



THE LATEST DIRT

UCCE - CONTRA COSTA MASTER GARDENER MONTHLY NEWSLETTER
JANUARY 2009 CARPE RUTRUM

President's Plot

Greetings!

A week ago I was at our holiday recognition dinner. We had a wonderful turnout. About half of our membership was there and many brought along family or friends. The room was noisy with talk and music – I loved it. I walked around the room saying hello to so many friends that I have made over the years. When the evening was over and I was driving home I realized how fortunate I was to have met and worked with so many wonderful people.



I became a Master Gardener in 1994. I felt very lucky to be allowed in, particularly since the only thing I brought with me was a love of gardening. I knew absolutely nothing about how nature worked. My personal goal at the time was simply to learn more about the subject matter, so that I could understand a few things as I gardened. Can't you just picture it, me saying to myself - Hey, I think I'll join this organization

and learn *a few things*. Major understatement #1 on my part! The learning took me places I had never thought possible.

As I said, I joined for the information, not for the social aspect. For years I volunteered almost entirely at the Help Desk, a very solitary activity. I always considered myself a rather solitary individual, I never actively sought out the social side of our organization, and I did not think I needed it. Major understatement #2 on my part! There I was last Tuesday greeting so many friends that I realized that what I didn't join for in 1994 actually means so very much to me now.

I thank all of you for everything you have done to make this past year so successful. Have a wonderful holiday season and I look forward to working with you next year.

Happy Gardening!
Emma Connery, President

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Please submit your newsletter articles electronically by January 23rd for the February issue to Editor Ersten Imaoka at ersten3@yahoo.com

Master Gardener Executive Committee Meeting
 Tuesday, January 13, 7:00 pm

Master Gardener Association Meeting
No meeting is scheduled for January. Our next Association Meeting will be on Tuesday, February 17, at 7 pm.



Emma vs. Perle Mesta

I know the initial reaction to the title of this masterpiece will be, "Who the heck is Perle Mesta, I don't see her anywhere on the MG Roster?" I am prepared with the answer.

For those of you born after 1950, it's an excusable question since Perle faded from the scene in the 60s and went to her ultimate reward in 1975.

For those of you with vintage dates before 1950 and still don't know Perle, you will be hunted down and flogged along with the people who don't know the meaning of "IPM". FYI, hunting and flogging is an approved MG project for which you can garner volunteer hours. It usually gets fired up mid January of each year. Contact Attila the MG who is the project leader.

Back to Perle. She was a society hostess in Washington D.C. in the 40s, 50s, and most of the 60s. She was known as "The Hostess With the Mostest" (cute huh?) because to be invited to her parties meant one had "arrived" in the inner circles of Washington.

Perle had inherited not one, but two large multi-million dollar fortunes. One was from her husband, a Pittsburgh machine tool magnate, and the other was from her father, an Oklahoma City real estate and oil tycoon. Obviously, she did not have to cash in old aluminum cans to get the money to fund her lavish parties. The fact that she was a very large contributor to Democratic politicians gave her the initial inroad to the upper echelons of D.C.

She was an early supporter of Harry Truman, and in 1949 Truman appointed Perle as U.S Minister to Luxembourg. PLEASE don't ask me to explain who Harry Truman was- Please don't!!

Perle actually became successful at the job and she inspired the 1950 Broadway musical *Call Me Madam*, which was about a well meaning but ill informed socialite who was appointed Ambassador to the fictional country of Lichtenberg. Sounds fictional to me!

Minister to Luxembourg aside, Perle was best known for her parties, but I don't believe she ever organized a better one than did Emma Connery (our president) for the 2008 End of Year Recognition Banquet (AKA Not-a-Christmas-Party).

These end of year celebrations have always provided a good time where MGs get to mingle with old friends and make new ones. Some day I'll tell you about the new friend I met but it's not meant for a family publication. Oh yes, besides the social aspect, we also recognize specific MG achievements throughout the year.

I don't mean to say that Emma did this all on her own, she had an excellent group of volunteers doing the actual work, but it was Emma's organizing and planning skills that got them together and made it flow so smoothly.

Like the mother of the bride at a wedding, I am sure Emma saw everything that went wrong, but to this lazy lout who lifted not a finger to help, it was flawless. When I arrived at 5:30 it was chilly in the Camellia Room at

Heather Farm, but as more and more people arrived, it warmed up rapidly. Eventually there were about 90 warm bodies present. The fact that the Heather Farm representative turned on the heater helped as well.

Over the past three months (yes we plan that far in advance), Emma had explained to the Executive Committee all that was going on to get the banquet up and running. However, I did not expect to see so many people rushing about getting decorations up and tables placed. It looked chaotic but it was well choreographed. There was even a photographer preserving everything for our archives. Off course all the scurrying was being done by MGs and the photographer, Joyce Brahm's '98, was an MG as well.

You will note that I am not mentioning the names of the scurriers because when one gets into that game too often, someone who has toiled long and hard will be left out. Besides, there were at least a dozen of them and who can remember that many of anything?? With my aging memory (some of you may relate) trying to remember my way home is all the memory work I can accomplish for one night. Suffice it to say that Emma had put together a great crew and they did their jobs with vigor.

We did have two marvelous contributions this year. I am going to mention those two but how much do you want to bet there were actually three or four contributions of which I was unaware. I shall probably be pummeled because I forgot them, but I continuously live on the edge anyhow so what's one more razor slash?



Ken's Corner



The two contributions I noted were the beautiful centerpieces put together by Pat Scott '07, and several cases of excellent homemade red wine provided by Alan Tryhorn and Gail Campbell. Gail is in the class of '09.

I can tell you without fear of contradiction that the reds (all blends I believe) were excellent. Appropriately, the vineyards are in Contra Costa. I was sorry I forgot my flask that could have been used to clandestinely snatch some of the wine and take it home. But that was not to be. Instead I sampled a little of most. Just a little.

Emma had also put together a "slide" show of past MG work and some social gatherings as well. It had great variety to it although much was involved with MGs eating something. Of course MGs seem to be very good at that and the talent transcends ages, MG class, and geographical location.

One particular vignette on the screen was a training film that involved someone trying to remove an unwanted palm tree which appeared to be quite tall. The objective was to strap a chain around the tree's trunk and pull it over with a pickup truck. It worked, but the pickup truck was destroyed when the tree fell on it. There was no sign of the driver moving about. The truck was REALLY destroyed!! The driver may have been.

It was obvious from the start that this was going to happen because of the size of the tree and the proximity of the truck. Obvious, that is, to all at Heather Farm but to no one in the vicinity of the truck at the time.

Acts like this are often part of the Darwin Awards that go to people who succumb to the law of non-survival of the dumbest. Last year's winner was a fellow who was killed by a Coke machine which toppled over on top of him as he was attempting to tip a free soda out. Those Coke machines are a bit heavy.

DISCLAIMER: The tree removal part of the show did NOT involve Master Gardeners. It was just another part of our educational effort, but this time to show people what NOT to do. A similar negative technique has been used successfully on our bi-annual garden walks. All the gardens are beautiful of course but we also go to great lengths to point out the evils that lurk within. Signs point out fungus, chewing insect damage, too much sun, etc., so folks can recognize them and act accordingly in their own gardens. Improper tree removal provides similar education.

The formal part of the banquet was scheduled to start at 6 p.m. which it did, but the first 1 ½ hours were spent schmoozing. Great fun was the schmooz time, especially with 90 people attending. While there was still much gabbing going on, Emma herded us all to the tables we had chosen which were numbered in groups. She then informed us that unlike past years, we would have access to the grub in table succession which Emma would choose.

This was disappointing because in prior banquets it was a free-for-all and was a marvelous sight to behold. The jockeying for position among the octogenarian set is legendary and I was all set to watch it again.

It had always been my scheme to wander up to the table as the jockeying was going on -- ostensibly to bring some order to the chaos. My real reason was to slip in front of the first octogenarian and apply a sharp elbow to the solar plexus at the same time. That always gets attention and throws a little fear into the octo crowd. It has also put me at the head of the line for several years running. Not this year.



Emma called three rounds of tables. She waited until the last member of the first group had started through the line before calling the second and then the third. Of the three groups, I'll bet you can guess where I was. Number three, that's me. Don't think there wasn't grumbling among the third tier. There were also some pejoratives thrown Emma's way, and I personally think the fix was in. Too many of Emma's close circle of friends were in the first group for it to be a coincidence.

However, I must admit it worked well since there was plenty to go around even for the third group. The only folks who were short changed were the musicians who played on through a good portion of the dinner before dropping their instruments and heading for the buffet. It was similar to the orchestra on the Titanic that played as the water crept up around them. Well, sort of like that. O.K., it doesn't compare at all but I like the comparison and I'm doing the writing so there you go!!

I must make mention of the musicians. There were four of them again this year and they were better than ever. What a marvelous addition to our evening!! The groups name is "The Knuckle Dusters" (I have no idea why) and consists of John Blasquez, Tom Croen, Rod Watkins, and Pamela Bouey.



I am not a trained musician, so I don't know the exact name of each instrument but there was not a saxophone, clarinet or trumpet among them. All instruments were stringed and I do know that Pam plays the violin; that's it. It makes no difference since the music was beautiful.

Incidentally, Pam Bouey is the sister of our very own Bethallyn Black. Pam emphasized that she is the YOUNGER sister which means Bethallyn probably tormented her as a child. Undoubtedly she released ground beetles into little Pam's bedding and that sort of thing. Of course there's always the worm surprise, too. Good, clean sibling rivalry!!

After dinner and before dessert (before dessert for most but there were the usual early gatecrashers; it's always that octo crowd.), Emma and Bethallyn got to the recognition part of the Recognition Banquet.

First they awarded new badges to those MGs who had gone to the next level. They were: 50 hours-Robin Bogner '07 and Kathleen Brennan '07; 250-Jill Bryans '04, Eileen Lynn '05, Debra Morris '06, and Liz Rottger '07; 500-Ersten Imaoka '92; 750-Dianne Tinnes '01; 1250-Rita Shand '92; 1500-Patty Click '90; 2500-Monette Meo '04.

Then the people who had achieved the thousand hour benchmarks (1K, 2K, 3K) during 2008 were honored. They were: 1000-Joyce Brahms '98 and Sandra Leich '99; 2000-Mary Lu Burchard '01 and Ken Williams '91; 3000-AI Del Simone '95, and Linda Mizes '01.

This was followed by a big drum roll for special recognition awards. The first was to Dianne Tinnes who was the driving force behind our initial Fall Seminar Series at Diablo Valley College. Emma was quick to point out that a valuable committee helped her, but Dianne definitely pushed the entire event to fruition.

Dianne's formal committee was then asked to stand and got a rousing round of applause. The committee consisted of Kathy Mendenhall '01, Janet and Dave Azevedo '08, Eileen Linn '05, Harriett Burt '06, Patty Click '90, Carla Preisler '04, Larry Cornell '06, Barbara Abbott '93, Mary Lu Burchard '01, and Bob Burchard '03.

Harriet spoke up to extend appreciation to the many other volunteers who were not on the official committee but appeared on the day of the event to help it run smoothly. In fact the event was so well done we are not going to have one next year. Dianne and the volunteers (which

was also a '50s singing group) need a year's break to reenergize.

The final drum roll was for a very special award for Lifetime Achievement which was given to Barbara Abbott who has been in the MG ranks continuously since 1993. Barbara has amassed almost 4000 volunteer hours and is one of only four current CCMGs to exceed 3K. She was the secretary of the CC Master Gardener Association for many years and has been a great asset to the program in other ways. She has helped Bethallyn with a myriad of special projects including the new class each year. It is a well deserved award and she received a fancy plaque to mark the occasion.

Em and Bethallyn said a few more words but the dessert mavens were getting restless and throwing nasty comments their way. In order to ensure tranquility, the presentation was ended and the mad rush for the sweet stuff was on.



This was the first year in many that we did not have a big ol' sheet cake provided by the Association. This came about because our current secretary, Ersten Imaoka, raised the issue in an Executive Committee meeting and suggested (demanded?) that instead of the "boring" sheet stuff with the cloying sweet inch-thick icing, we have some MGs bring desserts. A revolutionary idea if there ever was one. Since one does not want to run afoul of Ersten because of that Martial Art stuff he allegedly knows, the weenies on the committee acquiesced. It was a good acquiescence. The desserts were appealing to the eye, and although I only tried seven medium sized servings of the dozen selections, all that I tried were yum yum.

And so it ended as it had started; schmoozing among MGs. It was by far, in my not so humble opinion, the best End of Year Recognition Banquet (Not-a-Christmas-Party) we have ever had. Those of you who were not there missed an opportunity to mingle with others who share your passion for gardening and who also prepared a marvelous buffet.

Normally I head down the freeway and end up at Elliott's of Danville (established 1907) but I knew the boys (Big Hands Mahoney, Whack and Wallop Wainwright, and Bruno) were attending their own party with old buddies recently released from jail. Without them Elliott's is just not the same.



Besides that, remember the new friend I told you I met? Well, Buffy and I decided to get to know each other even better so we trundled across the street to the chic bistro that is part of the Diablo Hills Golf Course. Buffy looked stunning with her silver sequined gown and pink boa wrapped around her. Many heads turned her way as we walked through the door. As Frankie Valli and The Four Seasons sang in 1963, "Oh What a Night" !!

~ Ken Williams ~

Executive Committee Minutes

CONTRA COSTA COUNTY MASTER GARDENER ASSOCIATION

Executive Committee Meeting December 16, 2008

The meeting was called to order at 7:00 pm by President Emma Connery. Other members in attendance were Barbara Abbott, Bethallyn Black, Vice-President Larry Cornell, Secretary Ersten Imaoka, Treasurer Kathy Mendenhall, Ken Williams and Janice Winsby. Kathy Gilcrest and Kitty Rosania were absent.

MINUTES FROM THE PREVIOUS MEETING:

The Minutes of the November 11 meeting were approved.

TREASURER'S REPORT: One new member was added to our roster. Kathy M noted that the return in full of our deposit for the Holiday Party was not reflected in the Report. Some of the wine was donated by Gail Campbell-Tryhone, and the remainder of the wine and entertainment costs were covered by the Non-profit.

HOLIDAY PARTY: Emma will research the miscellaneous costs accrued (utensils, plates, cups, soda, cider, etc) to give future party planners a handle on setting a realistic budget. The final tally of attendees stands at 90, which includes the four musicians.

EXECUTIVE COMMITTEE RECRUITMENT: The goal is to determine what, if any, vacancies will occur for the coming fiscal year in the elected and appointed positions, so that active recruitment can begin prior to the January Executive Committee Meeting.



Four non-voting, appointed Coordinator positions were identified prior to the meeting as needing to be filled in the coming fiscal year:

- Hospitality
- Training
- Farmer's Markets & County Fair
- Fall Event

To this list the following were added:

- School Garden
- Guest Speaker
- Marketing
- Publicity
- Public Website
- West County
- East County
- New Projects

The target date is March 1 to identify candidates for all Coordinator positions.

GRADUATION: Kitty had previously indicated a willingness to assist in securing a graduation location and in coordinating the activities of this event.

DESK TRAINING: Emma will emphasize to the new class that Help Desk training is mandatory prior to working at it. They will get volunteer hours for the training.

CCTV PROJECT: This program's viability was questioned, and a decision to pursue something this ambitious is uncertain. Emma will contact Mary Lu Burchard.

NEW PUBLIC WEBSITE: Completion of the newly formatted website has been thwarted due to budget cutbacks which have reduced the MG Office staffing hours. It is hoped that by creating a new Coordinator position for this task, a computer savvy MG will step forward to complete and launch the website.

BBITS: Consideration should be given to holding Association membership meetings during a week day, which could include educational (e.g., guest speakers, training, seminars and break-out sessions) and social (e.g., pot luck lunch) components, as a means of increasing member participation. This would essentially become a half-day event. The Santa Clara MG Association has such a program, and regularly attracts in excess



of 300 members each month. Emma will contact Eileen Linn for assistance in creating an on-line questionnaire to solicit members' opinions on this matter.

The meeting was adjourned at 7:59 pm.

Respectfully submitted,

Ersten Imaoka,
Secretary

**Contra Costa Master Gardener Association
2007-2008 Executive Committee Officers & Chairpersons**

President.....	Emma Connery (1994)
Vice-President.....	Larry Cornell (2006)
Secretary.....	Ersten Imaoka (1992)
Treasurer.....	Kathy Mendenhall (2001)
President.....	Emma Connery (1994)
Immediate Past President / Member at Large.....	Janis Winsby (2000)
Internal Activities... Volunteer Coordinator.....	Kathy Gilcrest (2005)
External Activities Volunteer Coordinator.....	Ken Williams (1991)
Ways & Means Coordinator.....	Kitty Rosania (2008)
Projects Coordinator.....	Barbara Abbott (1993)

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December 9, 2008

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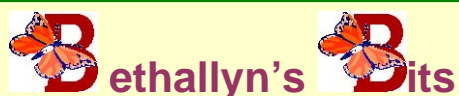
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UC Tidbits

In 1927, H.B. Frost developed the Pixie mandarin orange, one of the 40 varieties of fruit to originate at the UC Riverside Citrus Research Center.

In the 1930s, UC Berkeley food scientist William Cruess invented the canned fruit cocktail. (Oh MY! BB)

In 1948, now-legendary UC Davis viticulturalist Harold P. Olmo created the perlette green table grape, one of 30 varieties he developed

More food at lower cost

14.dec.08 University of Bristol Cherry Lewis

http://www.eurekalert.org/pub_releases/2008-12/uob-mfa121208.php

In the face of climate change, being able to increase crop yields by enabling plants to take up nutrients and water more efficiently becomes increasingly important, as fertilizer and water supplies incur significant energy and environmental costs.



New research from the University of Bristol, published today in Nature Cell Biology, has shown how to increase the length of root hairs on plants, potentially improving crop yields, as plants with longer root hairs take up minerals and water more efficiently.

Angharad (Harry) Jones, a PhD student in Biological Sciences at the University of Bristol, and lead author on the paper, said: "Each root hair is a single, elongate cell and the length of each hair depends on having an adequate supply of the plant hormone auxin. Auxin is used, for example, in hormone rooting powders to encourage cuttings to root. The difficulty has been in understanding how auxin is delivered to the root hairs in order to promote their growth."

Since auxin cannot be observed directly, Jones used a computer model built by physicist Eric Kramer at Bard College, USA, to calculate where auxin was likely to be in plants. The model was based on current knowledge of auxin transport through and around the relevant cells.

What the model showed was very surprising: auxin is not delivered to root hair cells directly, but via the cells next door which act as canals through which the auxin is transported. During transport, some of the auxin leaks out, supplying hair cells with the auxin signal to grow.

This new understanding will be crucial in helping farmers to produce food sustainably and to reduce fertilizer waste, which can cause severe damage to ecosystems. Dr Claire Grierson, senior author on the paper added: "This important new work is an example of 'integrative biology', an innovative, interdisciplinary approach that uses experimental results alongside mathematical models and computer simulations to test ideas that are difficult or impossible to investigate with experiments alone. This approach has produced groundbreaking and surprising insights into a biological mechanism that might otherwise have eluded us."

The results also suggest that increasing the number of root hairs is likely to interfere with auxin supply and cause problems with other important traits like a plant's response to gravity and root branching. The new understanding of how to increase the length of roots hairs, rather than their numbers, will now avoid these kinds of problems.

It was Charles Darwin and his son Francis who, in 1880, first discovered that plants direct their growth towards the light. These observations would later lead to the discovery of auxin.

Waste coffee grounds: best biofuel ever?

11.dec.08 American Chemical Society Trevor Curwin

http://dvice.com/archives/2008/12/waste_coffee_gr.php

Researchers at the University of Nevada-Reno have pioneered a process to separate the oil out of used coffee grounds and convert it into biofuel, creating cheap biodiesel from what was once trash. The resulting java-fuel has two big advantages over other oils used in biofuels: it's more stable due to coffee's high antioxidant content, and it smells like coffee.

Waste coffee contains between 11% and 20% percent oil by weight — about as much as virgin biofuel oils like palm and soybean. But while more than 16 billion pounds of coffee are grown annually for its main people-fuelling objective, it's nowhere near the amount of soybean and palm production. All of the spent coffee grounds



generated worldwide could create 8 million barrels of biodiesel annually, or roughly a third of daily oil consumption in the U.S. alone.

The researchers plan to develop a small pilot plant to produce and test the experimental fuel within the next six to eight months. Among the possible details they'll explore: Will running your car after 8 p.m. on the coffee biofuel make it jitter all night long?

Garden handtool safety

<http://groups.ucanr.org/ehs/files/43121.pdf>

ANR Volunteer Management System

VMS2.0 provides online help for volunteers and VMS administrators. The help system currently includes short instructive videos created by ANR Communication Services and documentation in printable or viewable pdf format. You can reach "Help" by clicking on the top-right navigation links from any page in VMS. There is a quick and handy link to "Logging in for the first time," from the "for Volunteers" section of the statewide site.



Brown chemist finds gene that enables gray mold to kill plant cells

01.dec.08 Brown University Richard Lewis

<http://news.brown.edu/pressreleases/2008/12/mold>

PROVIDENCE, R.I. -- Gray mold is a gardener's nightmare. The fungus, also known by its scientific name *Botrytis cinerea*, is a scourge to more than 200 agricultural and ornamental plant species, including staples such as tomatoes, strawberries, snap and lima beans, cabbage, lettuce and endive, peas, peppers, and potatoes. Gray mold envelops its target in a velvety vise, releasing a toxin that poisons the host plants' cells, eventually causing the plant to die.

So far, the only way to eliminate the pathogen is to spray plants with fungicides, which can be costly and can contaminate the surrounding environment.

Now Brown University chemist David Cane, working with researchers in France and Spain, has figured out how the fungus's deadly toxin is made and how it might be disarmed naturally. In a paper published online in ACS Chemical Biology, the scientists have identified the set of genes that manufactures the toxin and in particular the central gene the fungus uses for this synthesis. They also have also shown that shutting off this gene by interrupting

the fungus's DNA completely shuts down toxin production, removing the special weapon the mold uses to kill and invade target plant cells.

"It's a big step to being able to disarm this toxin naturally through a combination of DNA sequencing and chemistry," said Cane, the Vernon K. Kriebel Professor of Chemistry and professor of biochemistry, one of three primary authors of the paper.

The researchers, led by French scientist and paper co-author Muriel Viaud, started by determining the complete DNA sequence for *Botrytis cinerea*. Working with Spanish organic chemist and paper co-author Isidro Collado, the scientists focused on the chemical agent — botrydial — that gray mold uses to overwhelm host plants. From among the roughly 9,000 genes present in gray mold, the researchers identified a cluster of five genes that is responsible for production of botrydial. They then sought to learn how this cluster manufactures the chemical agent and which of the genes was the mastermind in the production.

The culprit is an enzyme called a sesquiterpene cyclase, Cane's laboratory found.

"The metabolic pathways for creating organic compounds typically involve gene clusters, like a package," Cane explained. "One great advantage to our investigation is that if you find one, you look to the left or to the right, and you find the others."

In laboratory tests, Cane and the team introduced a mutant gene that deleted the sesquiterpene cyclase, which completely abolished production of the toxin. "This means that if you can inhibit the enzyme from this pathway, you can eliminate this toxin," Cane said.

The U.S. National Institutes of Health, the INRA Jeune Equipe in France and the Ministry of Education and Science in Spain funded the research. The team now is working on a similar procedure to tackle a strain of *Botrytis cinerea* that is able to produce both botrydial and a second toxin that it uses to attack its plant targets.

Scientists serve up mustard meal to tame weeds
02.dec.08 ARS News Service Jan Suszkiw
<http://www.ars.usda.gov/is/pr/2008/081202.htm>
Sinalbin, the same compound that gives white mustard its pungent flavor, could also prove useful in fighting weeds. Agricultural Research Service (ARS) studies suggest sinalbin and other compounds released into soil by applications of white mustard seed meals can kill or suppress certain weedy grasses and annual broadleaf weeds.



Agronomist Rick Boydston, with the ARS Vegetable and Forage Crops Research Unit in Prosser, Wash., is conducting the studies with plant physiologist Steven Vaughn, at the ARS National Center for Agricultural Utilization Research in Peoria, Ill. They evaluated the effects of three mustard seed application rates: half a ton, one ton and two tons per acre. Of the three, the one-ton and two-ton rates worked best in peppermint, reducing barnyard grass, green foxtail, common lambsquarters, henbit and redroot pigweed populations by 90 percent several weeks after application.

Although young peppermint plants sustained minor damage from the treatment early on, they recovered and resumed their normal growth. Onions weren't so lucky. Regardless of the application rate used, the treatment severely damaged the bulb crop when applied before emergence, or before the onions produced two true leaves. Applications at the two-leaf stage or later were more promising.

In trials with potted rose, phlox, coreopsis and pasque flower, the treatment killed or reduced the growth of annual bluegrass, common chickweed, creeping woodsorrel and liverwort. In treated plots, 86 to 98 percent of common chickweed seedlings died; those that survived were shorter and weighed less than treatment-free chickweed seedlings.



Besides white mustard, the researchers also evaluated the weed-control effects of field pennycress seed meal and dried distiller grains (DDGs), derived from corn ethanol production. Like white mustard, field pennycress also has potential as a biodiesel crop. It and the DDGs were less effective than white mustard at controlling weeds.

The research aim is three-fold: provide organic farmers with an alternative to hand-pulling, burning and other laborious methods of weed control in specialty crops including peppermint and potted ornamentals; develop value-added uses for seed meal, should mustards prove useful in making biodiesel; and diminish environmental risks possibly resulting from conventional herbicide use. ARS is a scientific research agency of the U.S. Department of Agriculture.

Rooted plants move mysteriously down greenways, scientists say

03.dec.08

University of Florida

Doug Levey

http://www.eurekalert.org/pub_releases/2008-12/uof-rpm120308.php

The wild pea pod is big and heavy, with seemingly little prayer of escaping the shade of its parent plant. And yet, like a grounded teenager who knows where the car keys are hidden, it manages – if it has a reasonable chance of escape.

University of Florida researchers working at the world's largest experimental landscape devoted to wildlife corridors – greenways that link woods or other natural areas — have discovered the pea and similar species share, given a clear shot, a mysterious ability for mobility. Though their seeds are neither dispersed by birds nor borne by the wind, they are nevertheless far more likely to slalom down corridors than slog through woods. The findings are revealed in a paper that appears this week in the online edition of the Proceedings of the National Academy of Sciences.

"Corridors surprisingly benefit pretty much everything, including species that have no obvious mechanism for getting around in the first place," said Doug Levey, a UF professor of zoology and one of six authors of the paper. Movement is a big challenge for the vast majority of plants, rooted as they are in the ground. Some overcome it by making seeds gobbled by birds, then defecated at points unknown. Other plants have evolved light seeds, or aerodynamically adept ones, designed to be ferried hither and thither in the wind.

But many plants produce seeds with no seeming mode of transport, suggesting, for those species, a measured march rather than a rapid run.

And yet ...

Levey and colleagues at Washington University in St. Louis and North Carolina State University have spent the past eight years studying how corridors affect plants and animals at a massive experimental site at the Savannah River Site National Environmental Research Park on the South Carolina-Georgia state line.

In past papers, they have reported that corridors appear to help both wildlife and plants, especially native species. Those findings are among the most rigorous scientific validations of the national and state trend toward spending public dollars on buying and preserving "green" corridors connecting woods or wetlands in urban or rural areas.

In the new paper, the researchers report the results of research aimed at learning how corridors affect plant species with innately different abilities to get around. Perhaps unsurprisingly, the scientists found that wind-



borne plants and bird-dispersed plants colonize wildlife habitats connected by corridors more quickly and at farther distances than they do isolated habitats. The surprise was that the same is true for what the scientists consider "unassisted" plants, or those with no obvious means of moving their seeds.

The result left the researchers puzzled. "We come right out and say in the paper that we don't understand this," Levey said.

Physical forces clearly aren't adequate to cause the phenomenon, the paper notes.

"Gravity dispersal from low-growing shrubs, forbs and grasses, which typically moves a seed no more than a few meters per year, cannot account for the rapid colonization of connected patches 150 meters distant," the paper says.

With no obvious alternative, Levey said one possible explanation is that the plants' seeds aren't as unassisted as they appear. For example, it's possible that herbivores eat the seeds, even if they are not recognized as normal forage. "My hunch is that these plants are browsed by deer that are really after the leaves," Levey said. "They eat the seeds along with the leaves, and then defecate the seeds somewhere else."

Perhaps improbably, given the randomness of deer defecation, the researchers are testing this hypothesis. Caleb Hickman, a graduate student in the Washington University Ecology, Evolution, and Population Biology Program, has collected fecal samples left behind not only by deer, but also by a variety of mammals at Savannah River experimental sites.

He is planting the samples in soil in a Washington University greenhouse. The goal: to see if previously classified "unassisted" plant species seedlings emerge. That would prove that like many teenagers, plants are much more creative about getting around than most people suspect.

UK: Red alert! How disease disables tomato plant's 'intruder alarm'

04.dec.08 Imperial College London Danielle Reeves

http://www.eurekalert.org/pub_releases/2008-12/icl-rah120308.php

How a bacterium overcomes a tomato plant's defenses and causes disease, by sneakily disabling the plant's intruder detection systems, is revealed in new research out today (4 December) in *Current Biology*.

The new study focuses on a pathogen which causes bacterial speck disease in tomato plants. This bacterial invasion causes black lesions on leaves and fruit. Severe infection can cause extensive and costly damage to tomato crops, and researchers believe that understanding more about how this microbe works could lead to new ways of tackling it, and other plant diseases, without the need for pesticides.

Scientists have found that the pathogen is very effective at attacking tomato plants because it deactivates and destroys receptors which normally alert the plant to the presence of a dangerous disease - in the same way that an intruder would deactivate the burglar alarm before gaining entry to a house.



Professor John Mansfield from Imperial College London's Department of Life Sciences, one of the authors of the paper, says: "Once the receptors have been taken out, the plant's defenses are 'offline' and the bacterium is able to spread rapidly, feeding on the plant without encountering any kind of resistance."

Together with colleagues at the Max Planck Institute in Cologne and Zurich-Basel Plant Science Centre, Professor Mansfield used an experimental model plant called *Arabidopsis*, which is also affected by the disease, to examine what happens at the molecular level when bacterial speck infects a plant. The team found that the pathogen injects a protein into the host cell, which then deactivates and destroys, from the inside, receptors on the cell's surface which are designed to alert the plant to the presence of invading microbes.

Deactivating the receptors stalls the plant's defense mechanism in its initial stages - ordinarily the cell surface receptors would kick start a chain reaction leading to the production of antimicrobial compounds to fight and kill off the bacterial invader.

Professor Mansfield says: "This area of research has a wider significance beyond black speck disease in tomato, because the microbes that cause plant diseases probably all employ similar attacking strategies to suppress resistance in their hosts. The more we understand about how the pathogens that cause disease overcome the innate immunity to infection in crop plants, the better our chances of developing approaches to disease control that do not require the use of potentially harmful pesticides"

Researcher show hybrids grow better than their parents

23.nov.08

University of Texas at Austin



http://bioenergy.checkbiotech.org/news/researcher_show_hybrids_grow_better_their_parents

AUSTIN, Texas -- Hybrid plants, like corn, grow bigger and better than their parents because many of their genes for photosynthesis and starch metabolism are more active during the day, report researchers from The University of Texas at Austin in a new study published in the journal *Nature*.

Their research has relevance in many areas of agriculture, and could result in new methods to increase biomass for biofuels and seed production for animal feedstock and human consumption.

It has long been known that hybrid plants such as hybrid corn are more vigorous than their parents. They are larger and have more biomass and bigger seeds. The same is true for plants that are polyploid, meaning that they have two or more sets of chromosomes. Over 70 percent of all flowering plants, including many important agricultural crops such as wheat, cotton, canola, sugarcane and banana, are naturally polyploid. Until now, the molecular mechanisms for hybrid and polyploid vigor have largely been unknown.



"Before this discovery, no one really knew how hybridization and polyploidy led to increased vigor," says lead author Dr. Jeffrey Chen, the D. J. Sibley Centennial Professor of Plant Molecular Genetics. "This is certainly not the only mechanism behind this phenomenon, but it is a big step forward."

The key, Chen and his colleagues studying *Arabidopsis* plants found, is the increased expression of genes involved in photosynthesis and starch metabolism in hybrids and polyploids. These genes were expressed at high levels during the day, several-fold increases over their parents.

The hybrids and polyploids exhibited increased photosynthesis, higher amounts of chlorophyll and greater starch accumulation than their parents, all of which led to their growing larger.

Also, growth vigor was higher in allotetraploid plants (polyploids formed by combining two different *Arabidopsis* species) than standard hybrids (formed through combining the same species).

The research team discovered a direct connection between circadian clock regulators and growth vigor in both hybrids and polyploids. Circadian clocks control growth, metabolism and fitness in plants and animals. They found that some of these regulators, known as transcriptional repressors, were more repressed during the day in the hybrids and polyploids, leading to

increases in their photosynthesis and starch accumulation.

"This connection was a bit of surprise, but it makes a lot of sense," says Chen.

With this knowledge, Chen says they can now develop genomic and biotechnological tools to find and make better hybrids and polyploids.

"We can think about screening parent plants for these genes and selecting the ones to make the best hybrids," says Chen. "This could all be done through traditional breeding techniques and could have a huge impact on generating higher biomass crops for biofuels and increasing yield in many food crops."

The hybrid vigor or "heterosis" phenomenon was first observed by Charles Darwin in 1876, and was extensively studied in corn in the early 1900s. All corn in the U.S. is hybrid.

Many of the important polyploid crops, such as wheat and cotton, are known as allopolyploids, because they are formed from two or more different species. Chen and his colleagues study standard hybrid and allopolyploid *Arabidopsis*, cotton and corn.

Non-target insects probably affected more by insecticides than by Bt crops

24.nov.08

ARS News Service Laura McGinnis

<http://www.ars.usda.gov/is/pr/2008/081124.htm>

Non-target insects are probably affected more by conventional insecticides than by crops that contain genes from the soil bacterium *Bacillus thuringiensis* (Bt), according to the findings of a study by Agricultural Research Service (ARS) scientists and cooperators. The findings were published recently in *Public Library of Science*.

Bt crops such as maize and cotton are genetically engineered to produce insect-specific toxins. They target specific insect pests, but the researchers wanted to determine how these crops influence non-target insects in the environment.

To find out, scientists from ARS collaborated with researchers at the University of Nebraska at Omaha, Iowa State University and the U.S. Environmental Protection Agency. Steven Naranjo, a research leader at the ARS Arid Land Agricultural Research Center in Maricopa, Ariz., and Jonathan Lundgren, an entomologist



at the ARS North Central Agricultural Research Laboratory in Brookings, S.D., contributed to the work.

The scientists compared the abundance of groups of non-target insects. They first compared the abundance of these insects in Bt crops and non-Bt crops without any insecticides. They also compared the insect populations in both types of crops treated with insecticides. And they compared the non-target insect populations in Bt crops without insecticides versus the populations in non-Bt crops treated with insecticides.

They formed these groups of non-target insects with data drawn from a modified version of a public database created by Santa Clara University biologist Michelle Marvier and colleagues. The toxins examined included Cry1Ab and Cry3Bb in maize, Cry3A in potato and Cry1Ac and Cry1Ab in cotton.

The researchers observed considerable variability in the effects of Bt cotton and maize crops on non-target insects. However, the data within the groups were fairly consistent. The most influential factor was the insecticide applied. Collectively, insecticides such as pyrethroids, organophosphates, carbamates and neonicotinoids had larger negative impacts on non-target insects than did the Bt crops.

The researchers concluded that when it comes to killing non-target insects, no treatment at all has the least impact. Bt crops have considerably less impact on non-target insects than do conventional insecticides. Also, insecticides affect insect populations uniformly, regardless of whether they're in Bt or non-Bt crop fields.

Global warming is changing organic matter in soil

24.nov.08 University of Toronto Laura Matthews

http://www.eurekalert.org/pub_releases/2008-11/uot-gwi112408.php

New research shows that we should be looking to the ground, not the sky, to see where climate change could have its most perilous impact on life on Earth.

Scientists at the University of Toronto Scarborough have published research findings in the prestigious journal, Nature Geoscience, that show global warming actually changes the molecular structure of organic matter in soil. "Soil contains more than twice the amount of carbon than does the atmosphere, yet, until now, scientists haven't examined this significant carbon pool closely," says Myrna J. Simpson, principal investigator and Associate Professor of Environmental Chemistry at UTSC.

"Through our research, we've sought to determine what soils are made up of at the molecular level and whether this composition will change in a warmer world."

Soil organic matter is what makes dirt fertile and able to support plant life – both of which are especially important for agriculture. Organic matter retains water in the soil and prevents erosion. Natural processes of decomposition of soil organic matter provide plants and microbes with the energy source and water they need to grow, and carbon is released into the atmosphere as a by-product of this process. Warming temperatures are expected to speed up this process which will increase the amount of CO₂ that is transferred to the atmosphere. "From the perspective of agriculture, we can't afford to lose carbon from the soil because it will change soil fertility and enhance erosion" says Simpson.

"Alternatively, consider all the carbon locked up in permafrost in the Arctic. We also need to understand what will happen to the stored carbon when microbes become more active under warmer temperatures."



Until Simpson's research, scientists didn't know much about soil's molecular composition. Part of the reason is that, from a chemical perspective, soil is difficult to analyze due to its many components, including bacteria, fungi and an array of fresh, partially degraded, or old plant material. Simpson's team, which includes research collaborators Professors Dudley Williams and Andre Simpson, is uniquely positioned to address this new frontier. The team uses a NMR (Nuclear Magnetic Resonance) facility - the only NMR facility in Canada specifically dedicated to environmental research – to gain a detailed view of soil's molecular structure and reactivity. In their current study, Simpson's team used an outdoor field experiment in the valley behind the UTSC campus to ensure natural ecosystem processes were preserved. Electrodes warmed the test soil between three and six degrees through winter and summer seasons, over a 14-month period. Throughout the test period, the team analyzed the molecular composition of soil samples.

California miracle crop?

27.nov.08 Associated Press Tracie Cone

<http://www.nctimes.com/articles/2008/11/27/news/state/z8885ac2f9269fa388825750f00034fb4.txt>

FIVE POINTS -- A hardy but pedestrian plant is doing triple duty in California's agricultural heartland, absorbing a salt that once deformed waterfowl by the millions, creating clean-burning biofuel and nourishing cattle with the leftovers.



Crop-crippling selenium in soil and groundwater makes the arid west side of the San Joaquin Valley a challenge for farmers, whose diesel tractors have been blamed for helping cause the worst air quality in the nation.

But farmers, water managers and agriculture researchers are closely watching an experiment using canola plants to absorb the salt from soil and water. The seeds are then crushed to extract oil for blending into environmentally friendly biodiesel.

If that were the end of the story, it would be just another case of farmers turning food into fuel. Yet at John Diener's Red Rock Ranch in this town 60 miles southwest of Fresno, the selenium-rich canola byproduct has an even higher calling: cattle feed naturally infused with an essential micro-nutrient.

In a trial, Diener's canola meal was fed to dairy cows on the east side of the Valley, where selenium does not occur naturally and has to be added to food rations.

"It's all part of what we have to try to do here to turn a profit," said Diener, who also grows almonds, tomatoes, grapes and corn on 5,000 acres. "The controversy of the day is taking ground for food crops and using it to make energy. This is taking ground that isn't good for anything right now."

Whether canola can cure the valley's groundwater and soil problems and become a viable crop is the challenge facing researcher Gary Banuelos of the U.S. Department of Agriculture's research station in Parlier, who manages test plots at Diener's ranch.

New green leaf lettuce leaves leafminers in the lurch

01.dec.08 ARS News Service Marcia Wood

<http://www.ars.usda.gov/is/pr/2008/081201.htm>

Green leaf lettuces bring the rich color and pleasing texture of their crinkly leaves to any garden salad. Besides being a favorite with salad lovers, this kind of lettuce is also a top choice for destructive insects known as leafminers, or *Liriomyza langei*.

To combat leafminers, Agricultural Research Service (ARS) plant geneticists Beiquan Mou and Edward Ryder (now retired) developed the world's first leafminer-resistant green leaf lettuce.

Adult leafminers, which are shiny black flies with a yellow

triangle on their backs, ruin leaves when they puncture them to feed on sap. Females add to the damage when they lay tiny oval eggs inside the leaves. Wormlike larvae hatch from the little eggs and, as they feed, create the mine-like tunnels for which the pest is named.

In addition to its leafminer resistance, the attractive, robust new lettuce can shrug off attacks by the virus that causes lettuce mosaic. This disease, spread by green peach aphids (*Myzus persicae*), gives leaves a sickly mottled or mosaic appearance, rendering the lettuce unmarketable.

Mou and Ryder, based at the ARS Crop Improvement and Protection Research Unit in Salinas, Calif., screened more than 100 kinds of lettuce from ARS' Pullman,

Wash.-based world collection of lettuces, and from elsewhere, before selecting ARS' own "Salinas 88" lettuce and a red leaf lettuce as parents for the new green leaf offspring. They put it through seven years of laboratory, greenhouse and field tests, then made it available to plant breeders and researchers earlier this year.



The lettuce, known as MU06-857, is the newest in a series of first-rate iceberg, romaine, and leaf lettuces--and spinach--from the internationally known plant-breeding program at Salinas. The lab's crisp, crunchy iceberg lettuces, for example, have made iceberg the best-selling lettuce in America. Nearly every iceberg lettuce grown in the United States today owes at least some of its parentage to ARS' lettuce-breeding research. ARS is a scientific research agency of the U.S. Department of Agriculture.

Earthworms decompose GM maize

15.dec.08 Checkbiotech European Commission, Environment DG

http://greenbio.checkbiotech.org/news/earthworms_decompose_gm_maize

GM maize (Bt-maize) plants are engineered to produce 'cry' proteins that are toxic to the European corn borer, a major insect pest responsible for corn crop losses. Recent studies have shown that planting Bt-maize can increase yields and grain quality, as well as profitability. However, there is concern that cry toxins may have an impact on other species besides the corn borer. It is therefore essential to understand the fate of these toxins in soil.

As widespread soil-dwelling species, earthworms are important indicators of soil quality. Their burrowing and feeding activities may also have an impact on any toxins released into the soil. However, until now it has been unclear exactly how earthworms affect cry toxin levels - whether they stabilize or reduce concentrations. New



research shows that earthworms may in fact help to enhance the decline of cry toxins in soils planted with GM maize.

The researchers studied two species of earthworm, *Lumbricus terrestris* (the 'common earthworm' or 'night crawler'), and *Aporrectodea caliginosa* (the 'grey worm'). These were added to soils to which GM plant matter (leaves and roots) had been added. Five weeks after leaves were added to the soil concentrations of the toxin, Cry1Ab, were at least 4 per cent lower in soils containing earthworms compared with soils without earthworms. Where earthworms were fed on roots instead of leaves, they reduced concentrations of the toxin by at least 3 per cent.

According to the researchers, earthworms may help microorganisms in the soil decompose plant matter containing the toxin, by releasing compounds that enhance microbial activity. There were some differences to be found between the impacts of the two species of worm, however, which may be due to their different eating habits. The *A. caliginosa* proportionally ingests more soil than the *L. terrestris* which in turn increases concentrations of clay material. Clay can help stabilise levels of the Cry1AB toxin in the soil. While this could increase its effects on the corn borer, it also raises the possibility that the Cry1Ab could be available to other, non-target, organisms for a longer time period. Further research is needed to explore the effects of soil type and worm activity on the persistence of toxins in the soil.

Such studies may provide insights into how soils should be managed where Bt-maize is cultivated and will become more important to agricultural practice in the EU as commercial cultivation of GM crops continues to rise. In 2007, the area covered by GM maize in the EU rose by more than three quarters, from 62,000 hectares to 110,000, with Spain producing a quarter of all its maize from genetically modified crops.

Others' Bits

Volunteers Needed: PH Instructional Garden

Pleasant Hill Instructional Garden (PHIG) Pleasant Hill Education Center Gardening Program 1 Santa Barbara Road Pleasant Hill, CA. 94523 (925) 937-1530 – Email: phecgarden@prodigy.net

Students of the Gardening Program of Mt. Diablo Adult Education, Boy Scouts, Girl Scouts, Contra Costa Master Gardeners, DVC's adaptive horticulture class, and other

interested volunteers and neighbors are teaming up with the City of Pleasant Hill and the Contra Costa Central Sanitary District to create a beautiful and water-conserving garden at the Pleasant Hill Adult Education Center on Santa Barbara Road, next to the Pleasant Hill Middle School. It will serve as a demonstration garden using healthy garden practices (no pesticides), water conservation and recycling methods, and drought-tolerant and native plantings. We would very much appreciate if you pencil in one or more of these work party days to help us out at the garden on the following dates:

Sunday, January 18: 2-5 pm
 Sunday, January 25: 2-5 pm
 Friday, January 30: 2-5 pm



Sunday, February 8: 2-5 pm
 Friday, February 13: 2-5 pm
 Sunday, February 15: 2-5 pm
 Friday, February 27: 2-5 pm

Sunday, March 1: 2-5 pm
 Friday, March 13: 2-5 pm
 Sunday, March 15: 2-5 pm
 Sunday, March 22: 2-5 pm

For questions or for further information, please email: phecgarden@prodigy.net, or phone Monika Olsen, Teacher: (925) 937-1530.

There will be other projects and additional dates scheduled in the future as well.

January "To Do" Calendar

USDA zones from 8 – 9B
 Sunset zones range from 7-17
 Average max. T. 63F, 17.22C
 Average min T. 41.5F, 5.28C
 Average rainfall 3.14", 7.96cm
 Average Max T. between (F)41.9-57.6 (C)5.5-14.2
 Average Min. T. (F) 35.6 (C)2.0
 Average total rainfall (in) 3.2-6 (mm) 82.1-151
 Named for Janus, the god of doors and gateways.
 In Finnish, the month is called *tammikuu*, meaning "month of the oak"

- Design and plan your spring/summer garden.
- Order seeds — try something new this year.

(Cont'd below)



- Start a garden journal — free on-line at:

<http://davesgarden.com/>

- Protect plants if frosts are predicted: use outdoor lights or build a light weight frame and cover plants. Anti-transpirants such as ‘Cloudcover’ and ‘Wiltpruf’ will provide a bit of protection. Make sure plants are not drought stressed.

- Avoid walking on wet soils.

- Plant bare root fruit trees, berries, rhubarb, asparagus, grapes, roses and ornamental trees and shrubs.

- Prune dormant fruit trees: peaches, plums, apples, pears, cherries, nectarines — DO NOT PRUNE APRICOTS. Prune dormant shrubs, *Hibiscus syriacus*, *Buddleia*, *Lagerstroemia*, *Cotinus coggygria*, *Hydrangea* etc. Roses:

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7465.html>

Do not prune spring flowering shrubs.

- Chop** all prunings into small 4” pieces for your compost pile or shred.

- Take root cuttings** of perennials such as artichokes, rhubarb, *Acanthus mollis*, *Anchusa*, *Anemone*, *Asclepias*, *Baptisia*, *Echinops*, *Erodium*, *Eryngium*, *Geranium*, *Limonium*, *Lisianthus*, *Papaver*, *Phlox*, *Primula denticulata*, *Pulsatilla*, *Limonium*, *Verbascum*, **shrubs:** *Aesculus*, *parviflora*, *Chaenomeles*, *Clerodendrum*, *Daphne*, *Rubus*, *Vaccinium*.

- Feed Citrus** according to package instructions.

- Chop** up old Christmas trees and use as mulch around acid loving plants.

- Check sprayers — clean well and check nozzles for clogging.

- Spray peaches and nectarines with fixed copper for peach leaf curl:

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7426.html>

(Cont'd at right)

- Spray apple, pear, peach and nectarine, apricot trees with dormant oil to control scale, aphid and mite eggs.

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7481.html>

- Plant seedlings of frost hardy vegetables in prepared beds.

- Clean seed starting trays and containers — use a 10% bleach solution to kill damping off fungal spores.

- Do you have enough labels and a good wax pencil for labeling seedlings?

- Check your worm compost bin — make sure it is not too cold, bring into an entry way or back porch if needed.

- Remove winter weeds before they set seed.

- Re-pot conifers into larger containers.

- Get lawnmower blades sharpened. Replace air filters.

- Watch for snail and slug damage. Trap or use iron phosphate baits.

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7427.html>

- Gather scion wood for fruit tree grafting. Scion wood is available at the CRFG scion exchanges. The Golden Gate Chapter’s 2009 scion exchange will be on Saturday, January 17, at the UCSF Mission Center, from noon until 3 pm. For more info, visit:

http://www.crfg.org/chapters/golden_gate/scionex.htm

- Take hardwood cuttings of deciduous shrubs for propagation.

- Bring in branches of quince, forsythia, and flowering cherry to force

- Plant 4” color annuals and perennials in prepared beds: *Calendula officinalis* (Pot Marigold), *Iberis sempervirens* (candytuft), *Pericallis x(cineraria)*, *Dianthus sp.* (pinks), *Primula sp.*, *Papaver nudicaule* (Icelandic poppies), pansies, *Antirrhinum* (snapdragon), *Matthiola*, (stock), violas

- Set up a water storage system to save rainwater.



CCMG Volunteer Event Calendar, JAN 09

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1		2 9 am – noon Help Desk
4	5 9am – noon Help Desk	6 9 am – noon Help Desk Concord Farmers market 10 am -2 pm	7 9 am – noon Help Desk	8 9 am – noon Help Desk MG Class - Propagation. Mid-term due		9 9 am – noon Help Desk
	11 9 am – noon Help Desk	12 9 am – noon Help Desk Concord Farmers Market 10 am -2 pm MG Exec Comm Mtg 7 pm	13 9 am – noon Help Desk	14 9 am – noon Help Desk	15 9 am – noon Help Desk MG Class – Landscape Design	16 9 am – noon Help Desk
18	19 9 am – noon Help Desk	20 9 am – noon Help Desk Concord Farmers Market 10 am -2 pm	21 9 am – noon Help Desk	22 9 am – noon Help Desk MG Class – Edible Landscaping		23 9 am – noon Help Desk
25	26 9 am – noon Help Desk	27 9 am – noon Help Desk Concord Farmers Market 10 am -2 pm	28 9 am – noon Help Desk	29 MG Class – Plant Pathology		30 9 am – noon Help Desk
						31

To view the most current version of the Events Calendar, or to sign up for an event, visit: <https://ucce.ucdavis.edu/mg>. Log on and select "Events Calendar."



Bethalyn Black, Upland Horticulture/Master Gardener Program 646-6130

Bethalyn Black

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The Latest Dirt
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