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Fire Resistant Plants

Jan Bower, UCCE Master Gardener, Yolo County

Wildfires have been ravaging northern California this year due to drought and hot and windy weather conditions. While there is not much that can be done to control these climatic elements or the terrain, choosing fire-retardant plants that resist ignition is a good defense mechanism for home gardeners in this area. According to firescaping expert and author Douglas Kent from Cal Poly Pomona, "Vegetation will either lead a fire to a structure or stop it." There is no such thing as a fireproof plant—only fire-resistant ones. Just about any plant will burn if the temperatures get hot enough."

Some precautionary steps to fire-proof landscape

- Remove dead, diseased, or dying trees or shrubs.
- Prune existing trees to remove deadwood.
- Trim trees to keep them about 10 feet from each other and the roof and ground.
- Remove pine needles, dead brush, leaves, and other ground litter.
- Stack firewood at least 30 feet away from the house and other buildings.
- Mow dry grass and weeds to a low height.
- Move flammable plants away from the house.
- Add fire-resistant and water-wise plants, trees, and shrubs. (See examples in table.)
- Clear a space around the house and fill with non-flammable mulch and rocks.
- Have irrigated zones around the home's perimeter and maintain the irrigation equipment.

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- Don't stop watering, even in a drought; follow city's water guidelines and restrictions.
- Keep potted plants well-irrigated.
- Clean roof and gutters of leaves and other debris.

Choosing Plants to Slow Advancing Fire

Factors that influence the fire-resistant characteristics of plants include leaf moisture content, supple rather than waxy or resinous leaf surfaces, the presence of dry branches and needles, and chemical content of the sap. It takes about a year for plants (water-wise, fire-resistant, or not) to become established, and only when well-established are the plants truly water-wise.

Many native California plants take longer to burn than invasive weeds, such as *Pennisetum* and pampas grass, which have shallow roots. Natives, like sumac, for example, have deep roots, which stay intact when they burn, recover fast, and retain slopes. Succulents, like aloes, agaves, jade plants, and euphorbias, have soared to popularity because they are drought-tolerant, easy-care, and cool to look at, but they are also fire-retardant. They store water in their leaves and stems and are known to have stopped a blaze in its tracks.

Generally, deciduous trees and plants are less flammable than conifers, which contain resins. Although they can be damaged or even killed by fire, their foliage and stems do not significantly contribute to the fuel and fire's intensity. Junipers are among the least fire-resistant plants. Their lacy, evergreen foliage burns quickly because of its texture. They also contain flammable volatile oils, identifiable by their strong odor and sticky sap. Wild mustard, which has taken over hiking trails, is like kindling and promotes fires. Other highly flammable plants are pines, cypress, rosemary, arborvitae, eucalyptus, flax, bougainvillea, and some ornamental grasses. These fire-prone plants should not be placed adjacent to any structures, and preferably, not within 30 feet of a house.

Fire-resistant Plants

Plants	**Shrubs**	**Trees**
Rockrose	Hedging rose	Maple
Ice plant	Bush honeysuckle	Poplar
Aloe	Golden Currant	Cherry
Buckwheat	Cotoneaster	Oak
Fireweed	Sumac	Crabapple
Manzanita	Shrub apple	Hawthorn
Coneflower	Lilac	Honey locust
San Diego sunflower	Honeysuckle	Quaking aspen
Beargrass	Russian sage	River birch
Yucca	Raspberry	

Designing Zone Defense Landscapes

When it comes to fire-resistant landscaping, the location of plants is as critical as the species selected. In designing and preparing homes for protection against wildfires, there are four zones to consider:

1. Garden Zone—space next to the home, outward to 30 feet. Plants in this area should be the highest water users of a low water palette and need to be able to withstand embers. A large open space and a simple design is best.
2. Second Tier--30 to 70 feet from the house, with plants no higher than 18 inches and able to stop a ground fire and resist embers.
3. Transition Zone—71 to 120 feet from the house, with drought-tolerant plants designed to slow fires down. The plants in this zone, once established, are typically not watered, e.g., barrier planting of shrubs, such as rockrose.

4. Natural Areas—for residents whose gardens adjoin foothills or natural open spaces. Homes surrounded by other homes have no Zone 4.

For more information:
National Fire Protection Agency (www.nfpa.org) and Cal Fire (www.readyforwildfire.org)

"Competitive Gardening" At the Yolo County Fair

Laura Cameron, UCCE Master Gardener, Yolo County

If you are a gardener you've probably visited the Flower Hall and viewed the Garden displays at the Yolo County Fair. If you haven't, give it a gander next year. The Flower Hall is at the Northwest corner of the fairgrounds by the band area and just past the tractors.

The UCCE Master Gardeners of Yolo County do a beautiful and informative booth every year. This year they did a charming children's garden highlighting all the senses. The Native Plants and drought tolerant gardens were especially beautiful. They also have someone on site during the Fair to answer any gardening questions.

Each year the Fair posts four or five different categories for small and large booths. For example, this year was "Gunsmoke, Cisco Kid, Little House on the Prairie, Death Valley Days, and Wagon Train". Choose the category that speaks the loudest to you and enter it. The rules are printed in the brochure and on the website (https://www.yolocountyfair.net/). They are few and easy to follow. In addition, the "old timers" will help you out with tips and tricks.

Five years ago, a friend and I joined the regulars and chose to compete with our own display. We've become hooked. Entrants run the gamut from individuals to couples, to mother/daughter, to friends, to FFA, to brothers, and to other groups. Our group spends one evening putting our booth together. We do spend time pulling together props and flowers and a plan and then show up and bang it together. It's always great looking and done on time. Our first year we spent a lot of time, this year we were done ahead of time. Time spent depends on you and the plan. While it is August and hot it is still a fun project. So much so that many entrants are repeaters who just enjoy the creativity.

I asked someone who has been doing a booth (or two) for a long time what the draw was. She and her mother, both avid gardeners, had been coming for years and wanted to enter. When they found out individuals, as well as groups, could enter they did so. She likes doing a booth because it is a project she and her mom can work together. She also noted that creating a garden booth allows creativity to blossom: she is often able to do more than she can in her home garden.

A college student who had never gardened before entered for two years and while she did a wonderful job the first year the second showed how much she learned from the year before. Two pre-teens entered for two years with great results. Another young one has been entering and getting better and better every year.

There is a small entry fee that is recouped in the winnings. Everyone receives prize money. However, generally speaking, not much money is spent on the displays. Many people either have their own plants and hardscape or borrow from friends or vendors for a little advertisement.

Doing a garden booth does open up the creative pores. And gives the opportunity to do landscapes you've always wanted to try but just couldn't for one reason or another. It isn't competitive, it is fun. While ribbons are given we enter for the fun and creative outlet.

Always wanted a garden you just couldn't have? Go, compete, and create it at the Yolo County Fair.

Epsom Salt of The Earth

Jack Kenealy, UCCE Master Gardener, Yolo County

Some weeks ago, I was listening to Farmer Fred Hoffman's wonderful Sunday morning garden show on KFBK in Sacramento when he and Pam Bone (who was the first UCCE Master Gardener program coordinator for Sacramento County, the oldest MG program in the state) made reference to Epsom salts and how its use was "old school". I was puzzled by the remark. For many years I have been adding, among several other ingredients, one-half cup of Epsom salts to the hole when I transplant my tomatoes into the garden. The comment started me thinking. Why, exactly, was I using it and why was this considered somehow out of step?

It's impossible to have an interest in gardening and not be aware of the claimed benefits of Epsom salts. I became aware of them long before becoming a UCCE Master Gardener while watching a YouTube video on transplanting tomatoes. A commercial tomato grower dumped Epsom salts along with several other ingredients in a hole and months later demonstrated very impressive results. That was good enough for me. I've been using it in that fashion ever since.

But then it occurred to me that over the years my peppers and tomatoes have sometimes been productive and sometimes not. I've had blossom rot sometimes and sometimes not. Flower drop, sometimes and other times not. But not one time in all this time did I ever associate whatever slings and arrows came my way to the application of Epsom salt. My curiosity was piqued. What is the stuff anyway?

Epsom salt is not salt. It is magnesium sulfur. Both chemicals are necessary for good plant health. Chlorophyll production requires magnesium. Magnesium strengthens cell walls and sulfur helps activate the plant proteins and enzymes needed for growth. Tomatoes, peppers, and roses use high levels of magnesium so therefore it must be good for plants. This, in a nutshell, is the case for Epsom salts.

Proponents of its use are everywhere. *1001 Gardening Secrets the Experts Never Tell You*, published in 2008 by FC&A Publishing, says to spray peppers with a tablespoon of Epsom salt diluted in a gallon of water at bloom time and again ten days later. The National Gardening Association, on its website, (Garden.org) hosts an article by a prominent "senior horticulturist", Charlie Nardozzi, who set out to determine whether or not Epsom salts were as good as the hype.

In Nardozzi's study, six "testers" living in California, Tennessee, Minnesota and elsewhere compared treated and untreated tomatoes, roses, and peppers. Four of the six determined a positive effect. Based upon these limited results, he recommended using Epsom salts as a fertilizer. Inexplicably Nardozzi links a Clemson University study that concludes excessive magnesium fertilization will compete with calcium for uptake by the plants and states "do not apply (Epsom salt) to garden soil unless a recent soil report indicates magnesium deficiency". He also mentioned two studies, one at Delaware Valley College in Doylestown, Pennsylvania and the other at Auburn University, neither of which established any benefit to the application of Epsom salts to the soil.

But the Epsom Salts Council website (epsomsaltscouncil.org) ignores the conclusions of the academics and instead uses Nardozzi's article to tout that "experts recommend," "studies show," and "tests by the National Gardening Association show" how beneficial Epsom salt is in the garden. Garden posts and blogs promoting the use of Epsom salt based upon anecdotal evidence are everywhere. Google the subject if you doubt this.

I contacted Fred Hoffman and related the fact it was he and Pam Bone who had sparked my interest in the subject and requested an interview. He was kind enough to forward a 2007 MasterGardenerOnline.com article by Linda Chalker-Scott, Ph.D., associate professor at Washington State University entitled "Epsom salts, miracle, myth…or marketing ".

Chalker-Scott relates common claims made for Epsom salts as well as typically recommended applications and concludes, in a general way, that science does not support any use of Epsom salt absent a soil deficiency and further states that it would be irresponsible to advise gardeners to apply Epsom salts, or any chemical without regards to soil conditions, plant needs and environmental health.

During his radio program, I spoke with Hoffman as well as his guest Debbie Flower, Professor of Horticulture at American River College. I read the Chalker-Scott article but was looking for something with sourcing for the proposition that Epsom salts did or did not improve plant health.

I wondered if the differences between the two camps could be explained away by the difference between soil studies and the use of foliar sprays. Debbie Flower set me right. The molecules of the Epsom salts diluted by water, (and Epsom salts is highly soluble,) are too large to pass through the stoma into the plant itself. The spray instead runs off the leaves and accumulates in the soil at the drip line where it gets incorporated into the plant.

But the discussion that followed truly answered my original question as to why the use of Epsom salts was "old school". Because Epsom salt is soluble it does not stay in the soil for long. This lack of "persistence" is actually one of the selling points used by proponents. But it seeps into our groundwater, rivers, and streams. Flowers cited a study which establishes Epsom salts as an algaecide. This is not something we want in our water. The same chemical compounds that soothe aching muscles, eliminates wrinkles and achieves a score of wonders, is finding its way into our coffee or tea.

There is absolutely no science supporting even modest claims made for Epsom salt, not to mention the extravagant claims. The few studies that do exist found no benefit to its use absent a magnesium deficiency in the soil and it is highly recommended a soil study be done prior to the use of Epsom salts.

But whether or not an occasional dose of magnesium is a help or a hurt is not really the issue at all. It is the obliviousness if not the outright indifference to the potential for harm use of Epsom salts pose that makes its application so "old school".

As an old dog, I learn new tricks. I am no longer willing to apply this potentially damaging product to my garden on the basis of a decade's old internet video. I am willing to forego whatever mythical or maybe benefits in favor of science and an acknowledgment of my responsibility for my small slice of our environment. I'm over Epsom salts.

Now, about those salmon heads….

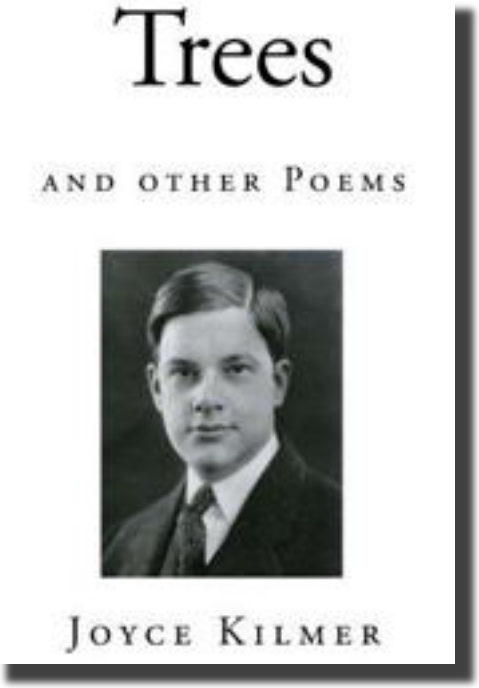
An Ode to Trees

David Studer, UCCE Master Gardener, Yolo County

I think that I shall never see
A poem lovely as a tree...
- Joyce Kilmer

'Tis the season to start thinking about planting trees. Look now to find the perfect tree for you. The UCCE Yolo County Master Gardener website (http://yolomg.ucanr.edu) contains several good handouts on trees to help you pick a good one and plant it right. Ask a UCCE Master Gardener for advice at one of our information tables set up at the farmer's markets in Woodland or Davis or talk to your local nursery person about good trees for your situation. Consider size at maturity, sun/wind exposure, distance from power lines and hardscapes (sidewalks, patios, and driveways). Tree Davis provides a good tree selection guide as well. Look them up at treedavis.org/resources/.

You have several weeks to make a good decision. October through November is usually a good time to plant a landscape tree because the heat of summer has passed. If you wait until after the first rain, the ground could be soft enough to make digging easier. The beginning of the rainy season will help irrigate your new tree (although weather conditions may vary). During the winter, the new tree can settle in, rest, and be ready to grow when the weather warms up in the spring.



As Joyce Kilmer noted above, trees are lovely, which is good enough for me but, beyond loveliness, trees have many benefits to encourage us to grow them in our yards. Tree People, an urban forest advocacy group in Los Angeles, lists twenty-two benefits of trees on their website at https://www.treepeople.org/tree-benefits. The Arbor Day Foundation has identified eleven. Any benefit is a good reason to grow a tree--ANY! For brevity's sake, I will highlight only a few of those reasons, below.

Shade

The sun is intense on a hot summer's day in Yolo County. At one time or another, many of us have escaped this intensity by taking a break in the shade of a big tree and having a cold beverage. The Environmental Protection Agency (EPA) estimates that tree-shaded surfaces can be twenty to forty-five degrees cooler than surfaces exposed to direct sunlight. Tree Davis states that shaded pavement can last up to fifty percent longer before needing resurfacing. According to Tree People, three trees planted strategically around a single-family home can reduce summer air conditioning demands by up to fifty percent. That translates

into economic savings and benefits the environment by reducing the carbon footprint needed to generate air conditioning.

Carbon Sequestration and Oxygen Production

Through a process of photosynthesis, trees convert carbon dioxide and water into carbohydrates (nutrients) and stored chemical energy. The byproduct of photosynthesis is oxygen which the tree releases into the air through its leaves. Capturing and storing carbon like this is called carbon sequestration. Tree People states that in one year, an acre of mature trees absorbs enough CO_2 to offset driving a car 26,000 miles and provides enough oxygen for eighteen people. Impress your friends at parties with that!

Property Value

Estimates vary widely by location, variety, and maturity. The USDA Forest Service estimates that on average healthy, mature trees can add up to ten percent value to your home. To get a ballpark value for a specific tree in your location, use the following calculator at http://www.treebenefits.com/calculator/. Notice that the USDA specifies healthy and mature, which are important factors to a tree's contribution to property value.

Food

The climate here in Yolo county supports a variety of citrus, fruit, and nut trees. If you are planting a tree for its food production, plant what you like to eat. Harvest only what you can eat or give the surplus away and leave some for the birds. Always clean up what is rotten or has fallen to avoid attracting varmints.

Wildlife Habitat

Trees provide shelter, nesting sites, nesting material, food, and perches for many birds and other wildlife that may visit your yard. Supporting wildlife enhances the health and vibrancy of the local ecosystem.

Mark Seasonal Changes

Trees transform the landscape from a fresh flush of new growth or blossoms in spring to a cooling green canopy in summer, to the reds, golds, and rusts of fall color, to the majestic bare structure of limbs against a cold blue sky in winter. These changes remind us of the march of time and the transitory nature of life. They have inspired poets, songwriters, painters, and others who take the time to appreciate their beauty. I shall end this where I began...

I think that I shall never see
A poem lovely as a tree.

A tree whose hungry mouth is prest
Against the sweet earth's flowing breast;

A tree that looks at God all day,
And lifts her leafy arms to pray;

A tree that may in summer wear
A nest of robins in her hair;

Upon whose bosom snow has lain;
Who intimately lives with rain.

Poems are made by fools like me,
But only God can make a tree.

Joyce Kilmer, 1886 - 1918

Maybe only God can make a tree, but you can plant one in your yard and enjoy these and many other benefits. -Happy gardening.

Are Cement Blocks Safe to Use in Vegetable Gardens?

Cathy Sutton, UCCE Master Gardener, Yolo County

There are hundreds of websites, YouTube videos, and garden articles showing creative ways to use cement blocks for gardens, including vegetable gardens. There are several reasons to use the blocks: they are relatively inexpensive, they last a long time, they are easy to install, and they require almost no upkeep once installed.

There are also others who claim that the blocks are not safe for vegetable garden use. Some people refer to cement blocks as cinder blocks because in the making of most blocks, fly ash from coal production is used. This fly ash can contain some heavy metals. According to an article by George Giltner at the Louisiana State University Ag Center, block and concrete producers use coal combustion products in two ways: fly ash is used as a cement replacement in concrete and as a partial replacement for sand or coarse aggregate. Adding fly ash prevents hydration of lime which increases strength and makes concrete less porous. The main composition of fly ash is calcium oxide, aluminum oxide, and magnesium oxide. Fly Ash also contains small amounts of heavy metals. But, unless the cement block is crushed, the chemicals are stable and inert; the material is bonded, insoluble and immobile.

Green Builder Media (focused on green building and responsible growth), states in an article called, "The truth about fly ash," that one point in favor of fly ash's use in concrete and brick is that a chemical reaction is believed to effectively trap minute levels of fly ash pollutants within the building materials. The fly ash reacts with Portland cement to become calcium silicate hydrate. Any trace amounts of heavy metals get trapped in the hydrated cement crystals.

I was unable to find any research that documents that using cement blocks poses a health risk unless the blocks are pulverized. After an extensive search of university websites, I found a few references to using the blocks or to their safety. There are other articles out there by persons concerned about the use of the blocks because of the use of fly ash in their construction, but no research to document that it is dangerous.

The Cooperative Extension's "Ask an Expert" from Weld County Colorado stated that "currently there is not enough information to determine the safety of cinder blocks in raised vegetable beds." Most of the articles I researched agreed that the blocks would leach lime into the soil over time, which may raise the ph of the soil.

The Louisiana State University Research Extension reports that there are some good and some bad reasons for using the blocks. "[D]ecomposition of concrete is very slow so therefore the risk is small." They suggest sealing the blocks with a concrete sealant or a polymer paint as "an extra layer of safety gives you peace of mind," if you are concerned.

The University of Louisville Center for Environmental Policy article, "Safe Container Gardening," as well as other articles, suggests we be careful about the source of the blocks if using recycled materials. Make sure the

blocks were not previously used in a contaminated site. They listed cement blocks as acceptable for gardens depending on their source.

Both the University of Florida Miami Dade County Extension and the University of Florida Extension had articles that recommended the use of cement blocks in raised bed vegetable gardens.

Articles by the UC Cooperative Extension in Riverside, the UC Master Gardeners of Contra Costa County, and by the Master Gardeners in Sonoma County, all suggest using cement blocks for vegetable gardens.

What's a gardener to do?

If you decide to use cement blocks:

- Know the source of your blocks. Assure that they are not from a contaminated site.
- Seal with polymer paint or use a polyethylene liner if you are concerned.
- Do not crush or break the cement blocks.
- Plant hyperaccumulators, which are plants such as sunflowers which can absorb heavy metals, and then have the sunflowers analyzed for metals.
- Know that using cement blocks is likely to change the ph of your soil over time.

I was unable to locate any scientific research documenting the safety of cement blocks in the garden. On the one hand, there is a concern because of the use of fly ash in the composition of the blocks but on the other hand, there is no research to show that it leaches into the soil. I have used cement blocks in my vegetable gardens for more than twenty-five years. I began doing so before I was aware of any concerns and I plan on continuing to use them. Other gardeners will make other choices.

It's Not You It's Them

Michelle Haunold Lorenz, UCCE Master Gardener, Yolo County

My husband stood there watching me with a dumbfounded expression on his face. "What are you doing?" he asked in horror. "I'm moving the plant," I replied simply. Thus, began my attempt to educate my husband; simply because a plant is in one spot, doesn't mean it has to stay there! Sometimes, plants don't perform the way you think they should but don't worry, it's not you or your lack of a green thumb, it's them!

I was often frustrated as a novice gardener by plants that didn't perform well or ended up dying before they even got going. I thought I must be doing something wrong and would give up. Having spent the last twenty-five years learning about plants, one of the things I've learned is it's not always your fault that the plants aren't thriving. Plants are living things, and they function with four simple rules: you must find the right light, the right amount of moisture, the right amount of nutrients and the right soil for them to thrive.

When you buy a plant at a nursery, there is usually a care tag tucked into the foliage with simple instructions about how much light and moisture that particular plant needs. You follow the instructions and sometimes the plant thrives as you would hope, but sometimes it doesn't. What do you do then? Well, here's a little secret: those tags are mass-produced and often do not accurately consider the specifics of your area. The tags are general instructions from the nursery for plants that may be shipped all over the US.

You can tell when a plant isn't thriving. It is not sending out new growth or blooms, or the leaves look stunted or brown. But don't despair: there are several paths you can take so don't give up on that plant just yet! Depending on the plant and the time of year, you can move it to a location that might be better suited to the plant; you can increase or decrease the water and/or nutrients or adjust the soil (more organic matter).

Sometimes the spot you've chosen based on the planting instructions simply isn't the right spot for that plant. Late fall and early winter are perfect times to move your plant to a new location (sunnier, or shadier) for a couple of reasons: plants start to wind down their growing season by going dormant, usually as the weather gets cooler and days shorter. If you use this time to move plants around, you don't have to worry so much about giving the plant extra water to help it get established. During the cooler months, plants use the extra moisture present in soil to extend their root systems further, so when spring and warmer weather comes, they have a better system of roots with which to start growing again.

The scenario mentioned above with my husband occurred because of a baby orange tree I had purchased from Four Winds Nursery, a local citrus grower based in Winters. Their planting instructions were actually pretty detailed, but the tree wasn't settling in because the spot I thought had enough sunshine didn't. Since it hadn't been in the ground very long (three months), it was safe to move it to a better location (more sun and better water). Now, that little tree has settled in nicely and for the second year in a row, we will be getting a harvest of Washington Navel Oranges.

I have repeatedly tried to grow Margarita BOP (Bottom Of the Porch) Penstemon (*Penstemon heterophyllus* 'Margarita BOP'), a drought-tolerant native plant with stunning blue-ish purple flowers. Following the planting guidance from both UCCE Master Gardeners and local nurseries, this plant should have thrived in my native perennial water-wise gardens, but instead, time after time, it withered up and died. Yes, I felt like I was doing something wrong, but the truth is, this plant was telling me by dying it wasn't getting what it needed. While I haven't had a chance yet to test the theory I suspect this plant needed more water and a bit of shade like other Penstemon I have grown, and that my super-low water, hot, dry garden was not the right spot for it.

Another plant that has continued to challenge me is another drought-tolerant native perennial, the Sulphur Buckwheat (*Eriogonum umbellatum*). I have struggled with this plant for more than four years now, moving it from spot to spot in my garden, and finally, hit on the right place for this lovely little native. But guess where it is now thriving? In my perennial cutting garden, with rich moist soil and regular water! All of the literature on this plant suggests it would do best with lean, rocky soil, low water, and full sun. However, despite following this guidance that little plant wasn't doing well. The brown leaves and stunted growth were telling me it wasn't happy, so I moved it to a spot that increased the water the plant was getting, gave it a richer soil and *voila*, it finally started to grow and bloom the way I expected it to.

Now the opposite can also happen. A plant can be so happy with the care you're giving it and the spot you've chosen for it, that it can grow much bigger than the nursery tags or gardening literature says it will. You can keep the plant pruned back, or, you could move it where it has more space to spread out. Such is the case with one of my favorite drought-tolerant perennials, Whirly-Blue Salvia (*Salvia clevelandii* 'Whirly Blue'). I planted it up next to the fence along my driveway so I could smell the heady fragrance of the plant each time I came and went from my house.

The plant was so happy with the spot I chose for it, it grew outside of the fence and expanded so far into the garden it was overwhelming all the other plants around it. I have chopped it back several times but finally, have concluded I need to move it where it can spread out. When deciding about moving a plant, consider the

nature of the plant: how old it is, is it a perennial or annual, how big it is and how established the roots are.

If the plant is super established with a deep extensive root system, you may want to think twice about moving it. In the case of my salvia, even though it is really established where it is, I am going to take a chance on moving it away from the fence and into a more open spot in the garden, so it can spread out. I will wait until November or December to do it though, wanting to make sure the plant is dormant first so that it has a chance to establish roots during the rainy season. Only time will tell whether the move was successful, I'll know in the early spring if it starts sending out new shoots. If not, well, I'll know it was not happy with the change!

Whether you are faced with a plant that isn't thriving, despite following the planting instructions faithfully or a plant that totally outperformed the description on the nursery tag, just be comforted knowing, it's not you, it's them!

How to Build a Garden to Catch the Rain

Michael Kluk, UCCE Master Gardener, Yolo County

The recent five-year drought and the assurance we will see other drought years in the future encouraged a lot of people to install water catchment barrels. This is not a bad idea but in our Mediterranean climate, it can only go so far. For those of us who are trying to keep annual vegetables or flowers alive, the three hundred gallons or so we can store comfortably beside the house will be gone in a few weeks of hot, dry weather. And the amount that can be stored this way is tiny compared to the total that falls on the average roof and yard in the course of a winter. An addition or alternative to barrels is a rain garden. A rain garden is a depression you create, filled with plants that can tolerate periodic flooding but do not need constant watering. It will collect runoff from your yard and roof, allowing it to slowly soak into the ground. And if you have water puddling beside your foundation, you can direct that into a rain garden as well. Because rain gardens are designed to drain within forty-eight hours, they do not contribute to the local mosquito population. Rain gardens can be beautiful and practical: they reduce rainwater runoff and provide a habitat for birds and beneficial insects. Plan to invest some sweat equity into the construction, but they are easy to maintain.

A rain garden can help to extend the period when you do not need to irrigate the surrounding area. Water soaking into the adjoining soil after a spring rain can nourish neighboring plants for quite a while. It will also help to recharge the groundwater below your yard. Since about 30% of Yolo County's water needs are met by groundwater, you can make a small contribution to the overall water health of your community.

Planning A Rain Garden

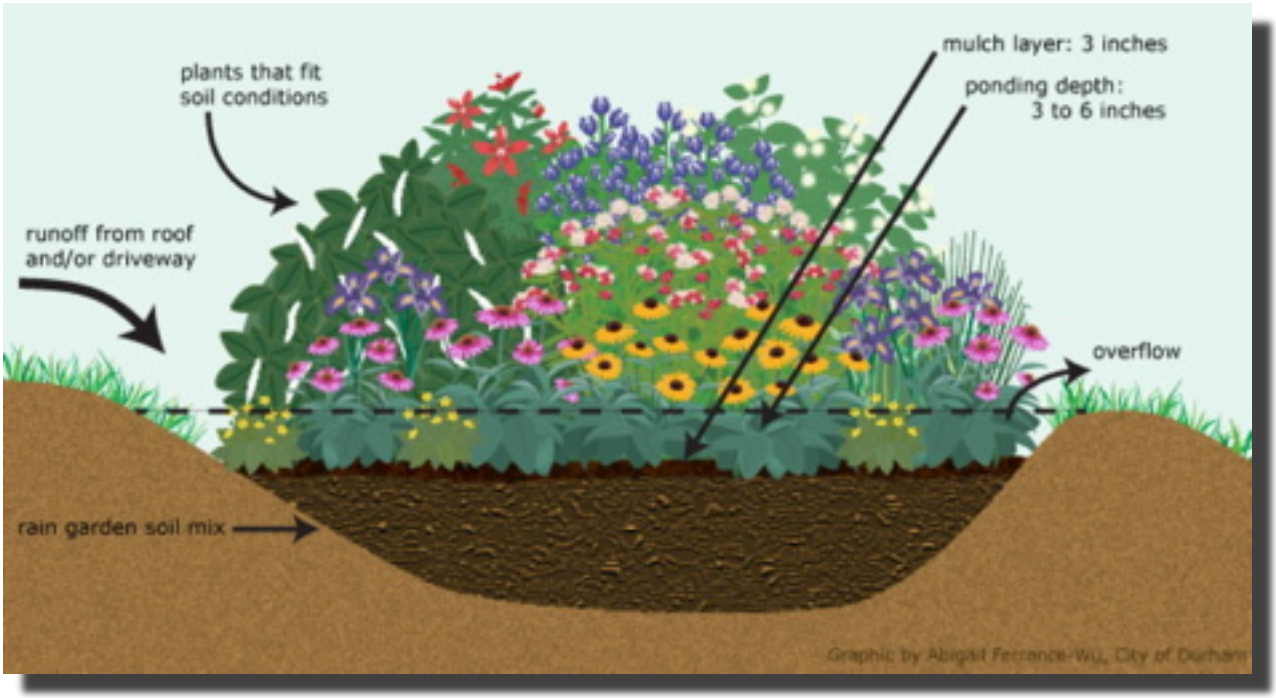
Location and size are the two main factors you will need to consider in planning your rain garden. It should be at least ten feet from your house since the soggy soil is not a good neighbor to the foundation. It also should lie several feet outside the drip line of any trees, including outside the future drip line of immature trees. Avoid areas where your garden will receive a heavy load of leaves in the fall, if possible.

The size will depend on the area you want to drain. If you can, plan your rain garden so that it will at least hold the run-off from a rainstorm that dumps an inch of rain. Calculate the area of all roof sections that will drain into the garden plus any yard area that naturally drains into the spot you have chosen. Simply calculate the cubic feet of water such an average large storm will dump into your rain garden. Then figure the area of your proposed rain garden and the proposed depth (more on that later), calculating the cubic feet of storage. Your garden is likely to have an irregular shape, so just do your best to estimate the surface area. Since a kidney shape is fairly common, I'll give you the formula: (A + B) x length x .45 = volume where A is the width at the widest "bulge", B the width at the smaller bulge and length is the measure of the longest axis. For all of the other odd and weird shapes you come up with, you are on your own. Most rain gardens have an area between one hundred and three hundred square feet. If you need more than 300 square feet, consider digging two basins.

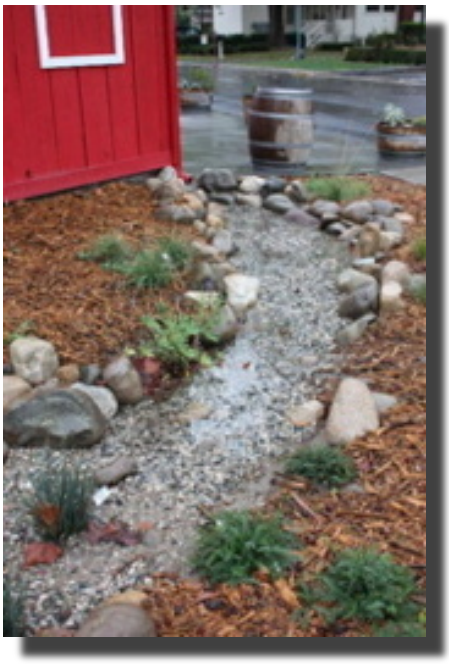
You should also plan for an overflow in the event of a deluge. You can place a drain pipe just below the top edge of your basin, running it to the street or other chosen location to receive the overflow. Alternatively, you can simply leave a low spot on the edge with a corresponding ditch to carry the excess water away.

Basic Construction

Your rain garden is a depression to catch water so, unless you are lucky to have one occur naturally, you will need to dig it. A depth of eight to twelve inches is normal. You can reduce the amount of digging you need to do if you use the soil you dig out of the basin to form a berm around it. You want the bottom of your rain garden to be as level as possible. So, if you are digging on a slope you will need to dig into the hillside and build a larger berm on the downhill side.



You may need to dig deeper if you are running drain pipes off of your downspouts. You need a two percent slope running from the downspout to the garden, which is one inch in every 4.5 feet. Remember the water is not going to rise any higher than the top of the drain pipe where it enters your garden. Consider purchasing rigid three or four-inch drain pipe rather than the flexible variety. It is a little more expensive but much easier to lay on the proper slope and is not susceptible to being pierced by a spading fork or shovel down the road. If you don't want to use piping, you can dig a "swale" from the water source to your rain garden. This is a shallow ditch dug on contour, so it has little or no slope. Water will flow into it, some will sink into the soil and some will make its way to your rain garden reservoir. You can fill a swale with attractive stones or plants.



Slope the edges of your garden gradually if you can. That will make them more habitable to plants taking root in them. Do not place the garden over a septic tank or underground utility lines. Call 811 to have your utilities marked before digging if you are concerned.

Ideally, your rain garden, once filled, will drain within twenty-four to forty-eight hours. The easiest way to determine if this will happen is to dig a small hole as deep as your finished garden will need to be. Fill it with water two or three times until the soil is saturated. The next time simply wait to see how fast it drains. Many areas have very absorbent topsoils that turn to a much less permeable hard or plow pan at a foot or so of depth. I experienced this problem when I constructed a rain garden. I knew I would need to dig down at least a foot to allow for enough slope and storage. After two days, water was still sitting in the test hole. One solution to this is to dig a few deep holes in the rain garden basin that break through the clay layer. I used a power auger and dug down about four feet. At that point, the auger hit the very sandy soil. I lined the holes with weed block and filled them with drain rock. The garden now holds water long enough for it to spread into the immediately surrounding area but drains in less than twenty-four hours.

Another approach often recommended is to dig a basin twenty-four to thirty-six inches deep. Remove the soil and fill the basin to the finished depth with a mixture of fifty percent sand, twenty-five percent soil and twenty-five percent compost. This is more work but results in a basin that is fertile for your plants and will hold a tremendous amount of water. But if you have a heavy clay layer below, standing water may still remain for an extended period of time after an especially heavy rain.

Rain garden basins are typically finished off in one of two ways. One is to plant the basin bottom and sides with plants adapted to the conditions they will face. The other is to adopt a dry stream bed look, filling the basin with a layer of stone and spotting plants in it to add interest.

Rain Garden Plants

Every rain garden contains two primary zones. The basin and edges within the flood zone and the top of the berm. Plants you put in the former must be adapted to periodic flooding but should also be able to survive with limited or no additional water in the summer. Avoid bog or water-loving plants unless you want to water constantly during the summer. Plants for the berm can include most plants adapted to your area and growing conditions except those that cannot stand any additional water infiltrating at the root level. Flannel bush (genus *Fremontodendron* with at least three species) and ceanothus or wild lilac (genus *Ceanothus* with fifty species) are examples of plants to avoid. The following is a list of a few plants that should do well in each of the zones. There are hundreds more. Be sure to consider sun/shade and irrigation requirements before making a final selection.

Plants for the basin

Sedge (Carex - any species available locally)
Acorus ogon (*Acorus gramineus*)
Mondo grass (*Ophiopogon japonicus*)
Douglas iris (*Iris douglasiana*)
Cape rush (*Chondropetalum tectorum*)
California gray rush (*Juncus patens*)
Monkey flower (*Mimulus guttatus*)
Liriope (*Liriope muscari*)
Daylily (*Hemerocallis lilioasphodelus*)
Cone flower (Echinacea – any of the nine species)

Plants for the berm

California fuchsia *(Epilobium canum*)
Cleveland sage (*Salvia clevelandii*)
Oregano (*Origanum vulgare*)
Yarrow (*Achillea millefolium*)
Verbena (*Verbena canadensis*)
Rosemary (*Rosmarinus officinalis*)
Coreopsis (*Coreopsis grandiflora*)
Catmint (*Nepeta faassenii*)
Asparagus fern (*Asparagus densiflorus*)
Japanese holly fern (*Cyrtomium falcatum*)

Blackeyed Susan (*Rudbeckia hirta*)
Butterfly bush (*Buddleja davidii*)
Pitcher sage (*Salvia spathacea*)
California polypody fern (*Polypodium californicum*)
Ajuga (*Ajuga reptans*)
Red fescue (*Festuca rubra*)
Deer grass (*Muhlenbergia rigens*)

A rain garden can add interest and beauty to your landscaping and conserve water. If you construct one, it is likely you will be outside with an umbrella watching it fill during the first rain.

Rain Garden References:
https://www.familyhandyman.com/garden/how-to-build-a-rain-garden-in-your-yard/view-all/
https://www.bhg.com/gardening/landscaping-projects/landscape-basics/make-a-rain-garden/
http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=1772
http://sonomamg.ucanr.edu/Feature_Articles/RAIN_GARDENS__Practical_and_Beautiful/
https://anrcatalog.ucanr.edu/Details.aspx?itemNo=8531#FullDescription

Fall Gardening Tips

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Peg Smith, UCCE Master Gardener, Yolo County

Fall is the time when gardeners begin to 'clean up'. Such perfection may look very tidy but sometimes messy is better for our garden friends. Japanese anemone, to us, once they have finished blooming look perhaps unattractive with their brown stems and shriveled but fluffy seed heads. Due to laziness – no excuses offered – my Japanese anemones were left to their own devices for the winter but as early spring arrived a glance out of the kitchen window showed Anna's hummingbirds collecting the down from the seed heads for nesting material. They were a delight to watch. If you would prefer to cut the Japanese anemone stems hang them in a cool dry place for the winter then hang them from a tree or the eaves in the spring for nesting material for the birds.

Lady Beetles winter over under leaf piles so you can allow some of the fall leaf drop to remain as a winter shelter for our beneficial lady beetles. It is actually the lady beetle nymph that consumes many of the spring arriving aphids. The nymphs are perhaps 'odd' looking but they are of great benefit to the garden.

Large leaves, such as sycamore, if they fall densely on the crown of a plant, need to be gathered and removed. A dense blanket of leaves, such as sycamore, on the crown of a plant combined with heavy winter rains, can encourage crown rot.

Clean up all old fallen fruit to reduce the possibility of fungal spores overwintering under the fruit trees to re-infect the spring fruit. Light pruning of dead or crossing branches will help trees weather the fall and winter storms.

The year-round vegetable garden is one of the benefits of our Yolo climate. We don't need to shut down vegetable growing for the winter. Our Vegetable Planting Guide is a great guide to what and when to plant in any season. http://ceyolo.ucdavis.edu/ files/53274.pdf

If you are not growing winter vegetables, plant cover crops such as fava beans, clover or vetch to replenish the soil nitrogen for better spring yields. Cover crops also reduce the loss of the topsoil in heavy winter rain storms.

As enthusiastic as gardeners are for planting in the spring they should be equally enthusiastic about planting in fall. Through the winter months, young plants have an extended period for good root development to be ready for healthy spring growth.

Now is the time to scatter seeds for California annuals such as poppies and tidy tips. Rake back any mulch from the dirt, scratch the soil surface to loosen, scatter the seed and lightly rake the area to cover the seed. Water gently so the fine seed is not washed away. Enjoy the show in the spring.

Fall Cleanup

- Remove fallen fruits, vegetables, leaves, spent flowers, and weeds.
- Pinch back plants to allow tomatoes, melons, and squash enough time to mature before frost sets in.
- Remove unproductive plants.
- Take down squash, melon cucumber and tomato supports. Get them ready for planting peas and sweet peas in October.
- Clean garden supports and stakes with a diluted bleach solution before storing them for future use.
- Pick tomatoes when daytime temperatures no longer exceed 65° F. Wrap them in newspaper or place on a windowsill to let them ripen indoors.
- Maintain your compost pile by adding clean garden waste and leaves.
- Control earwigs, snails, and slugs.
- Apply liquid copper to citrus to prevent brown rot.
- Apply the first dormant spray to fruit trees in November. See: http://homeorchard.ucanr.edu/calendars/
- Apply the first round of liquid preventatives to nectarines, peaches, and apricots in November.
  For Peach leaf curl – http://ipm.ucanr.edu/PMG/PESTNOTES/pn7426.htmlFor Brown rot - http://ipm.ucanr.edu/ PMG/GARDEN/FRUIT/DISEASE/aprbrownrot.html
  For Shot hole -http://ipm.ucanr.edu/PMG/GARDEN/FRUIT/DISEASE/shothole.html

Fertilize and Amend

- Fertilize and amend your garden soil. Add manure and compost to improve soil structure and fertility.
- Apply a layer of leaves, straw, or newspaper to your soil surface to reduce weeds next spring and improve soil structure.
- Amend your soil and add a complete fertilizer if you plant winter crops, flowers, bulbs, or seeds.
- Consider planting a crop of green manure on any open ground to loosen the soil and add nitrogen before planting in the spring. http://ceyolo.ucdavis.edu/files/53466.pdf

Lawn care

- Renovate a poorly performing lawn by de-thatching, aerating, fertilizing, and over-seeding it with either an annual or perennial rye or fescue mix, which will keep it green through the winter.
- Fertilize lawns in early fall with a pre-emergent and a complete fertilizer (one that contains nitrogen, phosphorus, and potassium).
- Fertilize in late fall with a slow-release complete fertilizer, such as one labeled “winterizer.”
- Adjust the watering cycle on your lawn. It will require less water in the fall and little or none in the winter.
- Continue to mow weekly and check your sprinkler system. Be sure it is properly adjusted and that all the nozzles are working.
- Remove dead leaves from your lawn regularly to prevent your lawn from expiring from lack of sunlight or contracting fungus infections.
- Fall is the best time to put in a new lawn with either seed or sod.

For complete lawn care see UC IPM Healthy Lawns at http://www.ipm.ucdavis.edu/PMG/menu.turf.html

Annuals and Perennials

- Continue deadheading and removing dead leaves.
- Divide and transplant bulbs, tubers, and corms.
- If your oriental poppies, bearded iris, agapanthus, and daylilies are becoming less vigorous, fall is the season to divide and replant them.
- Share extra bulbs, corms, and tubers with a friend.
- Enjoy the fall color of perennials. Wait until spring to trim or cut them back.
- Evergreen perennials should not be cut back in the fall. These include rock cress, creeping sedum, creeping phlox, and hens and chicks.
- Roses should keep producing flowers into December, but do not fertilize after September. Deadhead as needed unless you prefer colorful rose hips to develop and provide winter interest.
- Plant fall flowers such as calendulas, chrysanthemums, bachelor buttons, dianthus, forget-me-nots, sweet peas, primroses, and violas. Many of these will over-winter and provide lush color in the spring.
- Spring-blooming perennials such as foxglove, columbine, salvia, and daylilies can be planted now. Combine these with daffodils, freesias, and other spring bulbs, which should be planted no later than the end of October.
- Fall is the best time to introduce perennials to your garden.
- Consider planting winter vegetables such as broccoli, lettuce, endive, parsley, garlic, and onion sets. http://ceyolo.ucdavis.edu/files/53274.pdf
- Take cuttings of your favorite annuals. Favorite choices are geraniums, coleus, begonias, and impatiens.
- Gradually move frost sensitive potted plants to shadier locations so they will adjust to the lower light levels when you move them indoors.

Trees and Shrubs

- Fall is the best time to plant trees and shrubs.
  Suggested Trees for Yolo County http://ceyolo.ucdavis.edu/files/53031.pdf Problem Trees for Yolo County http://ucanr.edu/sites/YCMG/files/181041.pdf
  How to Plant Tree http://ceyolo.edu/sites/files/53455.pdf
  Watering and Drought Care of Trees http://ucanr.edu/sites/YCMG/217955.pdf
  The cooler air temperature and still-warm soil provide ideal conditions for new plant roots to take hold.
- Plant drought-tolerant trees such as valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*), or a Japanese pagoda tree (*Sophora japonica*). A new favorite is the Chinese Fringe Tree (*Chionanthus retusus*).
- Apply manure and compost to help your trees emerge from dormancy with lush leaves and flowers.
- Plant easy-care and drought-tolerant shrubs such as crape myrtle (*Lagerstroemia*), California lilac (*Ceanothus* hybrids), heavenly bamboo (*Nandina domestica*), tobira (*Pittosporum tobira*), and western redbud (*Cercis occidentalis*).
- Prune and shape trees in late fall.

Garden Keeping

- Sharpen spades, loppers, pruners, and your lawnmower blade. You can use a file or take your tools to a professional sharpener.
- Take your lawn mower to a professional for an annual tune-up.
- Clean, disinfect, and oil your tools so they will be ready for pruning roses, trees, and shrubs from late fall to early spring.
- Keep birdbaths and feeders clean and full for migrating birds.

- Check out your local farmer's market or pumpkin patch for a colorful selection of fall decorations, including pumpkins, gourds, dried corn, and fall flowers.
- Keep a journal. Record your watering cycle information, pruning, spraying, and planting information. Make a list of garden improvements and fun ideas.
- Collect seeds from your garden.
- Check out your favorite garden catalogs. It is time to think about ordering next spring's seeds, bare root roses, and garden tools.
  For more information on vegetables, ornamentals, fruit trees, and lawn care visit http://www.ipm.ucdavis.edu.

Garden Fun

- Make a fall wreath and table decorations from dried or fresh garden cuttings. Use a hollowed-out pumpkin or gourd as the vase.
- Plant spring bulbs for a fresh look come March or April after we have a rainy winter.

Fun Fall Events

Master Garden Public Education, check out the free public workshops offered by the Yolo County Master Gardener Program. A detailed calendar is included in this newsletter. Please check the Yolo County Master Gardener website for updates as dates and times may change. http://yolomg.ucanr.edu/.

- Sacramento Farm-To-Fork Festival 2017 September 28 & 29 https://www.farmtofork.com/events/farmtoforkfestival/
- UC Davis Arboretum events and plant sales http://publicgarden.ucdavis.edu/plant-sales
- Fair Oaks Horticulture Center http://ucanr.edu/sites/sacmg/Plant_Clinics
- Village Feast 2018, Davis September 29 https://www.eventbrite.com/e/the-village-feast-tickets-45205944196
- Master Gardener and Woodland Community College Demonstration Garden Open House and Plant Sale 9:00 AM – Noon, October 6 and 13

Questions about your garden?

We'd love to help!

UCCE Master Gardener, Yolo County Hotline.....(530) 666-8737

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

Drop-In..... Tuesday & Friday, 9-11 a.m.
70 Cottonwood St., Woodland

Web Site ..... http://yolomg.ucanr.edu/

Facebook.....UCCE Master Gardeners, Yolo County

UC MASTER GARDENERS - YOLO COUNTY PUBLIC WORKSHOP SCHEDULE

October - November 2018

Dates and times subject to change. Please check at http://yolomg.ucanr.edu/ for updates.
Workshops are open to the public and are free.
Workshops are held in several different venues throughout the county.
Check the venue address for those in which you are interested.

OCTOBER WORKSHOPS

DAVIS

Date	Time	Topic	Venue
Saturday, October 6	9:30 – 10:30 AM 11:00 AM - Noon	Fall Care of Iris for Great Spring Bloom How to Make Your Own Hypertufa Planters	**CPG***
Saturday, October 13	10:00 – 11:30 AM	Ask A Master Gardener	**Davis Ace****
Sunday, October 21	2:00 – 4:00 PM	Master Gardener Q&A with specific seasonal topics	**Davis Library****
Sunday, October 28	2:00 – 4:00 PM	A Year-Round Kitchen Garden: Feeding fruit trees after fall fruiting; planting bare root fruit trees; olive crops; seed saving; planting and preserving herbs; planting late fall, cool season; edible flowers to harvest in the fall; berries; garden journals and favorite tools.	**Davis Library****

***CPG** (Central Park Gardens) on B Street between Third and Fourth Streets, Davis, CA 95616
****Mary L. Stephen, Davis Library**, small conference room, 315 E 14th Street, Davis 95616
*****Davis Ace Garden & Pet,** 830 4th Street, Davis CA 95616

WOODLAND

Date	Time	Topic	Venue
Saturday, October 6	9:00AM - Noon	Open House and Plant Sale 9:00 AM - Noon 9:30 – 10:30 AM Bulbs and Corms 11:00 AM – Noon Dehydration as Preservation	**WCC***
Saturday, October 13	9:00 AM - Noon	Open House and Plant Sale 9:00 AM – Noon 9:30 – 10:30 AM Winter Vegetable Gardening	**WCC***

***WCC** Woodland Community College, Building 400, 2300 E. Gibson Road, Woodland, 95776.

WEST SACRAMENTO

Date	Time	Topic	Venue
Tuesday, October 9	10:30 AM – Noon	Rose Care and Pruning	**West Sacramento***

*** West Sacramento Community Center,** 1075 West Capitol Avenue, West Sacramento, CA 95691

ESPARTO

Date	Time	Topic	Venue
Saturday, October 13	10:15 – 11:30 AM	Seed Saving	**Esparto***

***Esparto Regional Library,** 17065 Yolo Avenue, Esparto, CA95627

NOVEMBER WORKSHOPS

DAVIS

Date	Time	Topic	Venue
Saturday, November 17	9:30 – 10:30 AM	Messy Gardens can be Healthy Gardens: Provide habitat for our Pollinators and Beneficial Insects.	**CPG***
Sunday, November 18	2:00 – 4:00 PM	Master Gardener Q&A with specific seasonal topics	**Davis Library****
Sunday, November 25	2:00 – 4:00 PM	A Year-Round Kitchen Garden	**Davis Library****

***CPG** (Central Park Gardens) on B Street between Third and Fourth Streets, Davis, CA 95616
****Mary L. Stephens, Davis Library**, small conference room, 315 E 14th Street, Davis 95616

WOODLAND

Date	Time	Topic	Venue
Saturday, November 17	10:00 – 11:30 AM	Composting in the Garden	**WCC***

***WCC** Woodland Community College, Building 400, 2300 E. Gibson Road, Woodland, 95776

WEST SACRAMENTO

Date	Time	Topic	Venue
Tuesday, November 13	10:30 AM - Noon	Pollinator Gardening	**West Sacramento***

*** West Sacramento Community Center,** 1075 West Capitol Avenue, West Sacramento, CA 95691

ESPARTO

Date	Time	Topic	Venue
Saturday, November 10	10:15 – 11:30 AM	Composting & Vermicomposting	**Esparto**

*** Esparto Regional Library,** 17065 Yolo Avenue, Esparto, CA95627

U.C. Cooperative Extension
UCCE Master Gardeners of Yolo County
70 Cottonwood Street
Woodland, CA 95695

The Yolo Gardener – Fall, 2018

Send a Letter
to an Editor!

email: mgyolo@ucdavis.edu

Please put: *Yolo Gardener* in the subject line

or

UCCE Yolo County
70 Cottonwood St.
Woodland, CA 95695

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http://yolomg.ucanr.edu/

Jennifer Baumbach, UCCE Master Gardener Program Coordinator Yolo and Solano Counties