

UCCE Master Gardeners of Lake Tahoe *Lake Tahoe Horticulture News*

March 2016

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Coordinator's Corner:

Greetings! We apologize for the hiatus in regular news from the UCCE Master Gardeners of Lake Tahoe. We hope to be on a much more regular schedule going forward. Although you may have not heard from us recently it doesn't mean we haven't been very busy! This past fall we started a brand new phenology study on fall alliums. Through this science study we are hoping to better understand how specific varieties of plants fair in our high elevation granitic soils. Master Gardeners have partnered with schools in the Lake Tahoe Basin and with the public to help us grow out trials. Please read the article "Phenology..." below for more information. Consider joining us on this endeavor this spring or next fall. Our next trials are on strawberry's and asparagus! Yummy! We will also be adding information to our website.

Our UCCE Master Gardeners had a great Continuing Education field trip to a flourishing and productive winter greenhouse in the mid-Kingsbury grade neighborhood. In the future we would like to host a Tahoe greenhouse tour to offer up ideas, solutions and vision for those of you who are interested in growing produce year-round. Speaking of tours, we have decided that in order for the UCCE Master Gardeners of Lake Tahoe to provide the best *Tahoe In Bloom Garden Tour* experience we need to make it a biennial event. We will be back in the summer of 2017 to host an awe-inspiring tour of gardens in South Lake Tahoe.

In lieu of a formal *Tahoe in Bloom Garden Tour*, we will be partnering with Tahoe-based garden clubs and organizations in Lake Tahoe to host a few public gardens tours. We will have our first public garden tour at our 3rd Annual June Day Jamboree and Plant Sale. The event will be on Saturday, June 11th from 9 am -1 pm at LTCC. At the event, we will have informational booths, plants for sale and a tour of the Demonstration Garden. Please see the "upcoming events" section below for information on additional public tours.

[LT Master Gardeners website](#)

[Like us on Facebook!](#)

We have a lot of fun and informative events planned for this spring and summer and hope that you will be able to join us. In honor of Earth Day we will be giving a free talk on *Our Climate Is Unhealthy--but We Have the Power to Heal*: You've heard people talk about it. We all sense that our climate is changing right here in Tahoe. But is it true? And if it is changing, what can we possibly do about it? In this talk focused on our South Tahoe home, Master Gardener Bonnie Turnbull will provide evidence that not only can we do something--we already are. The talk will be on April 28th at 6:30 pm at LTCC (Aspen/Board Room). Lastly, for those of you with kiddos we are planning our first ever *Junior Master Gardener Summer Camp*. Stay in touch for additional details!

Sincerely,
Megan Suarez-Brand

Upcoming Events & Opportunities

Save the Dates!

April 7th: Butterflies and Bees with Ellen Zagory of the UC Davis Arboretum, Tahoe City for Environmental Sciences, Incline Village.

<http://terc.ucdavis.edu/events/upcoming-events/> (Free)



April 26th: Asparagus Phenology Workshop; 5:30 pm at the Truckee Demonstration Garden, Truckee Regional Park. (Free)

April 28th: Our Climate is Unhealthy--but We Have the Power to Heal. Presentation by Master Gardener Bonnie Turnbull, 6:30 -7:30 pm, LTCC Aspen/Board Rm (Free)

May 3rd: Tree Mortality in the Lake Tahoe Basin--Causes and Consequences with Patricia Maloney of UC Davis TERC, Tahoe City for Environmental Sciences, Incline Village,
<http://terc.ucdavis.edu/events/upcoming-events/> (Free)

May 31st: Strawberry Phenology workshop, 5:30 pm at the Truckee Demonstration Garden, Truckee Regional Park. More info to follow.(Free)

June 4th: Tahoe Friendly Landscaping: Removing your lawn the easy way and Design a water-wise garden at 9 am to 12 pm, LTCC. (\$)

June 7th: The power of pollinators: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion. (Free)

June 11th: June Day Jamboree and Master Gardener Plant Sale:

9 am to 1 pm at LTCC parking lot near demo garden. Plants will be available for purchase. There will be Master Gardeners on hand to answer questions and make recommendations. We will also be giving a tour of the LTCC Demonstration Garden (Free/ \$ plants)

June 14th: Vermiculture workshop, 5:30 pm at the Truckee Demonstration Garden, Truckee Regional Park.

June 18th: Tahoe Friendly Landscaping: Drip Irrigation Basics. 9 am to 12 pm, LTCC. (\$)

June 21st: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion. (Free)

June 25th: Tahoe Friendly Landscaping: Garden Installation and Care. 9 am to 12 pm, LTCC (\$)

July 5th: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion (Free)

July 16th: Public Garden Tour at Tallac Historic Site, *more details to follow...*

July 19th: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion (Free)

July 30th: Lake of the Sky Garden Club: North Shore Garden Tour-- (<http://californiagardenclubs.com/content/lake-sky-garden-club>) (\$)

August 2nd: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion (Free)

August 16th: Educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion (Free)

September 13th: Planting Fall bulbs: educational booth at the South Lake Tahoe Farmers Market, 9 am to 12 pm, American Legion (Free)



September 13th: Phenology workshop, 5:00 pm at Truckee Demonstration Garden, Truckee Regional Park. Bring a bib and more info to follow! (Free)

Growing Vegetables Year-Round at 7300+ ft.

Home grown vegetables are always a treat, but unlikely to happen in January in the Tahoe Basin, unless you happen to be Jim and Judy McIntire. The McIntires live in the Upper Kingbury neighborhood of Stateline on the Nevada side of the Lake. Their secret to having year round vegetables is the 12ft. x 8ft. greenhouse firmly planted on a south facing



deck. The hobby size greenhouse, a Costco special, was bought last summer and has been the source of fresh vegetables ever since. While the instructions indicated a few hours to assemble Jim found that a few days were closer to the mark. The greenhouse has a sturdy aluminum frame, and polycarbonate panels. The side walls are about 6 ft. in height, with center height close to 8 ft. Placement of unit on the deck was a careful consideration, orientated to allow easy access and not block the sliding door into the house.

By positioning the greenhouse next to the railing, snow that sluffs off its high pitched roof falls off the deck. Jim, a retired United Airlines pilot customized many aspects of the basic greenhouse to better suit the growing conditions found at nearly 7600 ft. Among the modifications needed for year round use was installation of electric heaters to maintain a minimum temperature of (55 F) during the winter months. Since the greenhouse is on a deck some floor insulation was needed to retain heat. This was achieved by the use of indoor/outdoor carpet placed on the deck. The carpet is porous so any water drains through the carpet and falls from the deck. To improve insulation values of the walls, clear bubble wrap was taped to the interior frame. The cost of these items were remarkably little, and does save on the heating bill. Jim uses a combination of fluorescent and LED lights as grow lights, using them for up to 18 hours per day. The greenhouse also has an automatic operating exhaust window that opens in the event the temperatures get too hot (85 F).

In addition to vegetables being grown, Jim and Judy do have a small worm bin where earthworms process food and plant scraps into castings which are added to the soils, or used to make a tea that is applied to the plants as a nutrient solution. The tea making operation and use of a semi-hydroponic system for watercress, adds humidity to the greenhouse air which helps in heat retention.

Jim's approach to growing includes flexibility in both methods being used and selection of plants to be grown. Jim's use of large, 18 inch deep, wooden planters that have wheels allows the bins (that look like raised beds on wheels) to be rolled outside once the weather and temperatures permit growing outdoors. Wheels also allow him to roll the planters back into the greenhouse if a cold snap is expected. Growing cooler weather plants outdoors in the spring and summer frees up space in the greenhouse for growing more cold sensitive plants such as tomatoes during summer months. Jim's other plant bins have handles to allow them to be easily

moved - either outdoors if conditions are right or to different areas of the greenhouse if required.

The McIntires grow a variety of vegetables during winter months, with Jim experimenting on varieties, spacing and companion plantings to maximize production and minimize use of chemical aids. Plant selection is also based on taste favorites. Current production includes beets (3 varieties being evaluated), cilantro, lettuce, radish, carrots, green onion, garlic,



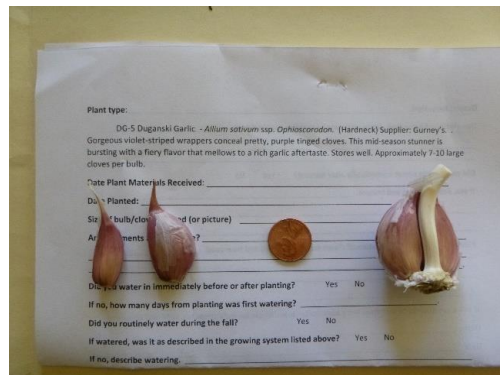
garlic chives, chives, oregano, mint, watercress and lemon thyme.

Growing vegetables in a greenhouse, even in winter is not a pest free endeavor, with aphids, white flies and compost flies a concern requiring some mitigation such as sticky hanging strips, addition of beneficial soil nematodes and purchase of ladybird beetles (even in winter). Jim's go-to book during this set-up and initial growing season has been the *Greenhouse Gardener's Companion*, by Shane Smith (2000). Jim indicates that growing vegetables in a greenhouse has been a very steep learning curve and that there always are surprises and new things to learn.

Please note: Disclaimer "No endorsement of above mentioned product/company is intended, nor is criticism implied of similar products/Companies that are not included." UC Cooperative Extension

Phenology, it isn't just fun to say....

by: Jennifer Lenstrom, UCCE Master Gardener of Lake Tahoe



Phenology is a word not many people will ever hear, and is very undervalued. It is the study of periodic phenomena that occur in relation to weather and climate. In horticultural terms, it's the timing of plant growth within a season. For the past few months, a few fellow Master Gardeners and some ambitious volunteers have been studying this topic using varieties of onions and garlic including raised beds, greenhouses, and sowing straight

into the ground. Our goal by the end of this is to determine which variety fits into the small window of our growing season. We also want to get an idea of which horticultural method is most conducive to optimal plant growth. We also plan to study strawberries and possibly asparagus in the near future. (and a single leek, because why not?).

We aren't looking at just climate, we are also assessing soil type, exposure, and bed type. There have been an array of planting environments by our volunteers, including raised beds, greenhouses, and straight into the ground. Our goal by the end of this is to determine which variety fits into the small

window of our Tahoe growing season. We also want to get an idea of which horticultural method is most conducive to optimal plant growth.

Cultivation aspects:

This year's project focused on planting onion sets, which are first year bulbs rather than seeds or transplants, the other two type of strategies in onion cultivation. The onion is a biannual plant, taking two growing seasons from seed to mature onion bulb. Onion sets are the result of the first year's growth. The basic planting technique was to plant the small bulbs between 1-2 inches deep orientated with the flattened basal root section down and pointed stem portion up. Planted in the fall the onion will regrow a root system over the winter and be ready to sprout as soon as soil temperatures warm to above freezing and the snow has melted. The green shoots are hardy and can withstand a series of freeze- thaw cycles or snowstorms. Bulb size is determined in part by variety, overall soil fertility, and consistent soil moistures during the growing season. As the bulb and plant matures the position of the basal plate in relationship depth of soil changes very little so as a consequence the upper portion of the bulb and stem portion will be above the soil surface. A tendency of those new to growing onions is to rebury the tops of the bulbs, with the thought being that the bulb stem would become sun damaged or would dry out. The exposed portion of the bulb builds layers of protective scale layers, which aids storage and sun protection. Putting soil or a mulch over the exposed portion of the bulb, makes the plant more susceptible to mildew, earwigs, onion maggots and rots.



There is an interesting aspect in the root development with the onion (and other bulbing plants). Most types of bulbs or corms (as well as many rosette type ground plants) have a specialized set of roots called contractile roots that expand in both length and width when young and developing and contract greatly when mature. The net effect is to pull the bulb or plant deeper into the soil, where temperatures are moderated, predation is less and

moisture more constant. The cultivated bulb onion, lacks these types of roots, consequently the bulbs remain close to the soil surface, with as much as 30% of the mature bulb exposed. The shallots and multiplier onions do have the contractile root system and left alone will get deeper into the soil. Since the contractile roots expand in width as well as length they can pull the plant around rocks and soil obstructions.

References:

National Onion Association. Consumption Information. www.onions-usa.org/all-about-onions/consumption

Thanks to Alison Toy, Dave Long and Jennifer Lenstrom for the great science project!

Onion Phenology Part I: Wethersfield Red Onion

by: Dave Long, UCCE Master Gardener of Lake Tahoe

This is the first in a phenology series on onions. The red onion that we selected for our trials is a variety of the Wethersfield Red Onion, and is one of the most common red onions available as onion sets. As with all onions the taste and, to a certain extent size, is a function of where grown. So with some replanting efforts you can truly say you have a Tahoe onion.



The town of Wethersfield Connecticut is arguably home to America's first famous onion variety. The Wethersfield Red Onion, also referred to as Wethersfield Red or Large Red was developed from onion stocks brought over from England with the earliest Massachusetts Bay colonists, and grown in local gardens throughout the region. Onions like most culinary alliums (garlic, shallots, chives and leeks) do take on specific growth and taste characteristics from the location where grown. Onions also can be grown year after year on the same plot of land without periodic

crop rotation, which may add to the "terroir" a variety such as the Wethersfield Red onion might possess. Areas in and around Wethersfield have grown the red onion on the same plot of land for over 100 years. Wethersfield itself has an interesting founding by John Oldham, who was banished from the Massachusetts Bay Colony for drawing a knife on Miles Standish.

The Large Red or a very close ancestor was a staple in almost every area garden, with any excess harvest sold, often as provisions for ships sailing the Atlantic Coast and West Indies. Some small market plots began being planted in the late 17th century and large scale commercial market production started with the Wells Brothers in 1788.

The Wethersfield Red was an excellent choice for provisioning and as a market onion since as a long day variety with a lower moisture content and having multiple layers of protective bulb scales it stored well for long periods without significant bruising. This combination of physical traits along with a superior taste both raw and cooked saw the onion shipped all along the eastern sea coast and into the West Indies, Bermuda and the Bahamas.

The early cultivation of these onions was generally undertaken by women, as a supplement to the family's income, either through extra production from the family garden or as contract labor in commercial farming operations. Stories arose around the onion maids, or maidens and their purchasing of fine fashions, gloves and bonnets with money earned. The alternate story was that much of the money earned went for snuff or tobacco (also

a Connecticut export). With respect to the bonnet, hats were always worn outdoors by ladies, both as a protection from sun and by the cultural norms of the time.

Wethersfield resident, and possibly an onion maid herself, Sophia Woodhouse developed and patented (1821), at age 19, a method of preparing, plaiting

and weaving a local spear grass into a bonnet. This type straw bonnet was worn by first ladies Dolly Madison and Louisa Adams (John Quincy Adams). Simpler versions were made and worn by generations of the onion maids.

The Wethersfield Onion played roles in literature (a key plot element in the 1958 novel *Witches of Blackbird Pond*) and commerce. The commerce aspect was both local and national with reverberations still heard today. In the area around Wethersfield the onion became one of the most important cash crops, with a 5 pound skein of onions being the typical unit of sale and four skeins making a rope of onion. During the onion's heyday 1-1.5 million 5 pound skeins were exported annually. This level of onion cultivation required segregation of activities from producing and harvesting onion seeds from the overly mature two year old plants, to seed storage, fall planting of seeds and weeding and maintenance of fields for two growing seasons. Seeds in excess of area needs were shipped to growers in other areas of the colonies (before 1776) and to the northern states after independence. The onion seed collecting, storing and shipping business attracted seed merchants to locate to the area, expanding the agricultural base to include seed production for many types of fruits and vegetables. Today two international seed companies from the 19th Century remain. Charles C. Hart Seed Company and Comstock, Ferre & Company continue to have headquarters in Wethersfield.

Attempts to grow the Large Red onion in the coastal south and West Indies failed (it was after all a long day variety), and the unavailability of the onion in the British West Indies during the Revolutionary War and War of 1812, along with later episodes of pink root disease in the Connecticut fields, led to a loss of market share.

The Wethersfield Onion still plays a part in the culture of the area, being prominently displayed on area signs, as a local mascot and is the basis of payment for the Wethersfield Historical Society, which pays its annual rent to the City for use of a 18th Century warehouse building with Wethersfield Red Onions. The payment amount equaling a 20 pound rope of Wethersfield grown Large Reds, has been the traditional payment for decades. Problems arose in 2011 when most of the crop was devoured by a resident groundhog (named - no kidding - Wethersfield Willy). The Historical Society members offered Glastonbury grown onions from Wethersfield seed onions provided by the Hart Seed Company. In accepting this payment the town council noted that while they sympathized with the situation, the agreement called for Wethersfield grown onions, and that Glastonbury had not been part of Wethersfield since 1693. All agreed it was an awkward situation that would be overlooked for that year. Red's popularity was being replaced by a short day Bermuda Onion in the West Indies grown from Canary Island seed. By the beginning of the 20th century the Wethersfield Red Onion was relegated to a local specialty crop and heirloom onion, and Onion Town was rapidly being thought as a suburb of Hartford the State's Capital.

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- Weaver, William W. 2013. Heirloom Onion Varieties. Mother Earth News.
- New England Historical Society. 2013. The Raise and Fall of the Wethersfield Red Onion.
- Yankee Magazine. 2007. Wethersfield Connecticut and Onions.

Adams, Sherman W. 1904. The History of Ancient Wethersfield Connecticut. Henry R. Stiles, Editor. The Grafton Press. New York. (2010 Digitized edition).

John Leffler, "BERMUDA, TX (DIMMIT COUNTY)," Handbook of Texas Online (<http://www.tshaonline.org/handbook/online/articles/hvb47>). Uploaded on June 12, 2010. Published by the Texas State Historical Association.

Josefiak, Melissa. 2003. Sophia Woodhouse's Straw Bonnets. Connecticut Explored.

Is Glyphosate a Carcinogen? And Bacon too!

By Scott Oneto, Farm Advisor, University of California Cooperative Extension

Last year, the International Agency for Research on Cancer (IARC) made a determination that glyphosate...the active ingredient in Roundup® and other similar herbicide products..."is probably a human carcinogen". IARC placed the herbicide in its 2A...probable human carcinogen...group along with other compounds such as grapefruit juice, apples, UV light, red meat, some occupations including hair dressers and those jobs that include working a night shift. IARC's determination of listing glyphosate as a probable carcinogen was based on "limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals".

WARNING

**This Area Contains
Chemicals Known
To The State Of
California To
Cause Cancer
and Birth
Defects Or Other
Reproductive
Harm.**

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Scott Oneto, is the Farm Advisor and County Director for the University of California Cooperative Extension Central Sierra. He can be reached at sroneto@ucanr.edu or 209-223-6834.

Tahoe Trees & Plants: Spotlight on the Red Fir

Red Fir --*Abies magnifica*

The Red Fir tree is typically found in small groupings or groves within the Tahoe basin, and is only rarely found at lake level. Younger trees are somewhat similar in appearance to the more common White Fir.



The differences being that Red Fir needles are slightly shorter, more blue/green in color and more rounded (*easily rolled between your fingers*) than the White Fir.

The needles also are more tightly arranged on the branch and the outer sections of branches have a more regular dendritic look than White Firs. Mature Red Firs have the

distinct reddish bark (*hence the common name*) and deeper furrows than the

White Fir. While Red Firs and White Firs may be found in the same areas, the ecology and distribution of these two Tahoe Basin trees are different. The Red Fir is found only in the Sierra and the Coastal/Cascade Range in southern Oregon. White Firs are more widely distributed in the west.

Red Firs are considered a climax community member, often forming large Red Fir Forests in the Sierra, and significant groves in the Tahoe Basin. At maturity the Red Fir is larger (both height and volume) and attain greater age than the White Fir. Red Firs are found in areas that have cooler temperatures, and significant winter snow ground cover. Red Firs do poorly on overly wet ground or where there are consistent summer rain events. The immature trees are not greatly affected by being shaded or in the understory.

Reproduction is sexual, with male cones forming on mid-level branches and female cones on upper branches. Seed distribution is via wind and by squirrel caching of ripe cones. Cones ripen in mid to late fall, but adhere to the branch to facilitate wind distribution of the seeds.

The Red Fir is widely grown for the Christmas Tree Market under the name Silver Tip Fir. Historically the wood was used for cordwood, but more interest is being given to dimensional lumber, plywood and paper use. The chipped bark is readily sold as mulch due to its natural coloration.

TRPA Tahoe Basin Tree Identification. http://www.trpa.org/wp-content/uploads/Tree-ID-tip-sheets_2012-version-MS.pdf

Laacke, Robert. California Red Fir. USDA Forest Service. http://www.na.fs.fed.us/pubs/silvics_manual/Volume_1/abies/magnifica.htm

The Gymnosperm Database. Abies magnifica. http://www.conifers.org/pi/Abies_magnifica.php

Spotlight on a Lake Tahoe Public Garden:

Tahoe City Field Station, Eriksson Education Center Demonstration Garden

by Alison Toy, Program Coordinator and Docent Coordinator, TERC & UCCE
Master Gardener of Lake Tahoe

This is the first in a series on public gardens in Lake Tahoe. Each newsletter we hope to highlight a new "public garden, demonstration garden, public space that exemplifies a Tahoe-friendly landscape."



The Tahoe City Demonstration Garden and historic hatchery building (located at 2400 Lake Forest) is operated by the UC Davis Tahoe Environmental Research Center (TERC) and is open 7 days a week, 8am-6pm from Memorial Day through Labor Day for self-guided tours (Saturdays, 10am-2pm) for docent-led tours). This 3-acre garden focuses on encouraging native plant gardening and utilizing citizen science

to monitor a plant's response to changes in climate.

Follow the permeable brick path that meanders through the garden and learn Tahoe's native flora from small green identification placards sprinkled throughout the garden. Using a diverse array of native species in your gardening plan will reduce your dependency on water and fertilizers and help maintain the natural order of this ecosystem by attracting native wildlife and pollinators. Discover that you don't need a science background to be a citizen scientist; all you need is enthusiasm to learn and a passion for preserving this beautiful environment.



Become a Citizen Scientist with TERC docents every Saturday from Memorial Day through Labor Day (10am-2pm). ay through Labor Day for self-guided tours (Saturdays, 10am-2pm) for docent-led tours). This 3-acre garden focuses on encouraging native plant gardening and utilizing citizen science to monitor a plant's response to changes in climate.



For additional information please visit the [UCCE Master Gardeners of Lake Tahoe website.](#)

To learn more about [UC Davis TERC](#), visit our website or visit our Tahoe Science Center in Incline Village (open year round)!

Learn it, Grow It, Teach it!

Become a Master Gardener of Lake Tahoe

Master Gardeners of Lake Tahoe will begin recruiting for new volunteers this summer! We will be holding our next 11-12 week training in the fall of 2016. More details and information to follow. If you are interested and/or know someone who is please contact Program Coordinator, Megan Suarez-Brand at mesuarez@ucanr.edu or fill out the on-line interest [survey](#).



Sincerely,

Megan Suarez-Brand, Program Coordinator & UCCE Master Gardener of Lake Tahoe Contributors: Alison Toy, Dave Long and Jennifer Lennstrom

The UCCE Master Gardeners of Lake Tahoe strive to meet the horticulture needs of the Lake Tahoe Basin Community, we are pleased to extend research-based information to fellow gardeners on home horticulture. Our Master Gardener volunteers receive training and certification from the University of California Cooperative Extension and provide practical scientific gardening information.

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