prep for Winter. Meet in the Ruth Storer Garden.
  - December 12: 12:00 p.m.-1:00 p.m.: Walk with Warren. Explore the West End Garden. Meet at the Gazebo.
  - December 15: 2:00 p.m.-3:30 p.m.: Guided Tour: Crazy About Conifers. Meet at Arboretum Headquarters. Learn more about our county by joining two fun, annual events that highlight the beauty of winter.
- California Duck Days: February 24-25, 2013. Explore the Yolo Bypass Area and enjoy workshops and field trips. Reservations are recommended. <http://www.yolobasin.org/documents/DuckDays2012.pdf>.
- Capay Valley Almond Festival. February 24, 2013. <http://www.espartoregionalchamber.com/AlmondFestival.aspx>.

Perhaps one of the best New Year’s resolutions is to spend more time in the garden, especially in the winter months. The time and care we put in now will reward us with a beautiful and healthy garden through the coming seasons. Expand your horizons and visit parks, gardens, arboretums and nature preserves in our area. Winter has its own amazing and often missed beauty.

“Tho’ an old man, I am a young gardener.”  
Thomas Jefferson 

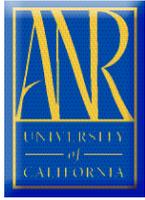
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Our message centers will take your questions and information. Please leave your name, address, phone number and a description of your problem. A Master Gardener will research your problem and return your call.

**E-Mail**..... [mgyolo@ucdavis.edu](mailto:mgyolo@ucdavis.edu)

**Drop In**..... Tuesday & Friday, 9-11 a.m.  
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 Gardener  
 Winter 2012*

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