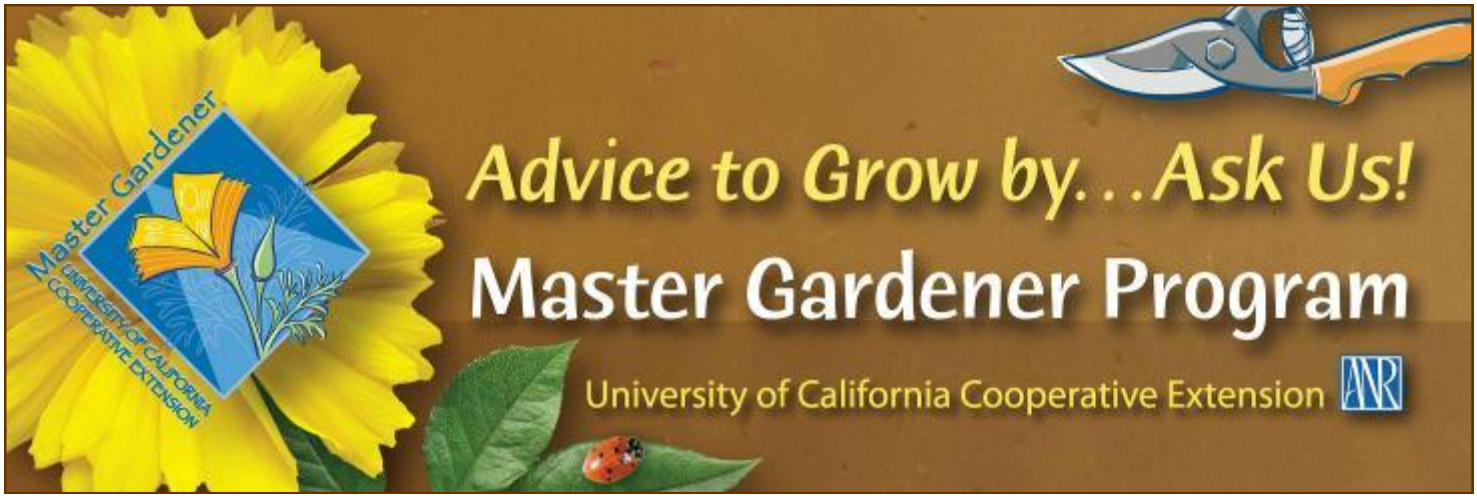


Issue #40 Amador/El Dorado County Master Gardener E-News **November 2013**

Protecting Your Plants In Winter

Have you been enjoying the warm fall weather, sitting outside enjoying the fruits of your labors over the spring and summer?

As much as we enjoy the warmth, winter is coming with cold, rainy (we hope) and windy weather. So now the time has come to put your plants to bed for the upcoming season.

Last winter UCCE Amador and El Dorado County Master Gardeners took pictures of their gardens showing what they did to protect their plants.

They use a multitude of techniques which we are sharing, along with the photos on the next few pages.

Several gardeners drape row covers over PVC pipes, attaching the covers with clamps or rebar to keep their specimens safely beneath. Another gardener is lucky enough to have a greenhouse and moves cold intolerant plants to a safer location. For those without a greenhouse, moving plants inside the house works just as well at night, although labor intensive! Another gardener uses a little zip-up greenhouse with an incandescent light which stays on when the temperature drops into the 30's. Also some gardeners utilize the eaves of their house to protect hanging baskets and planters from frost.

Vermicompost and heavily mulched berry beds was also used, but after cleaning away all of the debris in a garden bed. Several gardeners use various sized pod covers to help deal with frost and snow on their plants. Teepees were also a theme mentioned for protecting some plants and are easily built and can be sized for the plant in need of protection. For larger plants just take a few T posts, some drape (an old sheet works well) and some twine and you have a fully functioning teepee!

Citrus in our area is very popular but does not respond well to the cold and snow. Several gardeners have interesting variations on teepees. One variation is to use bubble wrap around their small citrus tree in a pot and protective cloth over the tree if it snows. They reuse the bubble wrap each year.

Another uses Christmas lights wrapped around the trees,

Continued, Page 2

Inside this issue:

Contact Your Local Master Gardener

Amador County
209-223-6838
Office hours: 10 am—Noon
Tuesday—Thursday
mgamador@ucdavis.edu

El Dorado County
530-621-5512
Office hours: 9 am—Noon
Tuesday—Friday
mgeldorado@ucdavis.edu

UC CE UC Cooperative Extension Central Sierra on Facebook Like

Protecting Your Plants From The Snow, *Continued from Page 1*

adding frost bags with holes to promote air circulation over the top of their trees. Another MG wraps heat tape (normally used to protect rain gutters from freezing) around his citrus trees and puts up an umbrella to keep the snow off the branches.

Finally, several gardeners say "It's every man (plant) for himself!" If the plants can't survive the winter then they don't use those specimens in their garden. Whatever method you use to over winter your plants, it's getting to be that time again. Enjoy the last few weeks of warm weather and get ready for the cold, the wind and hopefully the rain!

Subject: **Blue/Rasp/Blackberry Beds**
MG: **Cindy Young**
Approach: Put vermicompost down, then compost with shredded leaves/pine straw and continue doing so until the danger of frost has passed. In addition, put cherry wood shavings around the blueberries. Continue to mulch the raspberry and blackberry (thorn-less) bed after cleaning up all debris.

Subject: **Cactus and Succulents**
MG: Roberta Handen
Approach: Bring cactus and succulents indoors, or if this cannot be done, use a pod cover. Below, a large pod cover protects a Jade plant and medium pod covers clusters of succulent pots.

Continued, Page 3

Protecting Your Plants From The Snow, *Continued from Page 2*

Subject: **Potted Citrus Tree**
MG: Noreen Goff
Approach: At 1700 feet, Noreen has seven citrus trees in pots. Two are close to the house on the deck. The remaining are in the yard where she keeps them covered when the temperature dips. In November she places three stakes around the edge of the pots. She has frost cloth cut and weighted with heavy washers sewn in at the corners. When the temperatures are projected to dip below freezing, she puts the frost cloth over the stakes and fastens it with large binder clips.
So far so good, and she has never had to retrieve the frost cloth from the neighbors' yards.

Subject: **In Ground Meyer Lemon Tree**
MG: Dennis Miller
Approach: Meyer lemon trees will not survive at 2600' without a lot of tender-loving-care. In the past, Dennis used two rows of old style Christmas lights to keep the tree from freezing. However, bulb replacement and power use throughout the cold months was expensive so when Lorne Bonkowski introduced him to heat tape he decided to try it.

Place 4 T posts with 4 ft. wire to cage the tree; then place a tarp over the wire on the north side to insulate.

Wrap heat tape loosely over the branches.

Tape thermostat to a metal pipe (center) to register the temperature.

Heat tape is a wire placed in rain gutters in the cold country to protect them from freezing. You can purchase it preassembled with a thermostat in place or you can buy it by the foot then add a thermostat to it.

Continued, Page 4

Protecting Your Plants From The Snow, *Continued from Page 3*

Dennis uses a 36' pre-assembled unit. It cost $36 and uses one watt of power/foot which equates to 36 watts/36 feet. This is less power than a 40 watt light bulb. The thermostat comes on automatically at 45 degrees and shuts off at 47 degrees. This system was less expensive and very effective.

Dennis had been picking lemons for two months and the tree was still going strong at the end of last February.

Attach black plastic to remaining wire fence.

Telescope old umbrella in a metal pipe.

Tree gets sun light during. the day and keeps warm at night

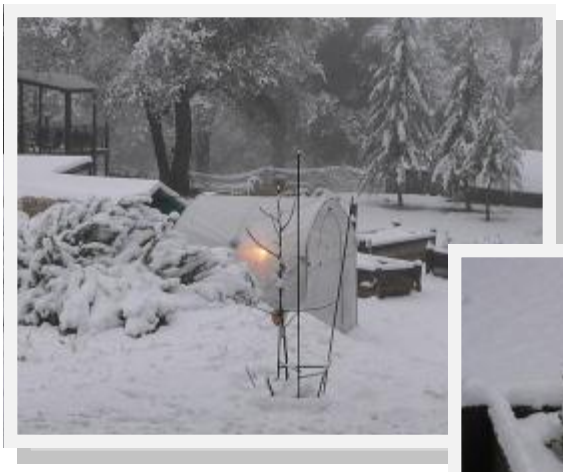
Subject: **Flowers**
MG: Robin Stanley
Approach: Plant metal flowers and/or bring your treasures under the overhang. Or for your Abutilons, create a tepee to protect them all through the winter.

Abutilon

Continued, Page 5

Protecting Your Plants From The Snow, *Continued from Page 4*

Subject: **Cabbages**
MG: Kathy Ruiz
Approach: Kathy overwinters her cabbages. She uses row cover, clamps and PVC pipe. The clamps hold the cover on the pipe. As you can see from the picture of the uncovered cabbages, she has had great success with this approach.



Subject: **Overall Garden Protection**
MG: Mary Tran
Approach: Mary uses two approaches. One is to use a plant box covering along with a heat lamp and the other is to let the snow act as a natural insulator.

Subject: **Architectural Exposure**
MG: Jan Teichman
Approach: This row cover is against the south side of Jan's stucco house which provides lots of warmth. In addition, only the west section of her garden is open to the elements adding further protection to all the plants in the garden.

*

Have You Seen A Rain Beetle?

They only fly during rainstorms just before sunrise and just after sunset.

Rain Beetles belong to the enigmatic genus *Pleocoma* (Greek=abundant hair), so named for their hairy undersides. They are a peculiar beetle, with a secretive life history. They live underground as larvae, eating tree and shrub roots, fungi and other organic matter. (They help "create" soil.) Incredibly, they spend between 9 and 13 years in this life stage as a C-shaped grub. As they mature, they make a tubular larval burrow and pupation chamber. Once reaching their maximum size, they pupate and metamorphose into adult beetles in the late summer to early fall months. As adults, they have one thing to accomplish: REPRODUCE. In fact, adult beetles do not have functional mouthparts or digestive tracts. Rather, they have energy stored in the form of fat. Males have about 2-hours worth of flight energy that can be used to find a female to mate with before dying.

Females are larger than males and are completely flightless. With only a few hours of energy, males have to be quick in finding their mate. Somehow, adult beetles synchronize their reproductive union by weather and light. The adult beetle, never having been above-ground to see the sky, can sense the coming of early-season rain-storms. Scientists are not certain how this happens; perhaps a combination of dropping barometric pressure, vibration of raindrops and increasing soil moisture.

After the first "soaking rains" of the season, males and females burrow upward during rainy weather, using strong spines on their legs and shovel-like "scoops" on their heads to make exit tunnels. Females can burrow through weak asphalt! Once at the surface, the big females emit a lemony-scented perfume (pheromone). Males detect the attractant-molecules with their antennae, flying clumsily about, low over the ground in search of a hopeful encounter. Males will drop to the ground, detecting females even a foot or so below the soil. Often, they will scramble and wrestle among themselves for the opportunity to "be the lucky one." Incredibly, this only happens during a brief 20-40 minute window, just before the sun comes up, and just after it goes down….and only in the rain (or for a day or so after). Some species fly in the spring with melting snow.

There are usually 9-13 generations living underground in larvae form at any point in time. Once males emerge and are found on the ground, they have most likely mated, or have missed the opportunity. Keep an eye out for these interesting creatures. They are harmless and fascinating!

*

Brown Marmorated Stink Bug - a New Invader to California

Scott Oneto, University of California Cooperative Extension, Central Sierra

A destructive stink bug has made its way to California and could cause major damage to commercial agricultural commodities and home gardeners. The Brown Marmorated Stink Bug (BMSB) was first reported in Allentown, Pennsylvania in 1998 and has since spread to 39 states including California. BMSB was first found established in California in 2006 in Los Angeles and has been reported in numerous cities throughout the LA area. Earlier this fall, a well-established population was identified in Sacramento with the potential to spread to neighboring regions.

The brown marmorated stinkbug is native to China, Japan, Korea and Taiwan. It may have been introduced to the US by way of cargo shipments from Asia. It is considered a major economic pest in Asia attacking a variety of high value crops, including tree fruit. This insect has made its presence known by causing losses in eastern stone fruit and apples and by becoming a late season pest in urban areas. The devastating potential of this insect has triggered a flurry of activity by state and federal agricultural researchers.

Locally, BMSB could feed on several dozen commercial crops grown in the area, including grapes, apples, pears, cherries, peaches, melons, berries, corn, tomatoes, peppers and many more. In addition, the pest can feed on a multitude of ornamental plants. The bug has a strong unpleasant odor when disturbed, a particular concern of the wine grape industry if bugs find their way into picking bins at harvest. Studies done in Maryland to evaluate BMSB aroma taints in wine grape juice showed that as few as 5 bugs per 25 pound lug were enough to be detected in the wine and at 10 bugs per lug the aromas can be described as “skunky,” “citrusy,” and “piney.”

The bug, whose scientific name is *Halyomorpha halys*, is bigger than other stinkbugs with a body about the size of a dime. The name “marmorated” is from the Latin word for marble, “marmor.” The back of the adult has a marble-like pattern, hence the name. Stinkbugs belong to the Hemiptera (true bug) order of insects—along with aphids, pear psylla, and leafhoppers—that have sucking mouthparts. The bugs use their beaks to secrete saliva in the fruit and then suck up the plant juices, discoloring the fruit flesh. Damage to apples can resemble bitter pit. On peaches, feeding on small fruit causes dimpling, while damage to more mature fruit resembles bruising. In addition to feeding on fruit and leaves, the bug has also been seen feeding through peach and maple bark. Unlike other stinkbug species that move into orchards as the fruit matures and then leave again, the BMSB can spend its entire lifecycle on fruit crops.

The insect hitchhikes long distances on campers, vans, and freight trains, which explains how it’s been able to travel from coast to coast. But recent research at Oregon State University revealed that the bug can get around quite well without any help. Recent research found that while most brown marmorated stinkbugs flew ten miles or so in 24 hours, certain males could fly almost 40 miles and some females further than that. Given that a bug can live for weeks and weeks, the insect has the potential to move long distances. BMSB finds should be reported to the county agricultural commissioner, or a local University of California Cooperative Extension office. *

Want To Become A Master Gardener?

The University of California Cooperative Extension (UCCE) invites adults interested in helping others learn about gardening and landscaping to apply to train as a UCCE Master Gardener volunteer. UCCE Master Gardener volunteers learn University-based scientific information and then share that knowledge with the gardening community.

Master Gardener volunteers are people of all ages and from all walks of life with a common desire to help others learn about gardening and landscaping.

Who Can Apply?

- Any resident of El Dorado or Amador County. First priority is for El Dorado County residents.
- Residents of Amador County will train in El Dorado County but will be Amador County Master Gardeners.
- Applicants need internet access; most communication will be through email and websites.

How to Apply

- Sign up on our MG Training interest list at http://ucanr.edu/be_mg.
- If possible, attend **one** of our training overview meetings to learn about the Master Gardener Program, our community involvement, your participation requirements, and the training requirements. These meetings are offered twice: **Thursday, November 14** from 7-8pm and **Friday, November 15**, from 10-11am in Placerville. RSVP at 530-621-5528. (Missed the meeting? Call the UCCE office at 530-621-5502.)
- Complete and submit the online application by **Monday, December 2**.

What We'll Do

- Review applicants. Main criteria for acceptance: 1) prior community service, 2) experience teaching others, either by giving presentations, writing, or in one-to-one situations, 3) experience successfully gardening.
- Conduct interviews during the week of December 9. We will contact you within a week after the interview with your acceptance status.
- Require a background check, including fingerprinting. If you are accepted, we will email you a Live Scan form and list of Live Scan locationsary.
- Teach you to research home gardening solutions. Training topics and activities will cover basic plant science, propagation, fertilization, irrigation, soil, compost, vegetable and fruit gardening, trees, Integrated Pest Management (diseases, weeds, insects, small animals), research tools, and outreach techniques.
- Provide you with a mentor and plenty of volunteer and continuing education opportunities.

What You'll Do If Accepted into the 2014 Master Gardener Volunteer Training Program

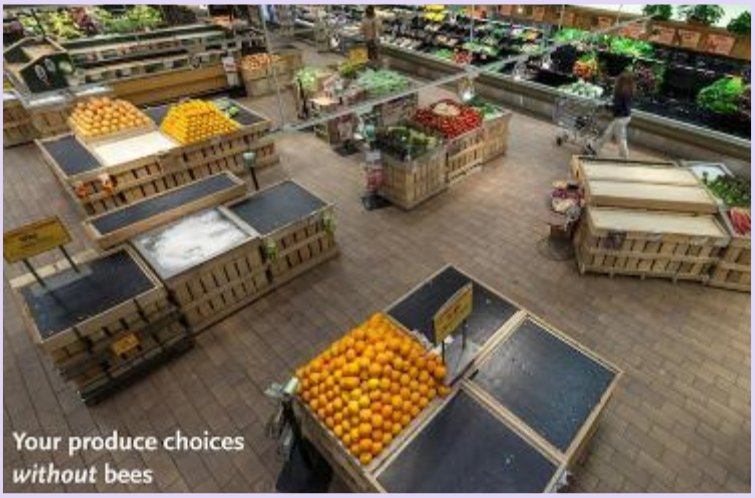
- By **January 14, 2014** pay course fee of **$185** online or mail a check made payable to "UC Regents" to Robin Cleveland, UC Cooperative Extension, 311 Fair Lane, Placerville, CA 95667.
- Complete the fingerprinting process by **February 14**.
- Attend 18 weekly classes on **Fridays, January 31** through **June 13, 2014**, from 9am-3pm in Placerville. Only one class may be missed.
- Complete 50 volunteer hours your first year, then 25 volunteer and 12 continuing education hours annually.
- Post your volunteer and continuing education hours on our online statewide MG Volunteer Management System. (We provide instructions.)
- Attend your county's monthly MG Continuing Education/General meetings as often as possible.

For more information, contact Sue Mosbacher at 530-621-5543 or smosbacher@ucanr.edu.

Honey Bees And Agriculture

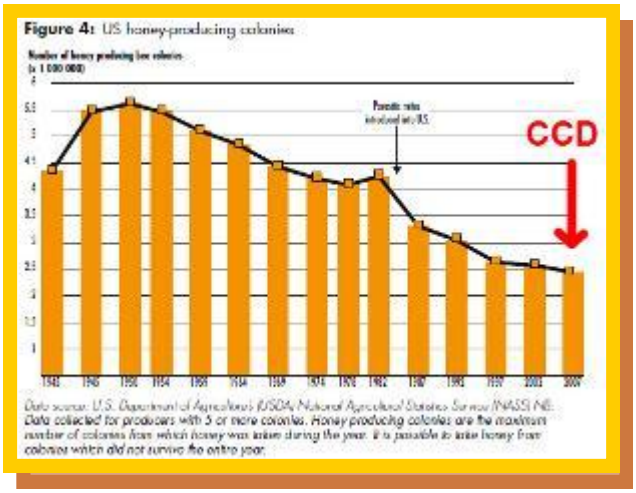
Sharlet Elms, UCCE El Dorado County Master Gardener

We have all heard about the decline in honey bees and Colony Collapse Disorder (CCD) but do we actually consider the effect on our agriculture and hence the direct effect on our daily dietary lives? Consider a graphic example given by a Whole Foods store in Rhode Island in June 2013. They were trying to educate people about the importance of pollinators, of which bees are the most important to commercial agriculture. They routinely carry 453 items in their produce section so they temporarily removed all the food which depended on pollinators and instantly 237 items disappeared! That is 52% of their produce, gone! We are not discussing esoteric food items but rather things you use in your diet routinely including lemons, apples, zucchini and other squashes.



In most years bee keepers expect losses of 10% to 15% of their hives due to natural pests and parasites as well as problems occurring over the winter. However last winter 1/3 of all U. S. commercial bee hives were lost which is a 42% increase over the previous winter. This type of loss has been occurring for 7 years since 2006 when the first losses were noticed. It is a trend which if it continues will result in disaster for the commercial honey bee as well as for many commercial agricultural crops.

Most of us know that here in the Central Valley almonds depend entirely on the honey bee for pollination each year. Now, you many not enjoy almonds and consider it no great loss if we don't have enough pollinators for commercial viability of almonds as a crop. However, consider the following list and what percentage depends on honey bees for pollination:



Crop	% Pollinated by Bees	Crop	% Pollinated by Bees
Almonds	100%	Cucumber	80%
Apple	90%	Celery	80%
Asparagus	90%	Plum/Prunes	65%
Avocado	90%	Watermelon	65%
Broccoli	90%	Tangerine	45%
Blueberry	90%	Lemon	20%
Onions	90%	Cotton	20%
Cherries	80%		

There is almost certainly a crop on this list which you will miss on your plate! There is much ongoing research, discussion, debate, and arguments about the cause or causes of the honey bee collapse but one thing is painfully clear; if we do not figure out what is causing the loss of bees and fix it, agriculture will be adversely and severely affected. This will directly impact each of us in our daily diets as well as the health of the world in general.

The following quote is often misattributed "If the bee disappears from the surface of the globe, man would not have more than four years to live" but merits considering for its implications. We will have a

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The Gardener That Master Gardeners Grew

Cindy Young, El Dorado County Master Gardener

This photo is of Alan in his 8½ month old garden.

Alan came to his first UCCE El Dorado County Master Gardener class on July 14, 2012, the Salsa Gardening class. He met several Master Gardeners and started asking questions. He began his first garden on February 1, 2013, digging post holes. Since then he installed a deer fence on his property at 2,800' in Placerville, put in raised beds, planted thornless raspberries from my yard, then added some boysenberries, strawberries, potatoes, rhubarb, herbs, and annual veggies such as tomatoes and peppers. He planted and espaliered seven fruit trees, including three apples, cherry, pears, and two peaches.

Right now he has his cool season crops in: onions, garlic, lettuce, kale, and some cover crops in several raised beds. He's composting with three Geo bins, installed underground irrigation (see the pipes around the fruit trees), and added a table with a sink. All this from a man who'd never gardened before!

Attending the free public classes was just the start. He befriended several Master Gardeners and has joined us on a variety of "field trips" to Napa, Petaluma, Sonoma Worm Farm, Fair Oaks Harvest Days, and more. He even helped out once at the Master Gardener demonstration garden, working alongside his MG friends.

His next project is a large greenhouse made out of the windows from his 1857 year old home that he completely remodeled. Then he plans to build a personal worm bin and then commercial worm bins. He's got the gardening bug!

Alan recently gave a testimonial at the Master Gardeners' October 19 *Putting Your Garden to Bed* class about how much kitchen waste he collects daily (2 – 4 pounds) and his composting method, which he learned from two Master Gardeners at the Fair Oaks Harvest Day. I showed him how to build a compost bin from start to finish so now he knows how to do it himself. I gave him the material to get the most out of his compost bins: grass clippings, shredded leaves, manure, coffee grounds, chicken coop litter, etc. After a few demonstrations on how to layer, stir, and water, he manages his compost bins himself, including taking daily temperature readings to determine when to turn the pile (after the temperature drops). Those bags in the corner of the picture are leaves he collected on his property so he can add "brown" to all the "green" material he will be pulling out of his garden. It's thrilling to see what he learned in class being put into action!

Before Alan built his garden, he could not understand why anyone would plant potatoes when they are so cheap at the store. I shared about seven different gourmet varieties with him and he grew them successfully. He harvested his first ten pounds and told me, "Now I know why you plant potatoes! The creamy, buttery, fresh taste is unlike anything you can buy in the store, and you know where it comes from!" His only regret is that he gave away too many.

Guess who's applying to become a 2014 Master Gardener? Yep, Alan. That way he can teach others what he's successfully learned from the Master Gardeners classes.

*

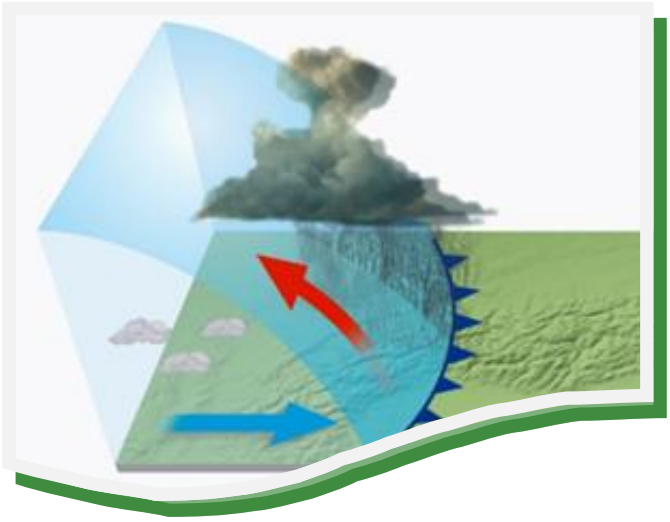
Facing Fronts

Yvonne Kochanowski, El Dorado County Master Gardener

Bet you thought that the title was a typo, right? But yes, we're facing fronts – cold and warm fronts to be precise. Norwegian meteorologists thought of these lines as the battlefront in the war between hot and cold air, ergo our use of the term 'fronts'. In reality, fronts are the battle lines between air masses of different densities ranging from nine to 120 miles wide. They pass us by on an almost daily basis, and we're often unaware of their presence.

As I write this, a cold front is moving overhead. A narrow band of clouds marking the front's leading border stretches from horizon to horizon, with bright blue sky on either side. Change is evident as the temperature drops degree by degree and the back edge of clouds passes by. But why do we have clouds, and what's a front mean for our weather anyway?

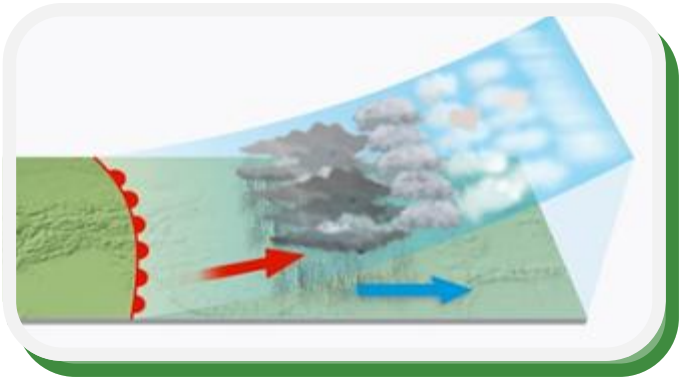
A cold front is the transition zone between heavier, denser cold air and the lighter and warmer air at the Earth's surface. It moves fast, up to 30 miles per hour, most often traveling to the south and east, and bullies warmer air out of the way, diving beneath as it does so. Warmer air is forced upward, and this action produces clouds visible at the front. Sometimes these clouds result in rain or snow.



On the weather map of your favorite media source, a cold front appears as a blue line with blue spikes or triangles sticking out in the direction the front is moving. In this illustration (left), the cold front on the left side of the diagram is driving under the warmer air to the right and pushing it up and out of the way.

Cold fronts can happen at any time of year just as warm fronts will. Temperature changes due to a cold front are most variable – up to over 50 degrees Fahrenheit – in the spring and fall months. Remember that it's the temperature of the front relative to the prevailing conditions and air mass density at the ground level.

The warmer, lighter air of a warm front behaves differently as it moves into the territory of colder air. Because it rises so far into the atmosphere and moves forward at a slower 10-20 miles per hour pace over the cold air, it forms clouds far ahead of the actual frontal boundary. These thicken slowly and may result in precipitation, but not always. By the time the front progresses to the north and east and the actual temperature change is obvious, skies above are clear. The clouds marking the frontal boundary were the ones a hundred miles – and possibly days – before. Fog can also form close to the front.



The warm front on a weather map is a red line with half circles of red bumps to indicate the direction of the front. In this illustration (right), the warm air is riding up and over the denser cold air. Note the cloud pattern preceding the actual frontal boundary.

We know we have clouds as a result of these weather battles, warm or cold, and those clouds might bring rain and snow. They might be the indicator of an upcoming weather change a day or more before, or they might be that leading edge. But what happens when the fronts get stuck?

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Facing Fronts, *Continued from Page 11*

A stationary front is exactly what is says – a front that's stuck in position. If the clouds overhead are stationary and delivering a flood of rain, there's trouble! Likewise, a snowstorm resulting from the battle between cold and warm air and stalled overhead can drop the white stuff in feet instead of inches. A stationary front on a weather map is marked as a combination red and blue line with bumps and spikes – but facing in both directions.

Want double the trouble? You want an occluded front! In our area, we most often have a warm-type occluded front. In this case, the cold front taking over a warm front pushes the warm air upwards. Meanwhile, the warm front is still trying to overtake the cold front *it* was pushing over. Around an occluded front of this type, you'll have rain occurring ahead of the warm/cold boundary like the warm front usually would generate, plus you have the high-topped rain or snow clouds of the cold air mass behind the warm air. On that now not-so-friendly weather map, an occluded front is a purple line with spikes and bumps pointed in the direction that the front is moving.

Complicated, huh? Just wait – there's more! Next time, we'll go over the major semi-permanent highs and lows that drive the jet stream engines moving our fronts along. It's the pressures, friends!

Illustrations courtesy of Thinkstock.

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This Month's Gardening Quote

Public Education Classes & Events for Amador and El Dorado Counties – Free!!

Most classes are from 9 a.m. – Noon.
Please call ahead to confirm locations.
Click on the class title to go to our public website and schedule an email reminder for the class.

Amador County

Unless otherwise noted, location for all Amador classes: GSA Building, 12200-B Airport Road, Jackson. Questions? Call 209-223-6838.

November

16: Apples & Pears

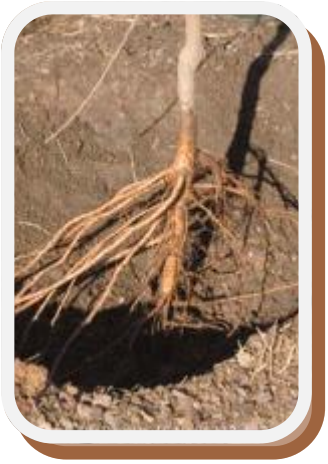
Have you ever wondered which apples or pears grow best in Amador County? Have you ever wondered when various varieties mature? Do you have apple and/or pear tree experiences to share? The Amador County Master Gardeners are presenting a free class on all things pertaining to apples and pears (pome fruits). The class will cover orchard planning, apple and pear biology, history, variety selection, care, maintenance and harvest.

Bonus Info: We will present the proper techniques for preparing and storing scions (cuttings to be propagated) until grafting season (Jan/Feb 2014). Our grafting class will be in early February but you can collect scions earlier.

December

7: Everything Bare Root

Have you ordered, purchased, or are planning to plant bare root fruit trees, vegetables or berries this year? This class will provide the information you need to get them off to a great start and keep them healthy. You can order or purchase Bare root plants at your local nursery. This is a wonderful way to save money.



Master Gardeners will discuss soil preparation, fertilizers, planting method and depth, initial pruning, and staking of fruit trees. In addition, you'll learn about protecting the trunk, dormant spraying, spring and summer pruning, everything you should know to grow strong and healthy trees.

El Dorado County

Unless otherwise noted, all El Dorado County classes during November are at the Government Center Hearing Room, Building C, 2850 Fairlane Court, Placerville. Questions? Call 503-621-5512.

November

2: Rose Selection & Pruning

Selection and Care of Roses - Are you thinking about planting some new roses in 2014? The new bareroot stock will be available in local nurseries in December or January so the Master Gardener class on November 2nd will provide timely advice on selection, planting and maintaining your new shrubs. Join Master Gardener Eve Keener for in-depth instruction in this topic.

9: Composting

Learn the theory and technique for turning household waste into valuable and rich garden soil. Master Gardener Thorne Barrager will teach you how to be productive at composting.

16: Berries in the Foothills

Strawberries, blueberries, boysenberries and raspberries are a welcome addition to menus, and they can be grown successfully in El Dorado County. Join Master Gardener Suzanne Wisowaty and Julianne Melchor to learn about on berry selection, planting, care and harvesting.

23: Citrus in the Foothills

Would you like to grow oranges and lemons in your own orchard? With the right microclimate, variety and rootstock it is possible to grow citrus in the foothills. Join Master Gardeners as they explore ways of becoming a successful citrus grower in our marginal climate.

Check out the El Dorado County Master Gardener Facebook page.

Find us on Facebook

Honey Bees And Agriculture, *Continued from Page 9*

world which is poorer, hungrier and certainly with a less colorful and flavorful plate as well as less nutritious.

For further reading on this topic as well as others concerning bees and agriculture there have been several books as well as some excellent articles:

1. Time magazine, August 19, 2013, "A World Without Bees" by Bryan Walsh, pgs: 26 -31.
2. Scientific American magazine, September 2013, "Return of the Natives" by Hillary Rosner, pgs: 70-75.
3. The Beekeeper's Lament: How One Man and Half a Billion Honey Bees Help Feed America by Hannah Nordhaus, Harper Collins, 2011.
4. "Are Neonicotinoids Killing Bees? A review of Research into the Effects of Neonicotinoids Insecticides on Bees, with Recommendations for Action" by Jennifer Hopwood et. Al. Xerces Society of Invertebrate Conservation, 2012. www.xerces.org/neonicotinoids-and-bees

Watch this space next month for a review of the research on honey bee CCD and avenues currently being considered. Remember to thank a honey bee next time you bite into a crisp apple from Apple Hill!

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Pest Notes

Free Pest Notes are available on a variety of topics. For more information, call or email your local UCCE Master Gardener office.

To explore the Pest Notes on the UC Integrated Pest Management (IPM) website, go to http://www.ipm.ucdavis.edu.

Amador & El Dorado Counties Master Gardener Newsletter
Editor: Sharlet Elms
Layout Editor: Kim Cohen

Not on our e-newsletter distribution list yet? Know someone who would like to receive our newsletters and notifications on classes and events? Sign up online at http://ucanr.org/mgenews.

Get Answers to Your Gardening Questions Online

http://cecentralsierra.ucanr.edu/Master_Gardeners

- Information about Master Gardeners and how to become one
- List of public classes
- Calendar of Master Gardener events
- Useful links to gardening websites
- Home gardening publications

Got a specific question? Just email us!
Amador: mgamador@ucdavis.edu
El Dorado: mgeldorado@ucdavis.edu