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Seeds For Thought

Solano County Master Gardeners

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POLLINATORS IN OUR GARDEN: A LOOK AT LEAFCUTTERS

Thomas Tucker, U.C. Master Gardener, Solano County



Leafcutter

Leafcutter Bee

All photos in this article by Thomas Tucker

She crawls out of the nest tunnel to her first glimpse of sunlight. Being the first female to emerge she will face the awaiting males that left the tunnel before her. They have only one task in life: Mating. For her, after mating and a nectar meal, her very complicated life will begin in earnest.

Step one is finding a suitable nest site. This and all remaining tasks will be

accomplished without training or observing others performing these tasks. She is a solitary bee. Alone.

Her criteria for a nest site is a cylindrical cavity with a diameter of approximately one quarter of an inch. If it is a bit larger she will bring it into her requirement by adding more layers of leaf. A depth of six inches would be ideal. Each cell will be slightly larger than the bee. Lack of ideal sites has led to unusual choices. Garden hoses, watering can spout, and keyholes for door locks have been used.

When the site decision has been made, a zig zag flight at the front of the nest will take place to memorize the location. It is now time to start collecting leaf material for cell construction. A sufficient supply of acceptable leaves has to be located. Some species of leafcutters are specialists. One will only visit evening primrose. Others are generalists. *Megachile texana* visits up to

eighty different plants. The leaves need to be soft, flexible, and smooth on one side. The smooth side will face the inside of the cell.

At the chosen plant a semicircular piece of leaf will be cut from the edge. She uses her heavy duty mandibles (jaws) to make the cut. *Megachile*, the genus name for these bees, means large lips. The leaf pieces will weigh up to one quarter of the bee's weight. Just before the end of the cut she will start beating her wings so that at the last snip she will be in flight. Back at the nest tunnel she carries the cutting to the rear with her mandibles. She will repeat this with several more pieces, overlapping them to form a cup-shaped convex cell. These are cemented together with leaf resins and salivary secretions to hold them together. The initial cell will require about fifteen leaf pieces. On each trip for a new piece she has to be aware of the size and shape she needs for the job.

This cell will now be provisioned and an egg laid. Fifteen to thirty trips will be needed to provision one cell. Pollen is gathered and carried on the lower abdomen. The scopa, stiff hairs, holds the pollen in place and allows us to identify *Megachile* easily. She also collects nectar into her "honey stomach" crop. When she returns, she goes into the cell head first and deposits the nectar at the back of the cell. Next she will somersault, if there is enough room, or exit and back in to deposit the pollen. The pollen is packed down with the tip of her abdomen. She may visit up to twenty five flowers per minute and complete a single cell in five hours. Before she closes the cell she lays one egg into the pollen-nectar paste. This cell is now closed and construction is repeated. This

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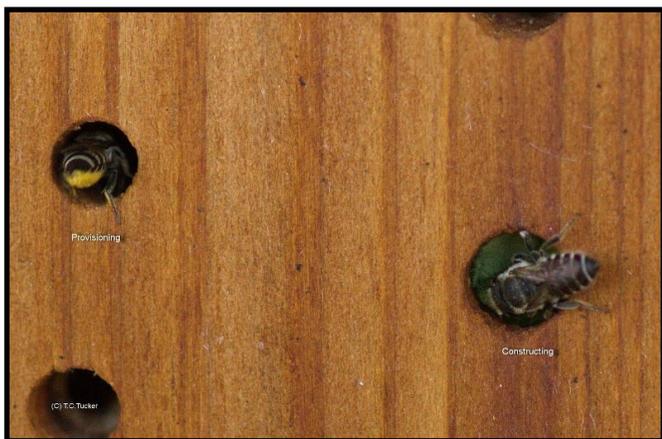
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continues until the tunnel is almost filled. Ten to fifty round pieces will be deposited individually into the nest entrance. They are cemented together forming a solid plug. This is to stop rain, predators, and parasites.

Thirty eggs are an average for her lifetime. If there are rainy or windy days that keep her from getting out to feed, she will reabsorb an egg for nourishment. Females decide if they want to lay a female egg or a male egg. Female eggs are laid in the rear of the tunnel and males in the front. The ratio of males to

females depends upon the length of the tunnel. Another example of her awareness of the scope of her tasks. Larvae development time depends on temperature. At sixty degrees Fahrenheit it takes fifteen days for the egg to hatch and thirty-five days to reach pre-pupal stage. At ninety-five degrees the eggs will hatch in two to three days and pre-pupal stage in eleven days. Bees in northern climates overwinter in the nest. Southern climates may see two generation per year. Megachilids are considered to be among the most useful bees in our gardens. Look for them. ☼



Leafcutters constructing and provisioning their cells



Leafcutter Bee Inside a Sealed Chamber

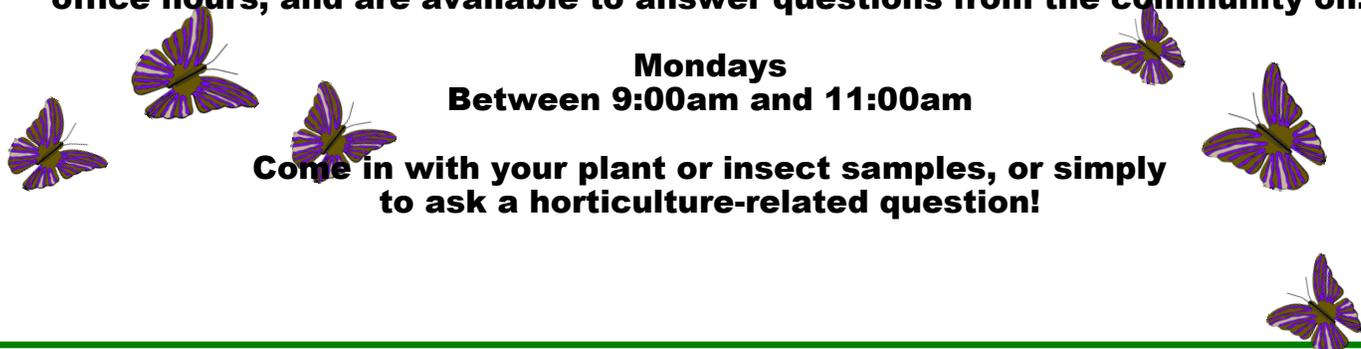
<u>FACT BOX</u>
Family: Megachilidae
Genus: Megachile (meg-uh-ki-lee)
Common Name: Leafcutter
1400 species in the world
140 species in U.S.A. and Alaska
Latest species discovered in 2005

Master Gardeners Are Now In The Office On Mondays

Starting in February 2016, the UC Master Gardeners of Solano County now have office hours, and are available to answer questions from the community on:

**Mondays
Between 9:00am and 11:00am**

**Come in with your plant or insect samples, or simply
to ask a horticulture-related question!**





MORE ABOUT LEMONS

Pearl Eddy, U.C. Master Gardener and U.C. Master Food Preserver, Solano County



In my previous article I wrote about lemons, but I notice that the lemons on my tree are beginning to ripen, so I'll continue with that topic. First, we need to know how to store the ripe fruit. I discovered that lemons and limes keep quite well in the freezer for months by dropping them whole into re-sealable freezer bags with no pretreatment needed. Just remove one or more as needed for recipes or to serve with fish. I also found an article that tested storage methods. It stated that lemons can be stored on a kitchen counter for a week but they can be stored quite well in the refrigerator for a month if placed in a re-sealable plastic bag. Citrus juice stores well in the freezer for many months in plastic or glass containers. When filling jars allow a little space for expansion.

I was introduced to Moroccan preserved lemons a few years ago while in Egypt, but had no idea what to do with it. I recently found many uses for it in recipes and found that it is very easy to make and to use. All you need are lemons ('Meyer' or 'Eureka' are good), some kosher salt, perhaps some extra lemon juice, and a jar with tight sealing lid. The salt helps to preserve and soften the lemon rinds. There are many methods of processing the lemons but most are similar to the following:

Have ready 5 or 6 fresh, washed lemons, and some extra lemon juice from several more lemons and ½ cup of kosher salt. Slice each whole lemon into quarters from the tip down through the stem end. Toss lemon slices with salt in a bowl and pack tightly into a jar. Add enough lemon juice to cover lemons. Seal jar and let

stand at room temperature, shaking gently once a day, for 5 days, turning upside down occasionally. Then place jar in the refrigerator, turning the jar upside down occasionally for 3 weeks, until the rinds of the lemons soften. The preserved lemons can be stored in the refrigerator for 6 months to a year.

To use the lemons, scrape the pulp from the rind, rinse off the excess salt, and slice or chop the rind for recipes. Chicken tagine is one well-known dish for these lemons, but try them in other poultry recipes and anything with lamb or fish. Also try chopped rind in grain salads, salad dressings and sauces, added to pesto, salsas and dips, pasta dishes, and vegetables, including chickpea stew. Chicken thighs are delicious when chopped rind is placed under the skin and left for a few hours before cooking.



For an attractive gift idea, cut the lemons partially into quarters but do not cut all the way through, leaving the lemon slices attached at the base. Open the lemons gently, sprinkle inside well with kosher salt, and press the lemons down into small jars; add more salt, making sure lemons are covered with juice. Add juice if necessary. Close lids, let sit at room temperature for a few days, place jars in refrigerator for at least 3 weeks, until the rinds soften. Turn jars upside down occasionally and process the same as for the lemon pieces.

We are blessed to have citrus trees in this area which produce fruit just about all year long. It is so much fun to learn how to use these fruits in so many ways. Enjoy! ❁



PRUNING ROSES

Darrell g.h. Schramm, U.C. Master Gardener, Solano County



Photo by Melinda Nestlerode

To prune a rose is to dwarf it, that is, to shorten the plant. And why would you do so? You needn't, of course. After all, there have been and still are some rosarians who, preferring a somewhat wild garden, allow their roses to grow willy-nilly and unpruned. Furthermore, no one pruned the many old roses discovered in

Gold Rush towns, ghost towns, old homesteads, pioneer cemeteries, or abandoned fields, yet they survived. But pruning stimulates the growth of flowers.

If you prune severely, the blossoms will be larger but fewer—that method and purpose is used by most exhibitors of roses. Gardeners, on the other hand, generally not interested in exhibiting at rose shows, tend to prune their roses higher to acquire more blooms.

Unfortunately for the gardener versus the exhibitor, pruning demonstrations are usually given by show people who are more concerned about size than quantity. And they focus on Floribundas and Hybrid Teas—occasionally also on English shrub roses—which they generally shorten to two feet high or even lower. This article, then, addresses gardeners who grow roses for the garden, not a show.

Four basic pruning rules apply to nearly all roses: 1) Remove the three D's—dead, diseased, and damaged stems and canes. I usually add a fourth D: distorted canes. 2) If the rose is not a climber or rambler, remove canes in the center or interior of the bush to allow for more air circulation. Doing so also helps to prevent fungal diseases. 3) Except for Miniatures and Polyanthas, remove all growth smaller in diameter than a pencil. 4) Young roses can remain unpruned until maturity, usually about three years old.

Once you've donned your gloves and sharpened your pruners (secateurs) and loppers, you are ready to begin. (By the way, bypass pruners make cleaner cuts than anvil pruners.) Stand back from the plant to determine its shape. The end result of

your pruning should be both a shortening of the plant and a shaping of it—a rounded mound shape, or a V-vase shape with the stems all of similar height. If one, two or a few canes have sprouted beyond the general height of the bush, lop those first to the general height and then decide on the shape of plant you wish.

Next, remove the dead, damaged, and diseased branches. Depending on how tall or short you prefer your plant, shorten the branches by a third to a half. Cut about a quarter inch to a half inch just above a node or growth bud (where a leaf joins or will join a stem). That small swelling, the node, should be pointed outward, or to the left or right but not facing inward. Where the bud points is where the new stem will grow. Remember, as much as possible, you do not want heavy growth in the center of the plant.

Try to retain about five large canes with a few lateral stems (those that branch off from a main stem or cane). If you make a mistake, do not be alarmed. Roses are quite forgiving and resilient and will continue to grow.

What follows are general rules of thumb for trimming back roses of specific classes or types.

Hybrid Teas, Floribundas, & Hybrid Perpetuals: prune back by one-third to one-half.

Shrubs (Austin English roses & Romantica types): Prune by half.

Miniatures: prune at least by half, but many modern miniatures can be shortened down to as little as two or three inches.

Gallicas: Prune, mostly just deadheading, when the blooms are spent. Remove old wood to encourage fresh growth, then prune to shape the plant.

Albas, Centifolias (except new canes), Damasks, Portlands, & Polyanthas: prune back by one-third. Albas, Centifolias, and Damasks are usually best pruned in summer when the last bloom is over.

Bourbon climbers, Noisettes, & old Albas: Prune back one-fourth.

Bourbon shrubs & Tea roses (not the same as Hybrid Tea): These require only the lightest pruning, just

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enough to shape the plant somewhat. Remove the twiggiest growth from the Teas (they are rather twiggy to begin with). I rarely prune my Tea roses at all.

Chinas, Hybrid Musks, & Rugosas: These rose plants generally resent pruning. Remove the three D's, then prune sparingly, if at all, just enough to shape the plant if desired.

Ramblers: these long-caned sprawlers need not be pruned annually, but when doing so, cut back all branches that have flowered immediately after the bloom is over; cut to the point where a new stem or cane arises, or cut all the way to the ground.

Should you see a sucker emerging a few inches to a few feet from the base of the rose plant, remove this cane or stem at once by ripping it out. If that is not possible, cut it below ground as close to the bush as you can, keeping in mind that cutting tends to stimulate growth, just as cutting does for the bush you have pruned. Be vigilant, for you will likely need to cut it again sometime. If the sucker is part of a rose planted onto rootstock, that sucker will take over and your original rose will decline and die away. If, on the other hand, the sucker emerges from an antique/heritage rose, such as a Gallica, Damask, Alba, or Portland, you may wish to dig it up, being sure a few rootlets are in evidence, and pot that sucker to acquire another such rose. And after three years, you'll have another rose to prune. ☼



MASTER GARDENER RESOURCE GUIDE COMING SOON

Kathy Low, UC Master Gardener-Solano County

Are you trying to figure out if there's a local ordinance on home beekeeping or removing an old heritage tree on your property? Looking for a water or soil testing laboratory? Are you wondering what USDA and Sunset climate zones you live in? Need an arborist or landscaper? If so, help is on its way in the forthcoming Solano Gardening Resource Guide.

This past summer Solano Master Gardeners have been busy researching and gathering information on a wide range of gardening topics. That information is being compiled into a guide aimed at being your "go-to" resource book. The guide contains information on, but not limited to the following topics:

- A Look at Solano County Soils
- A Look at Solano County Climate Zones
- Soil and Water Testing Laboratories
- Arborists
- Landscapers/Landscaping Companies
- Home and Garden Shows
- Garden Clubs
- Gardening/Horticulture Education
- Relevant ordinances and regulations
- Community Gardens
- Gardens and other places to visit
- Gardening Websites of interest
- Nurseries and Garden Centers
- Specialty Tree and Plant Vendors
- Hydroponics Vendors
- Soil and Turf Vendors
- Compost, Soil Amendment and Landscape Material Vendors
- Garden Decor Vendors
- Seed Vendors
- Gardening Calendar
- Useful Telephone Numbers
- And So Much More!

Sale of the guide will benefit the UC Master Gardener Program of Solano County. Look for the guide in early 2016!

A WALK THROUGH IRRIGATION

Lowell Cooper, U.C. Master Gardener, Solano County

I am writing this as a backyard gardener for many years to other backyard gardeners who have struggled with the challenge of how to get water to garden plants in a time of drought. No more overhead sprinklers. I will try to hit the highlights without getting too caught up in any one of the many mud-traps. I never took a class in this, so, for better or worse, I am self-taught. While I do believe in learning by doing, there is something (a lot) to be said for using expertise and there are many people out there ready to help. Some will give advice for free, others charge. I have found that if I am in the middle of the process myself, I can better judge when I am getting advice that makes sense. Since I do believe in using others' expertise, this is not strictly a do-it-yourself piece. But there needs to be someone in charge and when I am on my knees getting filthy and exhausted, I console myself that it is me. I invite you to do the same.

If you decide to do this yourself, prepare to be frustrated at times, and practice rewarding yourself with self-congrats for what you are doing. The real reward will be in the little sprinkler heads spurting out water when and where you want them to. I've tried to organize this in somewhat the same sequence I have followed. It makes sense for me, but you might have another way of reordering the steps. Good luck! May the force be with you.

1. Are the plants in the ground already? If so, there is a moment to consider how much of a job it will be to irrigate very diverse plants. Mentally cluster them or, better yet, take a picture of the space and circle plants that have similar requirements. It is much easier to start from scratch and think of putting plants with roughly the same water requirements on the same watering line. Probably it wouldn't hurt to give yourself a crash course on the plants you are drawn to and what their water needs are. I've been in both situations and when I started from scratch, I used the counsel of a master gardener landscaper – it was enormously helpful. (If you have inherited a working garden, this outline could be reasonable as a walk-through guide to see how it was constructed so you can respond to the inevitable breakdowns and glitches you encounter.)
2. The next big challenge is finding your water supply and, if you are thinking of an automatic timer system, the location of electricity. For me, water was relatively easy to find as there were several outside bibs around my house. The electrical was trickier; I wanted it in the house but out of the way. The automatic timers have to be connected to the automatic valves. It is the timers that will turn the system on and off by activating the automatic valves and they have to be kept dry – thus, best to have them (the timers) indoors. Though it is powered by the timer, I ended up having to string wire a long way around and under my house; certainly do-able, but I had to be more careful about tucking the wire away from people who could trip on it and cars in the driveway that could run over it. Both of these challenges can be surmounted. The electrical solution might require a lot of wire and just to be on the safe side I would suggest wire with at least five separate strands within the insulation. It gives you more flexibility if you want to add to your system at a later time, and, in the meantime, you only have to use the strands you need.
3. Keep in mind the obvious fact that an automatic system requires BOTH automatic valves and a timer. These are the two big pieces of hardware. I have fussed with several types and brands of timers. It seems to me fair to say, none of them is transparent and all come with instruction booklets which defy easy use. I have seen other people with more experience than I have, manipulate the timers smoothly. I am not that person. I would suggest reading the instruction book diligently with the gadget in hand, plugged into a wall outlet. I have fought this battle several times and I would say it is a draw – with the gadget winning a good share of our encounters. It is like a complicated TV remote system: you have to keep at it. I knew I should have taken the course in relaxation and deep breathing before we bought our current house.
4. I still haven't gone to the hardware store, nursery, or Home Depot yet. I found it useful to lay out the main lines that will carry the water delivery outlets. It seems to me there are 2 big choices: PVC pipe or flexible black hosing. The PVC is more durable, but the lines most often have to be relatively long, so I had to glue the PVC pieces together. This gluing is not difficult, but it can be messy if you are not experienced, as I wasn't for quite a while, and I had to face intense cleanup. Make sure you are not wearing your prom clothes for this. I thought at the time that the 40 psi would be longer lasting and so far, after a decade, I have not had a pipe break or leak. The thinner walled PVC just seems too vulnerable. (I keep my fingers crossed as I type this.) It also turns out that I didn't have to drive myself nuts with planting everything in a straight line to conform to the pipe – these are not row crops and nothing is for sale.

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An aside about testing for leaks; it's easy to do when you can see the pipe. However it is more of a challenge when the system is up and running and you can't see the pipe. The best way I know of is to check for puddling. Where using flexible pipe, I have been able to plug the hole with plugs made for this purpose. If you find a leak in the middle of PVC that is another story. The only solution I have is cutting out the offending piece and gluing in another and this is true even if the leak is at a joint. How these leaks occur is beyond me, and I suggest a preventative donation to a favorite charity.

5. Playing around with the final delivery lines gives lots of room to manage individual distances. To be on the safe side, I would recommend burying this pipe at least a few inches under the soil. I was dealing with clay, so I didn't go too deep. Before putting the pipe underground, realize that there has to be a way for the water to get out of the pipe to the plants. So, think about installing threaded "T's" along the pipe – preferably at the joints to reduce cutting – which you can glue onto the pipe, and then screw in a nipple which will let the water out of the pipe. I have found it easiest to use connectors that have smooth fittings over the pipe and a threaded opening facing up so I could just screw in a nipple above the ground. Good to do this before covering it with dirt, which will then get into the PVC. Oh, by the way, be sure to close off the far end of the pipe. The height of the nipple would be determined by how deep the pipe is buried. Remember, you can always trim it down.

This, by the way, is the point in the process when life can get very confusing. I found that the supply stores have so many ways to assemble the pieces, I made up my mind that I would be making repeated visits to correct fittings, both the number of pieces and precisely what I was needing. Again, I am living proof that there is a learning curve here also.

6. Just a word about the black flexible piping is in order. If the road from faucet bib to end of irrigation pipe is likely to be very long and wavy, you might want to go with a flexible pipe – 1/2" or 3/4". It is black and comes in rolls, is quite easy to work with, and you can wiggle it along to fit your needs and stake it down to stay in control of the curves. (I have found that having good wire cutters lets me cut up clothes hangers into stakes; it gives me a chance to save a buck since this whole set-up can cost a bit and clothes hangers are cheaper than bought stakes.) There are handy plugs to close off the far end. Since the black pipe is on the surface, it is not a problem to poke holes in the pipe and attach 1/4"

delivery lines to access the water. I find this appealing and since I plan on putting a healthy layer of mulch on top of the soil, including the pipe, it will eventually be hidden. There will have to be a delivery hole poked in the pipe, but that leads into the next challenge: getting the water to the plants.

7. I decided early on in my gardening life, even when water was plentiful, that it was easier and more controlled to have the irrigation system on timers. Then, I didn't have to worry about forgetting to water, or about amounts, or about what to do when I went on vacation. It is not possible to say how many stations you need abstractly. Probably the best guideline is how many pipes you have laid down, or how many sets of plants you have demanding different watering schedules. For me, I have roses in the front and back of my house and the distances have made me decide to give each set of roses a separate station. On the other hand, my vegetables need more water than the roses, so they have their own station. Pots need more water than plants in the ground.

Once I decided, I went to a supply store and bought the timer and got good advice about the other pieces I would need to set it between the automatic valves and the outgoing pipes. Incidentally, there is no reason why you can't put in PVC and black flexible piping. It takes some daring to do this the first time on your own, but it gets easier and more sensible as you practice. It is a bit like putting together a Lego construction, where you come up with the design. I have found that once I set up a good relationship with my local hardware store, someone knowledgeable was more than willing to walk me through the pieces I would need. I found it very instructive to assemble it by myself. I also found that stores carried somewhat different stock. So when I was stymied by a particular difficulty, I would try a different store.

8. I found that the project could be divided into phases. One early phase for me was constructing the timer stations. I have always kept things simple with timers that only had a few zone options – maybe two or three. There is also the matter of the electrical connections and they can be fussed with after making sure you have had a tranquilizer. Again, don't be afraid to use advice from experts. Or maybe for this phase you would prefer to use an expert to do it. No shame in that.

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9. Back to the delivery end. Once the timers are set up, tested, and working, once the pipes are in or on the ground and not leaking, it is time to decide what kind of watering method you prefer for each plant. I discovered that it is best to use the same end-point delivery method for all the plants on the same line. Maybe I am expressing an esthetic preference more than anything else. There are all kinds of sprayer, bubblers and drips. I prefer the shorter, full-circle sprayer. There is no doubt good use for the taller stemmed sprayers and the partial circle ones. Frankly, this doesn't seem worth worrying about since the amount of water hitting the plant is going to be controlled by the timer. Try to stay away from having the spray go right onto the plant, however, to keep from rotting it, especially if it is a plant with a stem. Place the sprayer back far enough from the plant that it doesn't hit it directly. Drips can be easier to manage for this challenge. Remember, there is no mistake that can't be corrected. If you install a sprayer and then don't find it satisfactory, replace it. Tedious, yes, but you stay in control. Don't lose sleep, learn more about how the equipment works, and use this opportunity to get closer to the plants.
10. When you have the system up and running, I would put down a good layer of mulch. I like either pine needles available by the bale, or shredded cedar. There are many options here. Again, another moment of esthetic choice; they both weather nicely. Just make sure not to cover the emitters so you can visually check them occasionally to make sure all is well. When I have had doubts about how much water to deliver, that is, how to set the timers, I have asked a couple of nursery personnel and taken an average.

Well there you have it. The soup to nuts basic walk-through of the irrigation 'how-to'. As a hobbyist it has always been important to me to allot the time the job required with plenty of time to consider and reconsider what I am doing. Give yourself full permission to enjoy the whole process. I can attest to the satisfaction of having the whole system up and running, and of course I really appreciate the plants being fed and healthy. ☀



MASTER GARDENERS IN THE COMMUNITY

VALLEJO FARMERS MARKETS

UC Master Gardeners Staff a Table at the Vallejo Farmers Market Throughout the Year On

SATURDAYS

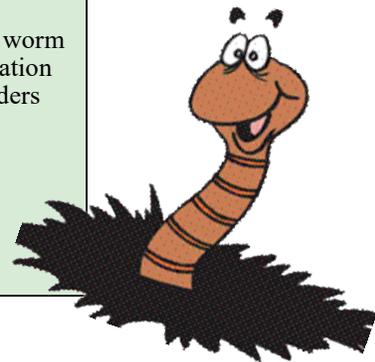
9:00am to 1:00pm

At the corner of Georgia and Marin Streets

YOUTH AGRICULTURE DAY AT SOLANO COUNTY FAIRGROUNDS

Master Gardeners will have a booth with worm bins, worms, kitchen scraps, and information about worms to educate 3000 third graders

**900 Fairgrounds Drive
Vallejo
March 15, 2016
8:00 am to 1:00 pm**



LIBERTY GARDEN AND GREENHOUSE

Gene Ekenstam and Monique Moench, U.C. Master Gardener, Solano County



All photos in this article by Gene Ekenstam and Monique Moench

No, the Liberty Garden and Greenhouse isn't a new tourist destination. Rather, it's a teaching location where Master Gardeners work with high school students on horticultural activities.

Liberty High School is the alternative high school for Benicia. Some years ago, a greenhouse was given to the school, though it sat for some time before a dedicated faculty member and volunteers from the Benicia Rotary Club brought it to life. The greenhouse is an impressive 20 x 40 structure with automated controls. It functioned for several years, until the faculty member retired. As new faculty arrived, the greenhouse became used less, and eventually sat on the campus, unused. When facilities go unused on a regular basis, a cycle of decay can set in, and it did in this case. Graffiti showed up on and in the greenhouse. Some of the panels were broken. The space in front became overgrown and eventually sported a 20-foot palm tree planted by birds.

Benicia Rotary came to the conclusion that the facility should be resurrected. As they talked the matter over, they realized that

they had some Master Gardener connections and made a few phone calls. They wanted to know how to restore the greenhouse and make it useful as a teaching facility. One thing led to another, including meetings between Jennifer Baumbach, UC County Master Gardener Coordinator-Solano, and the school administration, and it was agreed that the Master Gardeners would adopt the project. Mo Moench was recruited to head the effort. The Rotary Club agreed to continue its generous financial support of the program.

Beginning with the 2013-14 school year, Mo worked with students to rehabilitate the property. Graffiti and grime were removed, weeds growing inside the greenhouse were replaced by a proper gravel base, work tables were purchased, and even the palm tree went away, thanks to the interest by CalTrans for a tree of that size to plant near the Carquinez Strait bridge (bringing an additional \$1,000 to the operating budget.) Mo then recruited a group of five other volunteers (Sheila Clyatt, Gene Ekenstam, Barbe Johnston, Rana Nasser, and Sharon Rico) to work on a weekly basis with the students to begin the program of education in the spring of 2015. Because of significant slope in front of the greenhouse, it was decided to build raised beds that would be drip-irrigated. The one-hour



weekly "class time" was a mixture of continuing work on the property as well as exposure to horticultural projects. So the building of bee boxes was an opportunity to discuss the role of pollinators in the garden.

Fabricating kokodamas (just

Google it) was an opportunity to talk about beauty in the garden and the landscape. In the fall semester, seeds were finally planted and the focus on growing things began. So, now the infrastructure has been built, the raised beds are growing vegetables, cover crops, and pollinator-attracting plants. Jennifer Baumbach reflects that, "UC Master Gardeners in Solano County work hard to extend research-based home gardening information to the residents. Working with young

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people is an area where Master Gardeners can creatively disseminate this information. The fit between Liberty High School and the Master Gardeners has proven fruitful and sustainable.”

Beginning with the new semester in January, the weekly meeting will be every Wednesday, from

12:30-1:30. Additional Master Gardener volunteers are needed. A public open house will be held on January 20th from 12:30-2:30, to which all Master Gardeners and interested public are welcome. The Greenhouse and Garden are located at the intersection of East J Street and East Third Street in Benicia, the location of the original Benicia Grammar School and currently used by both Liberty High School and the Benicia Unified School District headquarters. ☀



ROSEMARY

Nancy Forrest, U.C. Master Gardener, Solano County



Rosemary

All Photos in this Article by Nancy Forrest

Charmingly fragrant rosemary herb is the perfect potherb to have in your kitchen garden. It is one of the recognized herbs for its note-worthy health benefiting phyto-nutrients, antioxidants, and essential acids. Rosemary belongs within the family of *Lamiaceae*, of the genus, *Rosmarinus*. Its botanical name is *Rosmarinus officinalis*.

Rosemary is an herb that is native to the Mediterranean. It's said that rosemary got its name during the Virgin Mary's flight from Egypt. She draped her blue cloak on a rosemary bush, then placed a white flower atop of her cloak. The flower turned blue, and the bush became known as the Rose of Mary. Greeks believed that rosemary enhanced memory and brain function, weaving wreaths of rosemary into their hair. It also became known as a symbol of fidelity, and it was once burned as incense at wedding parties throughout Europe. European judges also burned rosemary to protect them of the illness that prisoners exposed them to.

Since I have a few bushes in my yard, I decided to harvest them

for use in cooking, and donate for sale at the farmer's market. I took the following steps:

1. Clip full rosemary stems (aka sprigs) as needed. Try to clip them at the same length. Bundle them together and bound them on the bottom (clipped end) with a rubber band or twine
2. Hang bundles in a cool, dry, well ventilated place. In humid climates, this may be difficult and a humidifier or food dehydrator may be necessary to properly dry your rosemary.



Finished Product

3. Rotate the rosemary every other day. This will ensure even drying.
4. Once the stems and leaves have lost all pliability and become brittle to the touch the rosemary is sufficiently dry. This will take about two weeks, give or take.
5. Crumble off the dried leaves and separate them from the stems. Place in an airtight jar and store in a cool, dark place. ☀



WINTER GARDENING GUIDE



	JANUARY	FEBRUARY	MARCH
P L A N T I N G	<ul style="list-style-type: none"> ◇ Sow California poppy (<i>Eschscholzia californica</i>) seeds for spring color ◇ Sow indoors cool-season edibles such as chard, kale, and lettuce ◇ Plant winter blooming-shrubs: purchase now while in bloom to see what you are getting ◇ Harvest citrus as it ripens—taste for flavor 	<ul style="list-style-type: none"> ◇ Plant summer bulbs such as gladioli, cannas, ranunculus, anemone, dahlia, lily, tuberous begonia and delphinium ◇ Plant leaf crops like lettuce, cilantro, beets, carrots, chard, peas, and spinach directly in the ground ◇ Indoors, start seeds of eggplant, peppers, and tomatoes. Transplant outdoors in 6 to 8 weeks ◇ Plant berries: raspberry, boysenberry and blackberry 	<ul style="list-style-type: none"> ◇ Almost any plant (except tropical) can be planted now. Start seeds of old-fashioned favorites such as an apricot foxglove, bachelor's button, blue flax and Oriental poppies. Summer sizzlers like cosmos and zinnias also grow more vigorously from a seed start and catch up fast to nursery-started plants ◇ Plant warm season annuals like ageratum, marigold, petunia and sunflower ◇ Switch out cool-season vegetables for corn, beans, peppers and tomatoes
M A I N T E N A N C E	<ul style="list-style-type: none"> ◇ Prune deciduous plants while dormant to keep grapes, roses, fruit and shade trees shapely ◇ Check mulch. Add more to paths and beds for weed suppression ◇ Protect tender plants when cold nights are predicted. Water well—dry plants are more susceptible to frost damage ◇ Fertilize azaleas after bloom; cymbidiums with 1/2 strength fertilizer every week or so ◇ Collect rain water to use on your garden 	<ul style="list-style-type: none"> ◇ Pinch fuchsias through March; for every stem you pinch, you'll get 2; for every 2, you'll get 4 ◇ Fertilize: citrus and fruit trees, cane berries, roses (only after you see new growth begin) ◇ Fertilize fall planted annuals and perennials, and established trees and shrubs with an all-purpose fertilizer. Wait on azaleas, camellias and rhododendrons until after bloom ◇ Mulch exposed areas to prevent weed seeds from germinating ◇ Repot cymbidiums if necessary 	<ul style="list-style-type: none"> ◇ Fertilize almost everything ◇ Flowering and fruiting plants need phosphorus-rich fertilizer ◇ Green leafy plants such as lawns and lettuce require nitrogen ◇ Root plants such as potatoes, beets, and bulbs appreciate a handful of potassium. Read the labels. ◇ Once soils have dried out, give your irrigation system a tune up. Then set to water deeply and infrequently to encourage deep root growth
P R E V E N T I O N	<ul style="list-style-type: none"> ◇ Control snails and slugs by eliminating hiding places, or hand pick ◇ Use a dormant spray to control over-wintering insects on deciduous plants. Control peach leaf curl with lime sulfur or fixed copper. Follow directions for proper application ◇ Spray roses with dormant oil to control over-wintering insects such as aphids, mites and scale. Thoroughly coat trunk, branches and twigs 	<ul style="list-style-type: none"> ◇ Snails and slugs are dormant two times a year, during the hottest part of summer and during the coldest weeks in winter. This is about the time they head out for feeding. Get out early and hand-pick ◇ Don't prune out any frost damaged growth for another month or so—the outer dead foliage may protect healthy growth beneath from further frost damage 	<ul style="list-style-type: none"> ◇ Now is the time to get a jump on insect infestations; check for signs of aphids (distorted new growth and tiny, often green or black insects) and spittle bugs (under white foam on stems). Both can be effectively sprayed off with a garden hose ◇ Handpick snails at night, or use bait—follow all directions



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