



Seeds For Thought

UCCE Master Gardeners-Solano

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A SHOT OF COLOR FOR A WINTER GARDEN

Paula Pashby, U.C. Master Gardener, Solano County

It is so enjoyable to have our gardens ablaze with bright radiant color in the spring, summer and fall, but what about those dreary winter days of hibernation? Can we still enjoy some of that brilliant color? Yes, we can, with a proper plan! So, what are suitable plants that will bring the color-warmth we seek?

There are quite a few hardy plants that will bloom in our Solano County and surrounding areas well through winter with a delight of beautiful spring-like colors. Before we look at these plants that prosper in the winter, just a quick comment on our treasured summer-blooming plants that currently look so disheveled that we feel as though we must put them out of their misery, immediately...

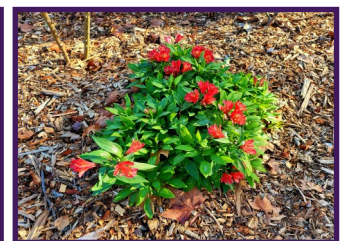
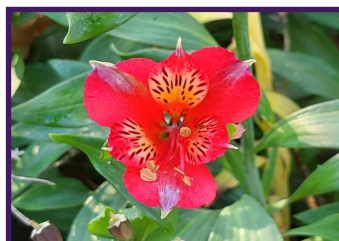
When the cold winter weather arrives, many plants have extraordinary biological survival functions that kick in to give them the best chances for survival. Certain conditions, such as colder weather and lack of sun, will inform the plant that it needs to slow down growth and hibernate until the proper weather requirements return. Photosynthesis and other biological functions slow down or stop, and growth comes to a halt. This process is also referred to as dormancy, a period when plants conserve energy and allow roots to continue growing and flourish underground. So we can just let our tousled plants slumber, appreciate the lifecycle process and have something to look forward to when warmer weather returns.

Let's look at some plants that may flourish and bloom locally. Your first task is to identify the most typical frost conditions in your city. Different plants can handle either a light freeze (29-32 degrees F), moderate freeze (25-28 degrees F), or severe freeze conditions (24 degrees F and below). Information on the 'first' and 'last' frost dates for your area can be found from the online Almanac, at <https://www.almanac.com/gardening/frostdates>. Once at this website, enter the name of your city. If your city is not listed, search for a nearby city to identify approximate dates. The Almanac will provide a calculated set of average dates,

considering the last light freeze of spring and first light freeze of fall each year, for locations across the U.S. and Canada. The estimated 'last' and 'first' frost dates have a 30 percent probability of occurrence, calculated using 1981-2010 normal climate conditions. Keep in mind that recently observed weather conditions have exceeded the norm and may continue to evolve.

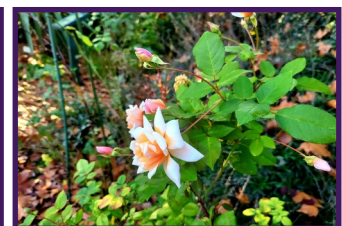
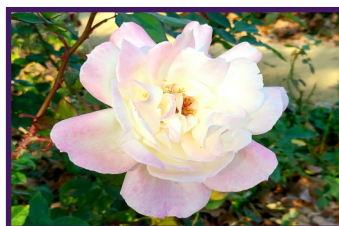
The following is a short list and some photos of a few winter-blooming plants that do well in Solano County and surrounding areas. These plants will still need a little periodic attention with consistent watering and some mulch to survive the winter.

While writing this, I took a break to step out into my own winter garden to take some pictures of the plants that make me smile, even during this downcast cloudy day. I also include here photos from another break I took, driving down to the Central Park Gardens in Davis, which always gives me a sense of peace and inspiration. ☺



Peruvian Lily - *Alstroemeria aurantiaca*

All Photos in this Article by Paula Pashby



Perle d'Or—*Rosa 'Perle d'Or'* Polyantha Rose

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Prince's-feather – Burgundy *Amaranthus hypochondriacus*



Sage - *Salvia* 'Anthony Parker'



Blue Bush Germander—*Teucrium fruticans* (CA Native)



Camellia—*Camellia japonica*

IT'S SPRING PLANTING TIME—DO YOU KNOW YOUR SEED SUPPLIER?

Gene Ekenstam U.C. Master Food Preserver, Solano County

I've long been a fan of planting vegetables from seed, not just because it may be cheaper, but because it affords a wider range of varieties to choose from. 'Riesentraube' tomatoes, 'Tromboncino' squash or 'Baby Gem' romaine just aren't to be found in the nursery stock of most vendors. So, in the summer, I wanted to start some ornamental cabbages for winter color. I didn't find any available in my usual on-line vendors, but I came across them on a vendor's site (I'll call it "Mike's Seeds" just to keep it anonymous).

I placed the order on-line on August 25th and received a confirmation e-mail that my order had been received. On September 19th, I received a message that the order was on its way and should arrive in 14-21 days. When I thought about this time lag, I started to get suspicious. I had given up all hope, when on November 2, the package arrived.

While I was waiting for the seeds' arrival, I became curious because the website for Mike's Seeds did not give the usual "contact us" information, nor was there any indication on the site where the company was located. When I dug a little deeper, I found some reviews of this vendor—generally all complaints about not receiving what was ordered, not receiving anything, not getting a timely delivery—and there were intimations that the vendor was in China.

Sure enough, when my package arrived, the label identified the shipper's location as "About 140 meters to the southwest of

Guangzhou, China". The contents of the package were identified as "Ornaments" and valued at \$1.57 in US dollars, a bit less than I paid for the three small packets of ornamental cabbage, snow peas, and kale seeds. No doubt the long delay in their arrival was due to the supply chain problems we have heard so much about.

Since the seed packets were just small plastic bags with a label, there was nothing like the information we are used to seeing on packets about the seeds inside. In fact, the seeds I assume to be the cabbage I ordered had a label that I couldn't decipher. I will only know that what I got was what I ordered when everything has germinated and started to grow.

I'm glad I didn't spend a lot of money on this order or that the plants weren't keystone crops for me—well, the peas were but I had given up and planted peas from other sources. BUT, it was a useful lesson to be sure and check out the supplier in advance if it is not one you have historically been using. I probably would not have placed this order if I had read the unfavorable reviews before clicking SEND. ✕





LET'S TRY A TASTY TRIO OF ROOTS

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

Providing vegetables for a meal now may involve a trip to the grocery store where we can find almost any produce that we wish. Compare this to life a century ago, especially in colder climates, where root cellars were necessary for storage of freshly dug vegetables. Here, today we tend to overlook many root vegetables which are actually highly nutritious, including turnips, parsnips and rutabagas. I had rarely tried these three, but decided to learn to use them. I began with information on the internet and then got out one of my favorite books, the 778-page [Vegetables from Amaranth to Zucchini](#) by Elizabeth Schneider which has 500 recipes and 275 photographs.

When shopping, select turnips that are small to medium, and heavy for their size. If greens are still attached, remove them, store separately in a plastic bag and use within a few days. Rutabagas should be medium size, about 4 to 5 inches across, and heavy for their size. Parsnips should be firm with a good creamy color and no spots or blemishes. They should have a good, uniform shape about 4 to 5 inches long. All three types of roots store well in plastic bags in the refrigerator. Major turnip and rutabaga producing states include California, Oregon and Washington. Parsnips are grown in many states including California, Oregon, and Arizona. Canada also grows all three roots.

All three roots can be grown here but the soil should be loose, rock free, and well drained. They can be planted in the fall as a winter crop, but their growing and harvesting conditions differ slightly. For instance, turnips should be picked as soon as they are ready, in about 75 days, while rutabagas can be left in the ground for several months. An excellent source of information about growing them is the [Sunset Western Garden Book of Edibles](#).

Rutabagas are packed with thiamin, Vitamin B6, folate, calcium, magnesium, and phosphorus. They are a cross between a cabbage and a turnip and have many of the same health benefits as other cruciferous vegetables. Parsnips are related to carrots. Parsnips and turnips are good sources of Vitamin C, potassium, and other minerals.

I decided to try roasting all three together to see how they differed in taste without many additives. (They differ in appearance.) Following a recipe, I peeled and cut the roots into 3/4-inch cubes and then shook them in

a plastic bag with 2 tsp. olive oil, ¼ tsp. each of dried thyme and oregano, ½ tsp. minced fresh rosemary and ¼ tsp. salt and 1/8 tsp. pepper. There were about 2 C. rutabaga, ¾ C. turnip and ½ C. parsnip. I also added a small onion, cut into wedges, and 1 small chopped carrot. All were placed in a greased baking pan and baked, uncovered at 425° F. for 25 to 30 min, stirred occasionally. They turned out delicious and my family loved trying the different roots. (I will probably use more seasonings next time.)

I also found a pickled turnip recipe which is a staple in the Middle East. It is so easy to make and is very tasty and colorful.

- Peel two turnips and slice into ½-inch wedges.
- Thinly slice one small beet.
- Arrange turnips and beets, and 2 sliced cloves of garlic in two wide mouth pint Mason jars. I added a dried chile to each jar.
- In a pan make a brine of 1 cup white distilled vinegar, 1 cup water, 1 tsp. sugar and 1 tsp. salt. Boil for 2 minutes.
- Remove from heat and pour over turnips and beets, leaving ½ inch of space.
- Seal jars and refrigerate for 1 week.

These are very tasty, but I think I'll add a little more salt and sugar to my next batch. Other pickle recipes call for assorted seasonings. My next project is to try a parsnip-turnip *au gratin*. I hope that you will also try these nutritious vegetables if you haven't already done so. ✕



ALLELOPATHY

Michelle Davis, U.C. Master Gardener, Solano County



Craters of the Moon National Monument

Have you ever heard the word “allelopathy”? The first time I heard it was from an interpretive ranger at Craters of the Moon National Monument. Individual plants of the same type and

with a lot of space between each were evenly spaced on the crater’s slope. They looked like they had been planted by a landscaper, but no, it was explained - that was the way they were naturally growing. The next time I heard the word was over 10 years later in a Master Gardener class. The word was defined; but both times, I failed to think about the science behind the phenomena.

The word was first used by a plant physiologist, Hans Molisch, from the University of Vienna, Austria, in 1937, but the phenomena was recognized back in the millennia. The Greek scholar and the Father of Botany, Theophrastus of Eresos (371-287 BCE) wrote about it regarding chickpeas and how the plant “exhausts” the soil and destroys weeds. Pliny the Elder in 1 CE noted the toxicity of walnut trees to other plants.

According to Cornell University, allelopathy is “the chemical inhibition of one species by another. The ‘inhibitory’ chemical is released into the environment where it affects the development and growth of neighboring plants.” A shorter definition is “Death to others.” This definition provided by Linda Chalker-Scott, PhD, from the University of Washington, is talking specifically about chemical warfare. These chemicals that interfere with nearby plants can be found in any part of a plant with allelopathy and even in the nearby soil. The chemicals are secondary metabolites and are not needed by the plant that produced them in the first place. The chemical can target the roots of the neighboring plant, or the ability of the plant to take up a nutrient from the soil, or sabotage a symbiotic relationship of one plant with another plant that would have ordinarily let the plant use a particular nutrient. They can stay in the soil inhibiting plant growth long after the host is gone. The take away is that allelopathic plants are competing for the available resources.

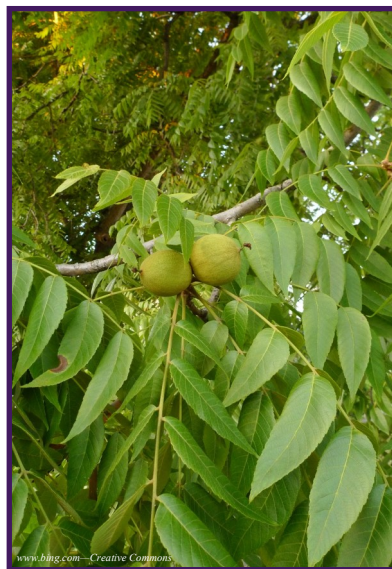
Each plant with this ability has a different attack method. Some methods include the following: leaching of the chemical from

the leaves by dew, fog or rain; leaching of the chemical from the leaf litter where it is transformed into the toxic agent by microorganisms in the soil; exudation of the chemical from decomposing roots, or alternatively, above ground, from decomposing leaves, twigs or fruit; volatilization (the conversion of a liquid chemical into a vapor) from the leaves.

Many would automatically think of walnuts. Walnuts release juglone (AKA quinone) that affects pines, azalea, apples and a lot of other plants. But many other trees and plants possess this chemical warfare. Black cherries release cyanogenic glycosides that affect red maple and red pine trees. Oak trees, sycamores and hackberry trees release coumarins. The released chemicals harm grasses and weeds but do not prevent reproduction of the allelopathic tree or plant.

Planting around trees or plants with allelopathy can be problematic. If you know the chemical effects and its method of release, you can potentially work around it. One person I know planted geraniums in pots around the dripline of a huge hackberry tree. He keeps an eye out for the hackberry tree roots invading the geranium pots.

While most gardeners would consider allelopathy a pain, some farmers appreciate the property. Sorghum releases hydrocyanic acid (prussic acid) which keeps the weeds down in the near vicinity, BUT the sorghum can cause poisoning to livestock foraging on it. Sorghum is also allelopathic towards wheat.



Black Walnut Tree

Hence, a subsequent planting of wheat may not be a good idea.

Barley releases an alkaloid called gramine which also inhibits weeds.

And what about eucalyptus? For years we have been told that eucalyptus prevents germination and growth of surrounding plants. We have been told not to use eucalyptus as mulch. Recent research has turned this notion on its head. The University of California’s Department of Agriculture

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(Continued From Page 4—Allelopathy)

and Natural Resources (UCANR) Topics in Subtropics published an article recently by Ben Faber. It's entitled "[Euc as a Mulch????? Is Eucalyptus a Safe Material for Mulching Trees?](#)" The research made the point that blue gum roots are shallow and compete for water and nutrients, but it is "not necessarily a toxic plant". The research shows: Eucalyptus is safe to use as mulch.

Even the allelopathy of walnuts has been questioned by Linda Chalker-Scott, PhD, Associate Professor and Extension Horticulturist at Washington State University (*Chalker-Scott, Linda. (2019). DO BLACK WALNUT TREES HAVE ALLELOPATHIC EFFECTS ON OTHER PLANTS? (HOME*

GARDEN SERIES FS325E | PAGE 2 | PUBLS.WSU.EDU; https://www.nacaa.com/awards/apps/supplementals/14063-black_walnut_allelopathy_fs325e.pdf). If you have any doubts, drive around Solano and Yolo counties and take a good look at the weeds under the walnut trees. Her suggestions include providing adequate water for landscape plants during dry, hot weather as all plant roots compete for water, nutrients and oxygen. Plant plants where they get as much sun as they need to thrive. Mulch with wood chips including walnut chips to maintain the soil moisture and keep the beneficial mycorrhizae alive. Walnut chips won't harm your garden plants. That's good advice for all of us! ☺

GARLIC

Bob Labozetta, U.C. Master Gardener, Solano County

Now (October through March for succession plantings) is the time to plant garlic. There are two basic types of garlic. **Hardneck** garlics have hard, woody central stalks that extend down to the bottom layer or base of the bulb. They develop a long flowering stem called a scape that is edible. Curled and looped, they're tender and delicious. Cook them like asparagus -- sautéed, roasted, steamed, grilled, etc.; even eat them raw. Harvest the scapes in early summer, otherwise they'll weaken the plant resulting in smaller heads.



The cloves of hardneck varieties are easy to peel and pack more spicy flavor than softnecks, are fewer in number compared to softnecks, and they are fairly uniform in size. The bulbs do not store as well as softnecks, and should be used within four to six months of harvest.

Softnecks perform better in warm climates or spring plantings. They are better storers, lasting 9 - 12 months in ideal conditions. The bulbs have many cloves of varying size, and they do not develop a scape. Their stems remain flexible.

Purchase garlic bulbs from a quality seed company, local growers, garlic festivals, or your local Farmers Market. Plant more than one variety and observe differences in pest and disease resistance as well as flavor.

Garlic prefers light, well-drained loamy soil, rich in organic content, and having a pH between 6.5 and 6.7. Pick a location

that you have not recently used for garlic or other plants from the onion family, and be sure to test your soil first to determine if/what fertilization is needed. Use a digging fork to work a couple of inches of compost into the top 10' - 12" of soil. Consider adding kelp meal for good bulb development.

To plant garlic, remove the outer papery skin, then carefully separate individual cloves from the basal plate of the bulbs. Plant the cloves one to two inches deep, four to six inches apart in all directions with the pointy end up. Firm the soil and water the bed. Cover with a layer of straw, chopped leaves, or grass to protect from winter weather and control weeds. Move the mulch aside in early spring as the temperature begins to climb. Move the mulch back around the plants when the green tops emerge.

In early spring, consider side dressing the growing plants with 1 cup of nitrogen fertilizer per 50 feet of row in early spring when soil warms to 50-55°F. Blood meal, compost tea, and manure are good, organic sources of nitrogen. Repeat every four weeks and discontinue fertilization in late spring or bulb growth will be delayed.

Prune hardneck garlic when its flowering stalk (scape) uncoils and begins to straighten. Softnecks don't require pruning. Harvest garlic when the leaves begin to yellow or brown and fall over, but there are still about or 50% green leaves on the plant. Dig garlic rather than pulling it. Using a digging fork, dig down about 5 inches into the soil, lift the bulb out, and shake off the soil. ☺

Resource & Reference Information

<http://www.ucanr.org/blogs/blogcore/postdetail.cfm?postnum=28447>

https://www.herbsociety.org/file_download/inline/f751abad-cc5c-414f-89a5-b9e6b012ea70

DOTTIE DEEMS: 20+ YEAR MASTER GARDENER VOLUNTEER

Kathy Low, U.C. Master Gardener, Solano County



If you've stopped by the Master Gardener's Information table at the Vacaville Farmer's Market sometime during the past 20+ years, there's a good chance you met Dottie Deems. A Master Gardener (MG) since 1999, she loves staffing the information table at the Vacaville Farmer's Market. She said in the spring she can't wait for that first backyard gardener to walk up to the table and say, "Why don't I have any

tomatoes yet?"

She loves researching answers to other backyard gardener's questions and sharing information with them. She says, "That's what being an MG is all about to me, where to look for answers. I still make some terrible mistakes and I'm still learning!"

Dottie grew up in New York. She recalls her family buying and moving into a new home in Long Island when she was four years old. Being a brand new home, both the front and back yards needed to be landscaped. She fondly remembers having fun sliding down a big hill of topsoil in the yard. Eventually the yards held boxwood hedges, azalea and rhododendron plants, sassafras trees, a single apple tree, daylilies, mountain laurel, a long line of fir trees, two beautiful Japanese maple trees, honeysuckle, rose bushes, lily of the valley, an Italian plum tree, and a rose of Sharon tree, and lots of lawn.

Her father introduced her to gardening when she was a child. Dottie's passion for gardening grew from her love of her father, and helping him in the garden.

When she was about ten years old, Dottie and her sister were "transplanted to Southern California, Culver City to be more specific." She moved to Northern California for college and graduated from San Jose State University. She then moved back to Southern California, got married, and after several years, she and her husband moved to San Jose. Then about thirty years ago she and her husband moved into a new home off Browns Valley Parkway in Vacaville.

Dottie's special interest in gardening is orchids. She writes, "I have grown orchids for 25 years. They fascinate me with their incredible variety and colors. Hybridizers have created the most incredible color combinations. There is always something new

and different in the field of orchids."

With that in mind, I asked her what her dream garden would look like. She responded, "Lots of flowering plants for cutting and sharing. Color in the garden every day of the year. Flowering trees like Japanese Magnolias, lots of perennials including daylilies, iris, cosmos, dahlias, hellebores flowering in winter beneath the trees, and Stipa grass waving in the breeze. I'd want foliage of every color green! I love green!!"

Her advice to gardeners, "Do your homework before you spend money! Read product information online and on the product container before you buy something. If you are still unsure if it is the right product, call the Master Gardener Hotline at 707-784-1322 and ask for help. And do the math!!! Follow product directions in application, dilution, frequency of use, etc. It's vital. And don't believe in garden myths!"

When I asked her if there was anything else she wanted readers to know about her, she replied "I'm starting to teach a group of teenage girls about gardening. I want it to be fun and interesting for them as it was for me. I'd like to have them think of gardening as a springboard to school subjects that may not really interest them or that they think of as boring or difficult. Gardening can teach you about history, geography, math, the sciences, foreign languages, physical education, cooking, flower arranging, weather, climate change, religion, the arts, and on and on. I think gardening can open the door and spark interest in anything.

Thanks Dottie, for helping grow a new generation of gardeners!&

MASTER GARDENERS ARE A RESOUC E FOR YOUR GARDENING NEEDS!

UC Master Gardeners of Solano County are located at 501 Texas Street, First Floor, Fairfield, CA 94533-4498

For more gardening and event information, visit our website <https://solanomg.ucanr.edu/>. UC Master Gardeners staff a Helpline serving Solano County which is available 24 hours a day, 7 days a week. Call 707-784-1322 or email: mgsolano@ucdavis.edu. Our message center will take your questions and information. Please leave your name, phone number, a description of your problem, and your address. A Master Gardener will research your problem and return your call/email. With email, you can attach pictures of the problem, which may aid in the diagnosis of your plant question.

WATER, WATER, EVERYWHERE

Brenda Altman, U.C. Master Gardener, Solano County



All Photos in this Article by Brenda Altman

The current four-year California drought is a challenge to all. It is imperative that everyone does their best to save water. We can use less water in our homes by: using less water in a bathtub; taking 5-minute showers; installing high efficiency toilets (along with the “if its yellow let it mellow” technique); buying efficient washing machines; fixing leaks; and reusing rinse water for outside plants.

The above is all well and good but where does it leave gardeners who have trees, landscape plants and flowers, and vegetables? An excellent start would be to install drip irrigation on a timer. Another idea would be to collect rainwater. In all states except Colorado, you can capture and store rainwater. Cities such as San Francisco now allow you to decouple your rain water runoff from going into the sewer system.

Save that excess rainwater by capturing it before it hits the ground. There are several commercial storage containers on the market that you can buy. If you’re clever you can reuse industrial or commercial containers such as beer kegs or garbage buckets. There are several sizes and shapes of collectors. Depending on your budget, and shape and size limitations, pick the collector that will work best for you. Sometimes you may want a 200-gallon tank but it just won’t fit where you need it. Maybe you can reroute the water? Another idea is to line up tanks in a row so as one fills the excess goes into another and another. This of course takes some work. Always buy extra drain taps and plugs for your containers and put them on before you locate the tank. I have one tank I forgot to place a drain tap on, and when I decide to empty it, it will be one messy wet adventure. I’ll do it soon before it gets full.

Two problems arise from using a 30-gallon garbage bin for rain water collection: 1) the walls of the bin are not rigid and they may splay and splash water when full; and, 2) it is hard to seal the top of container so that mosquitoes cannot enter and breed.

After you’ve decided to save water, plan where to situate your collectors. Remember water flows downhill—check to see if your gutters were properly installed. I removed a covered patio and found that the downspout to the gutter system was on the high end. I scratched my head trying to figure out why the water would not drain. You would think the previous owner would have seen the problem. Okay, my problem now; I fixed it.

The next step is to locate your collector at the down spout. Cut the down spout and install fittings that will allow the water to flow into your collector. On large tanks elevate the tank above ground level so you can get a head flow of water so that it drains efficiently. You can also install a small flow-through pump to empty your tank. How much water you save is up to you. I have three 200-gallon tanks and five 65-gallon tanks around my house and garage. I’d like another 200-gallon tank to replace one of my 65-gallon tanks. Where a lot of water runs off, have a lot of area to store water; you probably won’t be able to save every drop that comes off your roof. That means you should use some water between rainstorms. Use buckets of rain water to flush your toilets. Use the water to wash your car. Use it for plants if it hasn’t rained in four or five days.

Depending on your budget and skill level, you could interconnect all your collectors and pump them into your irrigation system. Right now, I just use hoses to tap the water and put it on my plants. When I started, it seemed so simple to put a bucket under the downspout, collect it, and distribute it. It’s not that simple, especially if you want to eliminate a lot of labor distributing the water. Learn from your mistakes, take classes if they are offered, and ask questions.



Even more elaborate water saving techniques, such as reusing gray water for reuse are possible. The San Francisco Public Utilities Commission has a program and classes for urban farmers regarding collecting and using gray water <https://sfpuc.org/learning/conserves-water/save-water-outdoors>. ✕

ADDITIONAL RESOURCES

Water Tanks:

<https://bushmanusa.com>

<https://www.tank-depot.com>

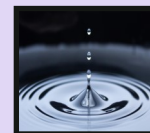
Grey or Gray Water Information:

<https://wateraction.org>

<https://waterwisegroup.com>

Gray Water Manual and Tank Piping and Accessories

<https://urbanfarmerstore.com>



IRENE'S MAGIC: AIR LAYERING A LEMON TREE

Patricia Matteson, U.C. Master Gardener, Solano County, with Irene Flora

My husband and I inherited a wonderful Meyer lemon tree in the yard of our new home in Suisun City. Its cascades of lemons are the prettiest, sweetest, juiciest. Friends and neighbors with whom we share them clamor for rooted shoots. For years I tried but never succeeded at cloning this wonder until—Irene worked her magic!

My neighbor Irene loves plants and they love her. She specializes in succulents and bonsai, but she too had her eye on our lemon tree. After my attempts to root cuttings for her failed, she asked to try a technique she uses to create bonsai trees from the branches of woody plants. I was unfamiliar with it before she showed me; later I found it on the Internet under the terms "air layering" and "marcotting."

Air layering stimulates root growth on a branch while the branch is still attached to the parent plant. Once enough roots have grown to support the branch, it can be cut off the original plant and grown separately. Air layering is best started in spring or early summer, when the plant you want to propagate is actively growing.

This is a step-by-step "how to" with photos of Irene's process:

Step 1: Pick your new plant. Choose one or two feet of the end of a healthy branch for rooting. For optimum rooting, start air layering in the spring on stems produced during the previous season or in mid to late summer on stems from the current season's growth. The branch end should make a well-formed clone.

Step 2: Shave stem to stimulate rooting. For woody plants, rooting stems of pencil size diameter or larger is best. Identify an area just below a node for root development and eventual separation from the tree or shrub. Using a sharp blade sterilized with alcohol or diluted bleach, remove leaves and twigs 3 to 4 inches above and below that point. Then use the blade to scrape off the brown bark and green cambium completely around a one- to two-inch length of stem, leaving the white heartwood exposed.



Step 2: Shave Stem to Stimulate Rooting

All Photos in this Article by Patricia Matteson

Step 3: Rooting hormone. Apply rooting hormone in gel or moistened powder form to the exposed heartwood.

Step 4: Prepare rooting medium. Commonly used media include garden soil, potting mix, peat moss, and sphagnum moss. Different plant species may do best with different media. Irene uses damp peat moss to create a humid substrate for sprouting roots. Use enough rooting medium to fill an 8-12 oz plastic cup. Soak it in a bucket of water until it is completely saturated, then compress it until it is wet but no longer drips.



Step 5: Cut a Plastic Cup



Step 6: Cover Rooting Site With the Cup Full of Rooting Medium



Step 7: Wrap the Cup in Soft Plastic

Step 5: Cut a plastic cup. Using scissors, cut a plastic cup down one side and to the middle of its base, then cut a circle out of the center of its base.

Step 6: Cover rooting site with the cup full of rooting medium. Spread the "wings" of the cut cup to place it around the shaved area of the stem, with the wide end of the cup upward. Press the cup back into almost the original shape (the cut edges will overlap slightly). The stem should run up through the center of the cup from the hole at the base. Fill the cup with the damp rooting medium, completely covering the rooting site.

Step 7: Wrap the cup in soft plastic. Several layers of clean soft plastic should be wrapped around the cup to make it watertight. Use string or yarn to bind the plastic tightly around the cup and to seal the plastic around the stem. If the plant receives a lot of direct sunlight, or if the weather is hot, wrap aluminum foil around the bundle to help retain moisture. [Note: a cup makes it easier to handle the rooting medium and helps retain moisture, but using a cup is optional. One can simply wrap transparent plastic around the ball of rooting medium that covers the rooting site, tying it off tightly around the stem on either side so that the bundle is watertight. Roots will be visible through the plastic.]

Step 8: Be very patient. Keep in mind that, even though it is more reliable than rooting cuttings, air layering sometimes fails. When it works, it takes several weeks to several months for the stem to produce enough roots to sustain the cloned branch. Irene's rule of thumb is to check at the five-month mark. We

(Continued on Page 9)

(Continued From Page 8—Irene’s Magic: Air Layering a Lemon Tree)

used “found” materials as far as possible, including an opaque red plastic cup, so checking entailed unwrapping the cup and peeking at the contents. In hindsight, using a transparent cup would have enabled us to check rooting progress frequently without disturbing tender new roots or risking drying of the rooting medium.

Step 9: Detach and pot your new plant.

When enough of a root ball has formed to allow for the new plant’s survival, remove the plastic and cup and cut the stem between the root ball and the mother plant. Voila, a rooted clone ready for planting! Carefully place the new plant in a container with potting soil. The roots should be far enough below the surface so that the newly propagated plant is able to sit upright, but not so deep below the level of the potting soil that the stem might rot. If in doubt that enough new roots have formed, remove most of the leaves and smaller twigs from the new plant to ensure that the roots are able to cope with the transpiration needs of the foliage. Keep the plant well-watered and out of direct sunlight until the



Step 10: Celebrate! Irene With Rooted Clone

root system is well developed. When the new plant starts to show vigor and growth, return it to normal light conditions and gradually resume fertilizing.

Step 10: Celebrate! Irene and I are delighted to have cloned the wonderful Meyer lemon successfully at last. She has a new lemon tree, and I learned a propagation technique that will serve me well. ☘

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 Jomo Studio, August 11, 2021. *Propagation 104: How to Propagate by Layering & Seeds*, <https://jomostudio.com/blogs/plant-with-jomo/propagation-104-how-to-propagate-by-layering-seeds> Propagation 104, viewed 11/20/2021.
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 NParks Buzz monthly newsletter, October 2021. Air-layering - A Viable Way of Propagating Woody Plants. National Parks Singapore, <https://www.nparks.gov.sg/nparksbuzz/oct-issue-2021/gardening/air-layering---a-viable-way-of-propagating-woody-plants>, viewed 11/20/21.

FABULOUS FICUS

Cindy Yee, U.C. Master Gardener Trainee, Solano County



All Photos in this Article by Cindy Yee

A giant tree child lives in our home. It is a few years older than our 28 year old firstborn. Twelve feet tall by 15 feet wide, *Ficus benjamina* aka “weeping fig” is regularly pruned. If allowed to grow unchecked, I suspect it might have reached the 30 foot ceiling long ago.

It all began in San Jose around 1990, when my brother-in-law drove down from Fairfield to visit us. In the open back of his flat-bed truck, he brought a gift; a 2 foot tall wind-whipped *Ficus* tree. Most of the leaves were gone by the time he arrived, and its thin branches were drooping. Charlie Brown’s Christmas tree is the closest description that comes to mind.

Still, it was very nice of him to think of us, and we carefully put the *Ficus* in a corner of our somewhat dark living room. For a while, it looked like a goner, but after repotting and regular watering, the tree eventually sent out tiny leaf buds. Our first baby was born, and we moved to Fairfield in the same year - 1993. This time, *Ficus* made the move in the backseat of our

Honda accord, next to our baby.

It wasn’t until *Ficus* was placed in the living room of our new Fairfield home that it really began to thrive. This didn’t happen immediately. Every time the tree is moved significantly, it drops leaves and goes into an “I am so shocked you moved me” state. It took a couple months to acclimatize to the bright light from all the windows, including the enormous arch shaped window. In this special spot, *Ficus* grew to its current height. People who enter our home immediately notice and admire this beautiful rainforest tree. Apart from being a focal point of the room, it serves as a natural divider between living and dining spaces.

Then suddenly and without warning, the tree started to drop leaves. It had not been moved, yet leaves were yellowing. My husband decided a drainage system was required, so this is what he installed: a hose tapped into the base of the pot.

It worked perfectly. The tree



(Continued on Page 10)

(Continued from Page 9—Fabulous Ficus)

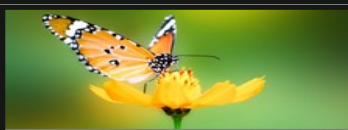
perked up, stopped shedding and we have not had a repeat episode since that time. Overwatering is never a problem. Excess water drains into the jug, that we empty. To prevent the tree from outgrowing its 18 inch diameter pot, my husband prunes it annually. He covers the ends of cut branches with little bits of tissue to absorb the sap that comes out; surprisingly, there is a lot after a cut. The tree is watered weekly in summer, and twice a month in winter. I add drops of a balanced houseplant fertilizer, and also if the timing is right, rice water (left from washing uncooked rice grains). When the tree is watered, enough water is applied so that the top of the soil is completely covered to ensure water goes throughout the pot. If watered too slowly the water might channel down a narrow path. It's important to get water to all of the soil in the pot. Enough water is added so that it goes to the overflow water jug. The water that is collected can be put through the soil again to put those leached out nutrients through the soil one more time. The drainage pot system is the key to good watering.

There are many varieties of *Ficus*, approximately 850, which belong to the family *Moraceae*. It is native to India and Malaysia, but has naturalized elsewhere. The common fig tree is a *Ficus*

carica. The huge banyan trees of my childhood home in tropical Malaysia are *Ficus benghalensis*. An aside: when the Tarzan of the Apes movie was released in Malaysia, locals believed that he and his ape friends swung from the vines of banyan trees like ours. Our own *Ficus benjamina* is a popular houseplant sold at most nurseries. It prefers a bright sunny location but can survive in shade. As we have experienced, the tree is highly sensitive to movement. Even a few feet (workers shifted it when our flooring was done two years ago), will send it into a pout. Since *Ficus* is a tropical tree, temps should not drop below 55°F and it should be protected from drafts. Once settled into the right place, *Ficus* is fairly low maintenance. My neighbor's pretty variegated *Ficus* looked sparse and sad for years. Once she moved it to another spot, it perked up and grew significantly. *Ficus* typically reach 10 feet tall indoors, but in tropical areas such as Hawaii, they can reach 30-50 ft tall by 30 feet wide, and more.

When my brother-in-law and family visited us during Thanksgiving, we admired the tree together, and thanked him again for gifting us this fabulous *Ficus* so many years ago. ❁

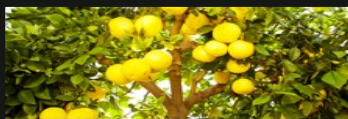
MASTER GARDENER RESOURCES



The California Garden Web >>>

The California Garden Web serves as a portal to organize and extend to the public the University of California's vast collection of research-based information about gardening.

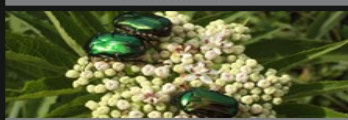
<http://cagardenweb.ucanr.edu/>



The California Backyard Orchard >>>

Visit The California Backyard Orchard to learn about the home orchard and understand that it is, in fact, a living expression of genetics interacting with soils, weather, tree spacing, pests, and many other factors.

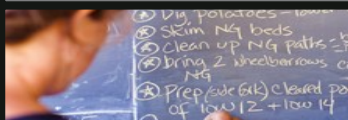
<http://homeorchard.ucanr.edu/>



Integrated Pest Management (IPM) >>>

Integrated Pest Management, or IPM, is a process you can use to solve pest problems while minimizing risks to people and the environment. IPM can be used to manage all kinds of pests anywhere—in urban, agricultural, and wildland or natural areas.

<http://ipm.ucanr.edu/index.html>



ANR Publications >>>

Find quality peer-reviewed products produced by UC Division of Agriculture and Natural Resources (ANR) at the click of a mouse. Whether you're looking for advice on crop production, pest management, study materials for Department of Pesticide Regulation (DPR) exams, nutrition, or gardening, you'll find it in the ANR catalog.

<https://anrcatalog.ucanr.edu/>



Arboretum All-Stars >>>

The horticultural staff of the UC Davis Arboretum has identified 100 tough, reliable plants that have been tested, are easy to grow, require little water, have few problems with pests or diseases, and have outstanding qualities in the garden. Many of them are California native plants that support native birds and insects. Most All-Star plants can be successfully planted and grown throughout California.

<https://arboretum.ucdavis.edu/arboretum-all-stars?id=4>

CARE AND MAINTENANCE OF GARDEN TOOLS

Nanelle Jones-Sullivan, U.C. Master Gardener Trainee, Solano County



All Photos in this Article by Nanelle Jones-Sullivan

Does anybody else misplace or neglect their garden tools? If YouTube videos tell us anything, a lot of us neglect some of their garden tools. This year will be different! A good pair of pruners could last a lifetime and be cheaper than buying a new pair every time one gets dull.

Well cared for, clean, sharp pruning tools improve performance and give a cleaner cut, which reduces the risk of introducing plant diseases and makes pruning more effortless and pleasurable. Here is what I learned:

“The Spruce “ website (<https://www.thespruce.com/how-to-clean-garden-tools-4799140>) says you should clean and sharpen pruning shears at least once a year, “at the beginning and end of the season. Tools coming into contact with the ground should be cleaned off before storing. Never put away without cleaning off mud. Mud can usually be blasted off with a jet of water, but if dirt has hardened you may need to soak metal parts first, before wiping clean or using a brush.

Lubricants help protect moving parts, blades, or tines from moisture and rusting. For tools that may come in contact with soil, vegetable spray is better because petroleum-based spray may pollute soil.

After using pruners, rinse or wash and dry them with a towel. Leave them open and in good air flow to dry as quickly as possible, and recoat with lubricant before next use. You can use a steel wool, and/or apply 3-IN-ONE Multi-Purpose Oil, a blade cleaner or a citrus solvent to remove sap and plant goo. Sanitize with a product with quaternary ammonium salts or 90% alcohol instead of bleach, which can be hard on metals. Sanitizing is especially important when there is risk of spreading disease.

It’s important that pruners are tight at the axle. If the axle/blade to anvil space is too great, the blade can actually take on an angle and strike the anvil, rather than rub past it. This could damage both parts. If you want tools with replaceable parts, brands such as Felco, Corona, and Fiskar, provide replacements.

Rust Removal

If the rust has deeply eaten into the cutting edge, it may be better to just not bother. If it’s just on the surface, scrub it off with steel wool. For bad rust areas on pruners, it’s sometimes best to completely disassemble the pruners.



“My Machete; Poster Tool for Neglect” – Nanelle Jones-Sullivan

Kevin Espiritu of Epic Gardens explored a few options on YouTube:

- Baking soda and water paste for a little tune up; half hour, then steel wool.
- Vinegar and salt and method; 16:1 vinegar to salt ratio. Takes a half a day to three days in a shallow bowl, then back in water with 2 Tbs baking soda to neutralize.



Machete After 24 Hour Vinegar Soak

The vinegar soak removed some, but not all of the rust on my machete, so later I tried Rust-Oleum gel. (Note: the Rust-Oleum instructions say “Do Not Let it Dry”.) Some say the easiest, fastest way to remove rust from parts is a Dremel tool, fitted with a wire wheel or wire brush, safe and careful, outside, with safety glasses and a dust mask. It didn’t rescue my machete with the dried-on Rust-Oleum.

Sharpening

On **bypass** type pruners, with a single cutting blade; one side beveled and the other side flat, sharpen only the beveled edge. Its the one that looks like a blade, and faces away from the anvil. With an **anvil** pruner, where the cutting blade strikes, rather than bypasses the anvil, sharpen both sides of the cutting blade.

A flat file can sharpen many things, but a stone or “paddle file” may be best for hardened steel. Sharpen the outside edge of the pruner blade, sliding the blade down the file, along the blade edge, base to point and matching the existing angle of the blade. Remove the burr on the other side with a few strokes of the sharpener held flat. You can also use carbide, which is harder, but more aggressive and may take off too much. Finally, use a water dispersant to get water out of crevices, followed by a very light coating of oil to protect. ✕

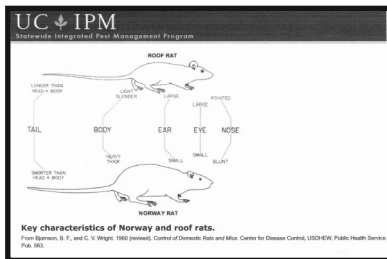
Sharpening Videos

Bypass pruners/secateurs with Felco stone https://youtu.be/V-zO8gk_6BA
Bypass pruners/secateurs with Corona carbide <https://youtu.be/k9AddV33lpw>
Anvil pruners/secateurs with a paddle file https://youtu.be/ys_yvQ8nBQU

GOT RATS?

Sherry Richards, U.C. Master Gardener, Solano County

Most of us do not want rats living in or around our homes or gardens but they sometimes do, and may show-up any time of the year! The University of California (UC) Statewide Integrated Pest Management (IPM)



Program has scientifically studied articles called “Pest Notes” covering the biological, cultural, mechanical, and physical controls for home and garden pests - chemicals used as the last resort. You will find Pest Notes, for example about **rats**, moles, voles, gophers, insects, and “pesty” weeds/plants found in California gardens.

IPM helps identify pests - the first step in pest management.

Sometimes critters, insects and plants look similar, but management is different. To find a pest note: Google: <http://www.ipm.ucanr.edu>. Open the home page and click on “Home, Garden, Turf and Landscape Pests.” The “**Quick Tips**” Library has simplified information for many common pests.

UCCE Master Gardeners will also help identify pests, their management, or answer other gardening questions. Reach us at: Hotline telephone 707 784-1322 or by email: mgsolano@ucanr.edu.

The following is general information about two rats around here, which I hope you find helpful and interesting. Please refer to the “Rat Pest Note” (ipm.ucanr.edu/PMG/PESTNOTES/pn74106.html) for complete details!

The **Norway Rat** (*Rattus norvegicus*) aka brown or sewer rats, and **Roof Rat** (*R. Rattus*) aka black rats, are two of the most troublesome and damaging rats. Norway, roof rats and mice came here by ship from Europe from 1500 through the 1700’s.

- Norway rats are powerful swimmers - roof rats agile climbers.
- Rats provide food for owls, hawks, eagles, snakes, and other critters.
- “Rats eat and contaminate foodstuffs, and animal feed.” Both species gnaw on electrical wires, wooden structures such as doors and wall material and “tear-up” building wall insulation for nesting purposes.
- “Among the diseases rats can transmit to humans or livestock are murine typhus, leptospirosis, salmonellosis (food poisoning), and rat bite fever. Plague is a disease that

both roof and Norway rats can carry, but in California it is more commonly associated with ground squirrels, chipmunks, and native woodrats.”

- Both rats get into buildings by gnawing, climbing, jumping, or swimming from sewers into toilets or broken drains.
- Burrowing Norway rats can undermine building foundations/slabs. If they move indoors, they tend to live in basements/ground floors.
- Roof rats usually live and nest above ground in shrubs, trees, dense vegetation, indoors in attics, walls, false ceilings, and cabinets.
- Both rats eat a variety of food including cereal grains, meat, fish, nuts, fruit. Roof rats like snails, slugs and will eat lemon rind and make a hole in oranges eating the contents while leaving the orange rind.
- **These rats do not like each other:** Norway rats are dominate, larger and win fights with roof rats.
- Rats “have poor eyesight but make up for this with keen senses of hearing, smell, taste, and touch. Rats constantly explore and learn, memorizing the locations of pathways, obstacles, food and water, shelter and features of their environment.”
- Rats have **neophobia - avoidance of new objects** - so they may avoid traps/bait for days after initial placement.

Got Rat Trouble?

Evidence of rats include:

- Droppings around pet food dishes or bird feeders; in garages/drawers; storage buildings or attics
- Noise from the attic.
- Rat nests
- Evidence of feeding on fruits/nuts fallen from trees; burrows among plants; damaged vegetables
- Rats traveling along utility lines or fences at dusk
- Rat fur “smudge” marks from rubbing against beams, rafters, pipes or walls moving around
- Discovering burrows beneath compost piles or signs of digging under garden buildings or doghouses

Rat Management

Sanitation/Ongoing Rat Control:

- Reduce shelter and food sources from Norway rats (somewhat for roof rats) by using “off-the ground storage of pipes, lumber, firewood, crates, boxes, gardening equipment, and other household goods...”

(Continued on Page 13)

MASTER GARDENERS IN THE COMMUNITY

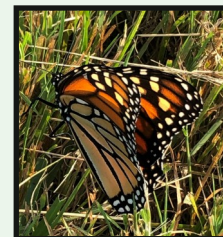
As pandemic restrictions are lifted, Solano County Master Gardeners will continue to expand our presence in the community. Stay tuned to find out where we are!



VALLEJO FARMERS MARKET



Saturday's 9:00am to 1:00pm
Corner of Georgia and Marin Streets
FREE parking
(Rain cancels)



Please come and discuss your gardening with us, problems or not. We are there to help with suggestions of reading material, handouts on various subjects, both plants and insects, and subjects related to gardening. We learn so much from your experiences in your landscapes!

(Continued from Page 12—Got Rats?)

- Collect garbage, trash, and garden debris frequently using garbage receptacles with tight-fitting lids. Do not leave more pet food outside than pets eat in a day; store pet food in rodent-proof containers.
- Roof Rats: thin dense vegetation and climbing hedges such as star jasmine or honeysuckle on fences and buildings to reduce entry; trim overhanging tree limbs within three feet of roofs; try to separate densely growing plants from one another and buildings by two feet or more – making it more difficult for rats to move between them.
- Population Control: limit food, water, and shelter.

Norway versus roof rats. **Remember to keep traps out of reach of children and pets.**

“Don’t touch rodents with your bare hands and wash thoroughly after handling traps. Use disposable gloves to handle dead rodents. Dispose of dead rats by burying them or by placing them in a sealed plastic bag and putting them in the trash.” - UCANR [Rat Pest Note](#)

Rodenticides- Toxic Bait:

Please see the rat pest note for specific information about when and how to use in your home and garden including **proper disposal of uneaten bait and dead rodents after using rodenticide applications.** ☒

Building Construction/Rodent Proofing:

Seal cracks and openings in building foundations and any openings for water pipes, electric wires, sewer pipes, drain spouts, and vents. “No hole larger than ¼ inch should be left unsealed to exclude both rats and house mice.” Rats can squeeze beneath doors with a ½ inch gap. The [Rat Pest Note](#) has more information including repairing damaged ventilation and other screens in attics, windows, around foundations, under eaves and other exclusion recommendations.



*Adult Roof Rat
Photo by Jack Kelly Clark*



*Norway Rat
Photo by Jack Kelly Clark*

Trapping/Removing Rats:

Trapping is the safest most effective way to control rats around homes or structures. The [Rat Pest Note](#) has details on traps and bait. See the rat pest note for trap placement – it is different for

Resource Information

UCANR – IPM – Pest Notes for Rats 09/2011; “Quick Tips Rats 05/2018; jpm.ucanr.edu/PMG/PESTNOTES/pn74106.html

Arizona State University Cooperative Extension, 3/2002 “Roof Rat Control around Homes and other Structures” Lawrence M. Sullivan Extension Wildlife Damage Control Specialist

LABELS: FERTILIZERS, PESTICIDES, FUNGICIDES, HERBICIDES...WHAT'S THE DIFFERENCE AND WHAT DO ALL THOSE NUMBERS MEAN?

Michelle Krespi, U.C. Master Gardener, Solano County

If you're anything like me you have stood in the hardware store looking at all the different products available to both nourish your plants and keep the pests away. If you're either a beginning gardener or a veteran, one those labels with their many numbers can be very confusing. What do those numbers mean? Hopefully this article will help you decode those product labels!

Let's start with the fertilizers, since just like us, feeding your plants is one of the most important things you can do to help your plants thrive. Fertilizers contain nutrients, they are not "plant foods." Nutrients are directly absorbed by plant roots, and in some cases by foliage. Plants use nutrients to make carbohydrates, proteins, defense compounds, and other compounds¹. By law you will find three numbers, usually on the front, in bold print. These numbers represent the three main macro-nutrients, present in a complete fertilizer², **N-P-K**. The **N** is for nitrogen, **P** is for phosphorus and **K** is for potassium. These numbers help us to understand and choose the right formulation for whatever we are trying to grow. The nitrogen helps the leaves and stems to develop. The phosphorus helps the plant put down strong roots and helps the plant produce buds and fruits. Potassium helps with the overall health of the plant.

Pesticides, fungicides and herbicides are completely different compounds. A pesticide is any substance used for preventing, destroying, repelling, or mitigating any pest³. An herbicide is a substance used to destroy unwanted vegetation. A fungicide is an agent that destroys fungi or inhibits their growth⁴.

There are three categories of numbers found on pesticide labels. The most visible numbers are the active and inert ingredients which are listed as percentages. Next are the EPA registration and the establishment number, which is required on all pesticide products. The EPA number lets us know which company holds the registration for the product, and the establishment number indicates the final establishment at which the product was produced. I think the most important part of the pesticide label are the directions on how to mix, apply, store and dispose of the product. Don't underestimate the toxic nature of these products. When it comes to toxicity the most important words are called signal words. These signal words range from the least severe, "caution," increasing to "warning" for the next dangerous, and finally, the most severe being "danger/poison⁵!"

Fungicide labels are a little different. Fungicides are grouped by

"families" or "classes" that share both a common mode of action and their chemical structure. The Fungicide Resistance Action Committee (FRAC Code) has developed a code of numbers and letters that are used to distinguish the different fungicide groups based on their mode of action. These FRAC Codes will be on the label. For more information go to www.frac.info⁶.

The last group are herbicides. The numbers to pay attention to are primarily the group numbers. The group number let us know what pesticides are lumped together because of their similar mode of action. This helps us avoid duplicating the use of a certain chemical compounds to avoid creating pest resistance to that particular group of herbicides⁷.

There is so much important information on these labels, including where and how to use these compounds and the safety precautions to take for both you and your plants. It is really worthwhile to invest a little time and effort unfolding these labels and reading the information inside. My hope is that after reading this you will be a little less intimidated by the small print, technical terms and length of these handy instructions. Your plants and your body will thank you and the planet will appreciate your stewardship. Remember if you get stuck call your local Master Gardener hotline, 707-784-1322. ✕



Footnotes:

- 1—University of Maryland Extension, Fertilizer
- 2—A complete fertilizer refers to the inclusion of N,P & K
- 3—Definition from the EPA
- 4—Definitions from Merriam-Webster Dictionary
- 5—North Carolina Extension Pesticide Safety Education Program
- 6—Information taken from the Pesticide Environmental Stewardship website
- 7—Cropwatch- Institute of Agriculture and Natural Resources

PROTECTING TENDER CROPS

Tina Saravia, U.C. Master Gardener, Solano County

Many years ago, when I first moved to Solano County, I bought a young Bearss Lime tree (*Citrus x latifolia*), also known as Persian or Tahitian lime. Lime trees are some of the more frost-sensitive citrus plants, but this was the most frost-hardy of the different lime trees available at the time.

Despite my effort of covering it in the cold winter days and nights, my poor little tree didn't make it. I kept it until spring, hoping it would sprout some new growth, but it was done for good.

Fast forward to the present, I have had multiple citrus plants and other frost tender crops, and I've learned a few things along the way. But, it's always good to check from time to time.

First and foremost to avoiding cold temperature death of plants, is to pick species that will most tolerate cold temperatures in the garden. But that is often impossible, as we tend to pick plants based on other factors such as aesthetics, flavors of the fruit, or garden style, and not necessarily temperature tolerance.

Protecting these tender crops is our best strategy. Contrary to what some people might think (including myself), keeping mulch close to the plant does not help to warm the soil. Instead, rake away the mulch and keep the soil bare and pull out weeds to help the soil absorb heat and radiate it towards the plant.

Water the plant at least 3 days before expected frost or freezing to further help the soil retain heat. Freezing and frost produce the same damage on the plants but some of the management strategies are different.



Potted lemongrass (*Cymbopogon citratus*) next to a south facing wall

Photo by Tina Saravia

For frost protection, cover tender plants with cloth or similar material but leave the bottom part open so heat from the soil can help warm the plant; make sure that none of the cover

touches any plant parts, like the leaves or branches. Take the cover off in the daytime.

During a freeze, covering the plant is not enough unless a heat source, like outdoor incandescent lights or outdoor Christmas lights, are provided.

Other practices that can help with protecting these plants are:

For potted plants that can be moved, move them close to the house where they can absorb radiated heat. South or southwest facing walls, where the sun hits it all day, are ideal. West and east facing wall are less ideal, but will still help if those are all you've got. A north facing wall that's in the shade all day is even less ideal, unless you can provide other means of keeping the warmth, like a cold frame.

A cold frame is basically a structure like a greenhouse that does not have artificial heating. It can be very small to very big, depending on your needs. The covering can be made of thick clear plastic to let the light in.

Another option for potted plants is to move them indoors, preferably in a room that's heated. If not, the house is still better than the outdoors. The garage will also work if there's no room in the house. This may work better for taller and bigger plants.

If the plant is too big to move like a small tree or shrub in a wine barrel, or if the plant is in the ground, covering the trunk with insulating material like palm fronds, or cardboard can also help.

Should the plant get any frost or freeze damage, do not prune any damaged leaves or branches, or toss-out the plant until spring or summer, when new growth starts and you know for sure what parts are dead.

Speaking of pruning, refrain from pruning too late in the fall. If the plant starts new growth, those new buds will be more tender and more susceptible to being damaged.

This is by no means a complete list of management practices for taking care of tender crops, but if we use these techniques, we're on our way to better winter success in our gardens.

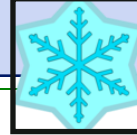
Below are some links that discuss freeze and frost protection in more specific details:

- <http://ipm.ucanr.edu/PMG/GARDEN/ENVIRON/frostdamage.html>

- <https://anrcatalog.ucanr.edu/pdf/8100.pdf> ❖



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 gladiolus, 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 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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