
Photo by Melinda Nestlerode

University of California Cooperative Extension

Online Edition

# Seeds For Thought

UCCE Master Gardeners-Solano Co.

Winter 2021 Vol. 16 Issue 1

# OF SHRUBS, TREES, AND OTHER NASTY COMPANIONS

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

If you are a chef or a seasoned cook, you know enough not to group certain foods together. You know, for instance, not to store bananas or sweet potatoes in the refrigerator. Situated among other foods in too cool a place, the bananas will blacken and not become sweet; the sweet potatoes will acquire odd flavors and a hard center. You also know enough to keep apples and bananas apart on the kitchen counter (or wherever you store them) because the ethylene produced by apples will speed up the ripening of all the bananas at once.

*All Photos in this Article by Melinda Nestlerode*

Much the same idea and precaution is true of roses. We often read or hear suggestions for companion plants, but we rarely, if ever, are informed of plants not to pair with roses. And indeed some plants should not be set side by side or grouped together. What follows is a brief cautionary instruction of what NOT to grow with or near your roses.

*Azalea*

Do not choose azaleas, gardenias, and rhododendrons as companion plants for roses. They require high acid levels in their soil and nutrients. Roses prefer some acidity, ideally a ph between 6.0 and 6.5, though slightly higher, edging toward neutral (to 6.9) or somewhat more acidic (to 5.5) is generally tolerable. But if your azaleas, camellias, gardenias, or rhododendrons are growing in 4.0 to 5.0 ph soil (ideal for them), you will damage your roses.

Avoid planting among your roses such companions as lambs ears (*Stachys byzantina*), hen-and-chicks (*Sempervivium*), ice plant (*Mesembryanthemum*), and stonecrop (*Sedum*). These plants require low water. The amount of water required by many roses would eventually rot and kill those plants. Ice plant is invasive, regardless, and one I would not recommend for a garden, especially in California where it is not indigenous..

On the other hand, growing wild portulaca, also called Purslane (*Portulaca oleracea*) with your roses will create, like tree roots, a competition for both nutrients and water. And if grown too closely to roses, Mexican bush sage (*Salvia leucantha*), though fairly drought tolerant, will send a roadmap of roots toward the watered roses and become invasive as well as competitive for space.

*Salvia leucantha*

Certain plants are particularly attractive to some kinds of harmful insects. Columbine (*Aquilegia*), marigolds, and annual verbena (*Verbena* x hybrida) attract spider mites. You do not want to invite these miniscule creatures to your rose party. If you cannot live without one or more of these, planting these three flowers a good distance from your roses may keep the spider mites distracted from the queen of flowers. If you enjoy verbena, and/or you wish to use it as groundcover—and I do—grow the perennial types among your roses; the selection is large.

Finally, avoid using a privet hedge or planting a privet tree in a garden containing roses. Granted, the privet (both *Ligustrum ovalifolium* and *L. vulgare*) bears clusters of attractive creamy or white flowers in spring and summer that later become black, inedible berries, but it will hamper the growth of any roses

*(Continued on Page 2)*

*(Continued from Page 1—Of Shrubs, Trees, And Other Nasty Companions)*

planted within eight or ten feet of it. The roots of the privet live fairly close to the surface and, being greedy and rapacious, will steal beneath the roots of rose plants, sucking up most of their water. Several years ago I wondered why several of my rose plants in the vicinity of a privet tree hadn't enlarged much beyond their initial spurt of growth. They looked healthy, but seemed reluctant to grow and to produce as they should. Deciding to move one of the roses, I had just begun to dig when the blade of my shovel promptly struck a root as thick as my wrist. Gradually uncovering and following the root, I found it to be growing under two other rose bushes as well. Determined to remove the tree, I discovered more roots under other roses nearby.

Needless to say, once the privet tree was cut down and the root system dug out—an exhausting task—I encountered a whole new garden bed where today the roses proudly show off their beauty. ¤



# GINKGO TREES, THE GOLDEN TREASURE

*Patricia C. Matteson, U.C. Master Gardener, Solano County*

It is puzzling that *Ginkgo biloba*, a tree treasured all over the world, appears to be so underused in Solano County. Especially since it will grow in sun or part shade almost anywhere in California, and copes well with our ever-worsening climate-related challenges. Ginkgo trees tolerate heat, air pollution, and acid or alkaline soil conditions, are resistant to wind, fire, and oak root fungus, and in general are not bothered by diseases or insects. The most spectacular evidence of their tenacity is six ginkgo trees that were growing 0.6-1.2 mi from the 1945 Hiroshima atomic bomb explosion. Severely charred, they were among the few living things in the area to survive--and are still alive today.

*Magnificent Ginkgo at West and Buck Streets, Vacaville*
*All Photos on This Page by Patricia C. Matteson*

Toughness is important to gardeners to be sure, and is the reason why city planners have made ginkgoes one of the world's most popular street trees. Toughness, however, is only a single detail of the rich botanical, medical, cultural, and religious tapestry woven around ginkgo trees since higher plants appeared on earth. *G. biloba* is the last survivor of an ancient and once diverse lineage that grew worldwide. Fossils of related plants date back 270 million years; other members of order Ginkgoales disappear from the fossil record after the Pliocene Epoch, 5.3 to 2.6 million years ago. While *G. biloba* native distribution dwindled to just two small areas in central and eastern China, humans dispersed it all over the globe. Long cultivated in China, ginkgoes have been widely planted in Korea and Japan since the 14th century, where some have seeded into natural forests. Although ginkgoes have been grown in Europe for close to 300 years and in North America for over 200 years, those never significantly naturalized.

*Ginkgo Leaf*

Ginkgoes are the only living link between ferns and conifers, perhaps best evidenced by the unique venation of their leathery, fan-shaped leaves. Two veins enter the leaf blade at the base and fork repeatedly in two. Leaves on long shoots are usually notched or lobed from the outer edge, between veins. The old popular name was "maidenhair tree" because the leaves resemble pinnae of the maidenhair fern, *Adiantum capillus-veneris*. Leaves are usually two-four inches long (sometimes up to six inches) and are alternately spaced on branch tips or grow clustered at the ends of short spur shoots. Ginkgoes are deciduous; their leaves turn from green to bright yellow in fall and tend to be shed nearly all at once, spreading a golden carpet.

Westerners grow ginkgoes for that golden color and beautiful foliage, not for fruit or as a flowering tree. *G. biloba* is dioecious (the male and female reproductive organs appear in separate trees). Most gardeners plant male trees because female trees drop messy, smelly fruit. In early spring, male trees produce pollen cones and female trees produce shoots with two sessile ovules at the tip. A male tree produces vast numbers of pollen grains, which are responsible for the single drawback to planting male trees: they are highly allergenic. Each pollen grain produces two sperm cells that swim to the ovule propelled by a spiral band of rapidly beating flagellae—a phenomenon also found in cycads. Reminiscent of the reproductive biology of

*(Continued on Page 3*

*(Continued from Page 2—Ginkgo Trees, The Golden Treasure)*

ferns, this process is quite different from fertilization in conifers and all other trees.


*Ginkgo biloba Male Flower*


*Ginkgo biloba Female Flower*

After pollination, one or both of the ovules develop into seeds that are 0.6-0.8 inches long, with a soft, fleshy yellow-brown outer layer and a hard inner layer. They are apricot-like; the source of the Western name "ginkgo" is *ginkyo*, the Japanese pronunciation of the Chinese term for the plant, *jinxing*, meaning "silver apricot." The seeds look attractive, but their flesh contains butyric acid and smells like rancid butter or vomit once the seeds have fallen. On the other hand, they are not significantly allergenic! Another redeeming feature--for which female trees continue to be cultivated in China, Japan, and Korea--is that the developing seed inside its hard inner shell resembles a pistachio nut. It is prized for sweet and savory dishes of all kinds. Thought to resemble silver ingots, ginkgo "nuts" are featured in New Year's food to represent good fortune.

Ginkgo is also a widely used herbal medicine. In Asia the tree is an ancient symbol of longevity and vitality. Seeds, leaves, and roots are employed in traditional Chinese medicine for treating many illnesses, especially lung problems. Leaf extracts are a popular dietary supplement in the West for enhancing brain function. According to the Mayo Clinic, most medical research has focused on the effect of ginkgo on dementia, memory, and pain caused by too little blood flow to the limbs, but research reviews do not yet show convincing evidence of significant effects. Eating raw or roasted seeds can be toxic, but ginkgo in other forms appears to be safe for most healthy adults when taken orally in moderate amounts.

Food and medicine, though basic to human wellbeing, are only a portion of the Asian cultural treasure that is the ginkgo tree. Most ginkgoes grow to an imposing height and width during their lifetime, often living for several millennia. Many Daoist temples feature trees that are thousands of years old. In some cases, the trees predate the temple structure and mark the locale of early shamanic worship that informed all later schools of Chinese philosophy, science, and religion, including Confucianism. Great ginkgo trees of China, Japan, and Korea also grow in the grounds of Buddhist temples or Shinto shrines. Those old trees are commonly adorned with ribbons or inscriptions expressing the hopes and prayers of local people.

The elegant beauty of ginkgoes and their broader association with Asian culture have made them a popular motif in both eastern and western art. Ginkgoes, especially their unique and graceful leaves, are depicted in paintings, poetry, jewelry, sculptures, pottery, and almost every other variety of cultural object, down to wallpaper.

Why does one see this golden treasure of a tree, with all its value, beauty, and mystique, so seldom where we live? The landmark ginkgo at the corner of West Street and Buck Avenue in Vacaville is proof of the local potential of the species. Hopefully this article will have piqued readers' interest. If so, there are a couple of things to keep in mind.

Firstly, it is important to choose a cultivar that will not become too big for your site. Although ginkgoes grow slowly--usually about a foot per year--over the years, many cultivars reach well over 100 feet in height, typically becoming 1/2 to 2/3 as wide as tall. Fortunately, horticulturalists have bred dwarf and medium-height cultivars and different tree shapes. (Ginkgoes are also a favored bonsai tree). Young trees are often slender and sparsely branched, but the crown fills in to a rounded or columnar shape as the tree ages. A surprising variety of leaf forms have been developed as well, ranging from variegated to deeply divided, and some forms in which the leaves never unfurl correctly and resemble small trumpets.

A second consideration is the scanty availability in local nurseries of a range of cultivars and tree sizes. Telephone interviews and websites indicate that a reasonable diversity of ginkgoes is sold in Solano County, but sometimes only as very small trees, and some cultivars may be out of stock with resupply uncertain. Advance planning with local suppliers or ordering via the Internet may be helpful for improved access. ¤

Resources and References:

Brenzel, K. L. (2001). Sunset Western Garden Book. Sunset Publishing Corporation, Menlo Park, CA. 768 pp.

Center for Asian Studies, Plants in East Asian Culture, https://ceas.ku.edu/sites/ceas.drupal.ku.edu/files/files/CEAS-KU-AsianPlants2.pdf, viewed 12/15/20.

Dharmananda, S. and H. Frühauf. (1998). Ginkgo: Cultural Background and Medicinal Usage in China. J. of Chinese Medicine, March. ClassicalChineseMedicine.org, https://classicalchinesemedicine.org/ginkgo-cultural-background-and-medicinal-usage-in-china/, viewed 12/15/20.

Crane, P.R. (2018). An evolutionary and cultural biography of ginkgo. Plants People Planet 1(1): 32-37, January 2019. New Phytologist Foundation. https://nph.onlinelibrary.wiley.com/doi/full/10.1002/ppp3.7, viewed 12/3/20.

Inverse, 73 Years Later, the "A-Bomb" Ginkgo Trees Still Grow in Hiroshima, https://www.inverse.com/article/47833-hiroshima-gingko-trees-atomic-bomb, viewed 12/15/20.

Mayo Clinic, Ginkgo, https://www.mayoclinic.org/drugs-supplements-ginkgo/art-20362032, Viewed 12/3/20.

Wikipedia, Gingko biloba, https://en.wikipedia.org/wiki/Ginkgo_biloba, viewed 12/3/20.

# FIRE PROTECTION: LANDSCAPE, DESIGN AND MAINTENANCE

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

In winter, many gardeners look through garden catalogs or online to order seeds for spring and summer gardens. Gardeners may make plans for hardscape changes like a new pathway, removal or adding of new plants, or easier garden maintenance.

This winter, consider protection of your home from wildfires. You can have a beautiful, functional, and defensible fire-safe zone around your home with proper plant selection, plant location, and maintenance of appropriate landscape materials.

***In some areas, there are laws requiring property owners to meet and maintain defensible spaces so always check with local authorities to make certain you meet any required laws.***

The University of California has resources to help improve the chances that your property survives wildfires. There are links to resources at the end of this article. To get you started, here is some information from the California Master Gardener Handbook:

**Importance of Vegetation Arrangement**

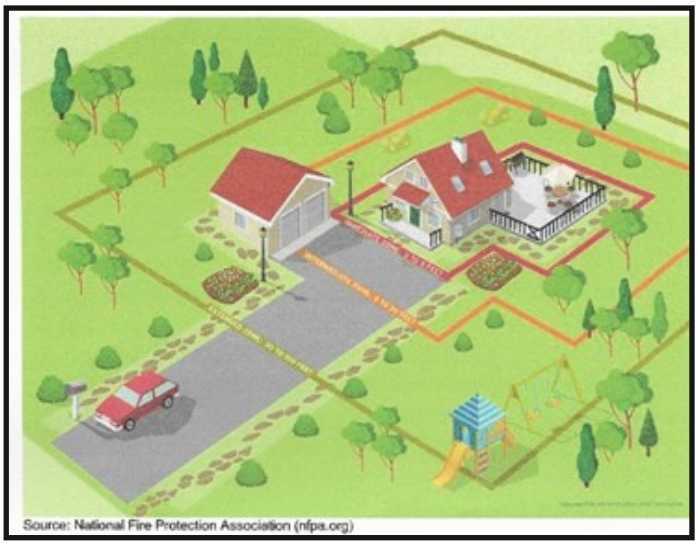
Plant material is often described according to its vertical and horizontal placement or continuity. Vertical fuel is also known as a ladder. Wildfires typically begin as surface fires and will not reach the crown of a tree if the vertical fuel continuity is eliminated. If a fire reaches a tree's crown, the heat intensity and flame length are increased and can increase the combustibility of surrounding vegetation and nearby structures.[1] This is the reason trees should be properly pruned, and well spaced from houses and readily combustible vegetation.

Horizontal fuel enables a fire to spread across a landscape. Wider spacing of combustible vegetation and incorporating noncombustible landscape elements can greatly reduce fire intensity by breaking up the horizontal fuel continuity. Wider spacing between combustible plants and other combustible items reduces the ability of wind to spread a fire.[2]

**Create and Maintain Defensible Space**

Firesafe landscapes have two zones:

**#1 Home Defense Zone:** A home defense zone is the area within 30 feet of the house. It should be planted with a few well -spaced and well-pruned single specimens of trees and small groupings of low-growing shrubs among low-growing




vegetation and hardscape that will not support the spread of fire to other vegetation or the house. Maintain high moisture in the vegetation and maintain good spacing between trees and the structure. Remove all combustible materials from this zone, such as flammable vegetation, twigs, needles and leaves, woodpiles and fuel tanks.

Carefully place and maintain plants to minimize fire movement to the house. Avoid placing plants or allowing them to grow next to house walls, under eaves, near a deck, or overhanging a structure. Keep branches trimmed at least 10 feet from the roof and remove branches that are close to the ground.

Select and maintain fire-resistant plants. Mowed lawns, other ground covers, low shrubs herbaceous perennials and other plants with naturally high moisture content and kept well watered during dry periods should be featured in the home defense zone.

There is no such thing as a plant that will not burn; all plants will burn given enough heat and other conditions that favor combustion.[3] Cultural and landscape management practices (e.g., irrigation, pruning, thinning and plant debris cleanup) have a greater impact on whether a plant is fire resistant than does the species.[4]

*(Continued on Page 5*

*(Continued From Page 4 - Fire Prevention: Landscape, Design and Maintenance)*

**Fire-prone Plants:** Traits include low moisture content of leaves, small, fine, or needlelike leaves, resinous, aromatic, oil or waxy leaves or wood, accumulation of dead leaves, and loose or papery bark. Many conifers (pines, cedars, and cypress) and eucalyptus are examples of fire-prone plants. Fire-prone plants can be less susceptible to burning if irrigated regularly and pruned periodically to remove dead or excessive growth.[5]

**Fire-resistant Plants:** Traits include high moisture content, fleshy succulent leaves, large or coarse leaves; lack of resinous, aromatic, oily, or waxy leaves or wood; little or no accumulation of dead leaves and little or no loose or papery bark. Maples, ashes, roses, and lilacs are examples of fire-resistant woody plants. Other desirable plant traits include an extensive root system for erosion control, drought tolerance, prostrate or naturally low growing form, open structure, and ability to resprout after fire. Fire-resistant plants can become susceptible to burning if underirrigated or allowed to accumulate dead or excessive growth.[6]

Use mulch carefully. Do not place shredded bark or other easily combustible material within three to five feet of the house. When mulching beds and other open areas keep the mulch layer no more than about 2 inches deep.[7] Use of masonry, stone, or other hardscape materials in this zone can create fuel breaks, functionality and can add beauty to landscapes.

**#2 Reduced Fuel Zone:** This zone extends at least 100 feet from the house or to your property line. Wider defense zones are needed if a home is on or near a steep slope or windy exposure. Your insurance company or local fire department may also require additional area be included in the zone. Mature trees in this zone should be thinned so there is a minimum of 10 feet between the tips of their branches.[8] Allow spacing for future growth of trees; do not use shrubs to screen flammable items, like sheds, or propane tanks. ¤

Footnotes:
1 to 8, California Master Gardener (MG) Handbook, Publication 3382, 2nd Edition, Dennis R. Pittenger, Editor 2015

Further Information

The University of California Division of Agriculture and Natural Resources (UCANR) has many resources on its website:

1—Visit https://ucanr.edu/sites/fire/ for wildfire information

2—Google: "Fire in California "Preparing Your Home UCANR", or visit: https://ucanr.edu/sites/fire/Prepare/Building/#:~:text=Move%20combustible%20items%20away%20from%20vents%20both%20inside%20and%20outside%20the%20house.&text=Placement%20of%20landscaping%20vegetation%20and,fire%20to%20enter%20the%20home for information on preparing your home

3—Identify your local fire hazard ranking by visiting https://ucanr.edu/sites/fire/Prepare/

4– Visit https://anrcatalog.ucanr.edu/Details.aspx?itemNo=8322 for Publication 8322 "Landscaping Tips to Help Defend Your Home from Wildfire" by Pamela M. Geisel and Donna C. Seaver

Video: Google: "2020 Virtual Mini Conference – 2023 Master Gardener" or visit https://ucanr.edu/sites/2020MGConference/2020_Virtual_Mini_Conference/ and scroll down to "Fire Safe Landscaping…"

# POLLINATORS AND THE MYSTERIES OF PLANT REPRODUCTIVE BIOLOGY

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

I started this article with the intention of talking about how to encourage critical pollinator critters into your garden this next spring. During my research on this topic, I quickly got caught up in the mysteries of plant biology to better understand the importance of the pollination process. I discovered that plant fertilization processes are fascinating, but quite complex, so I will just hit some of the highlights in this article.

*Alstroemerias With Pollinator*
*Photo by Paula Pashby*

For starters, some flowers can have both male and female structures, while other flowers may only have the female or male structures. Flowers rely on a transportation means (wind, water, or animals) for moving pollen from the male structures to the female reproductive structures for fertilization to take place..

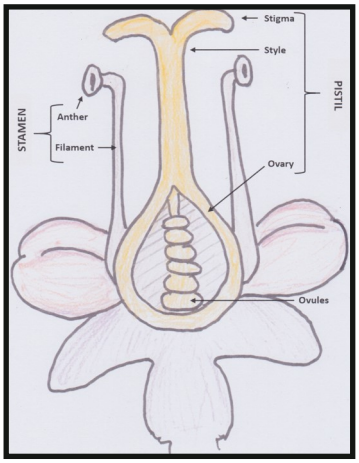
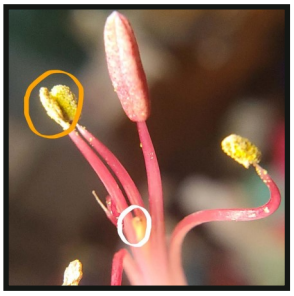



*Diagram of a Flower*
*Drawing by Al Alvarado*

The male structure in a flower is referred to as the 'stamen' which produces the pollen. The stamen usually has a 'filament' that looks like a long piece of thread that holds up the 'anther'. The anther is where the pollen is generated. The female plant structure is called the 'pistil', which consists of the 'ovules' (potential seeds), the 'ovary' and the 'stigma'. The stigma is a long tube that receives the pollen.

There are numerous variations on how plant reproductive structures are positioned among flowers. In a flower that contains both male and female structures, there are typically more stamens than pistils. The pistils are normally located in the middle of the flower and the stamens on the outer edges. In some flowers you can see these reproductive structures with the naked eye, but many will require a hand lens, camera magnifier attachment or a microscope to clearly distinguish the individual biological structures. These tools help open a whole new world in the garden.

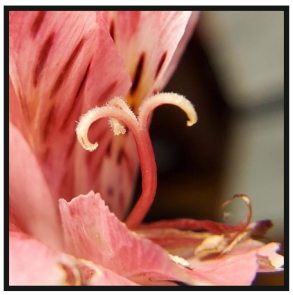
The close-up photos shown here were taken using a camera magnifier to illustrate the Peruvian Lily Alstroemeria stamens and pistils. This plant has both the stamens and pistils in each flower. However, it has some tricks to avoid 'self-pollination', the process that occurs when the pollen from the male anther is deposited on the female stigma of the same flower. Self-pollination can lead to less genetic diversity and lowers the probability of surviving in changing environments or stress conditions.



*Mature Male Anthers (Circled in Orange) Female Stigmas Waiting to Develop (Circled in White)*
*Photo by Paula Pashby*

The male stamen structures of a Peruvian Lily will mature early and will not be able to fertilize the immature female pistil within the flower. When a pollinator visits the flower, the pollen will be carried away to another Peruvian Lily that has a matured pistil or pistils for fertilization and will lead to a more diverse genetic mix. Usually, the male stamen is no longer producing pollen when the female pistil is ready for fertilization. Therefore, pollinators become critical players for the healthy growth and spread of this lily in our garden, a very convenient ecosystem.

Many plants cannot reproduce without the transfer of pollen from one flower to another. According to the United States Department of Agriculture (USDA), approximately 3/4 of the world's flowering plants and around 35 percent of the world's food crops rely on animal pollinators for their reproduction.



*Depleted Male Anthers and Mature Female Stigmas*
*Photo by Paula Pashby*

Who are these animal pollinators? There is a long list of 'accidental' pollinators that may visit a flower, such as birds that might be grabbing an insect from a flower and inadvertently cover themselves in pollen that is transferred to another flower. Some of the more efficient and common pollinators that you may see in your garden are bees, wasps, flies, butterflies, hummingbirds, bats, beetles, and many more.

*(Continued on Page 7)*

*(Continued from Page 6—Pollinators and the Mysteries of Plant Reproductive Biology)*

Most of these pollinators visit flowers in search for food, seeking the sweet tasting and sugar-rich nectar that many plants contain providing the pollinators the energy they need. Honeybees—and more importantly, native bees—use both the nectar for energy and carry the high protein pollen back to the hive to feed their larvae.

What can you do to support and protect our crucial pollinators? There are many ways you can provide habitat for them, even on a small scale. Here are a few ideas:

* Pollinators are extremely sensitive to pesticides, so try to avoid or at least reduce the use of pesticides. The University of California Integrated Pest Management (UCIPM) website ipm.ucanr.edu has the most up to date information on safe pesticide use. Make sure any seeds you plant are pesticide free.
* Research and plant the type of flowers that will attract the pollinators you are interested in. Even potted plants on balconies or patios will work.
* Try to always have something blooming.
* Plant a variety of color in large clumps of similar color.
* Tempt with fragrance.
* Use plants native to your area. Native pollinators are most attracted to the plants with which they have co-evolved, so catering to their preferences will help greatly.
* Provide host plants for caterpillars, such as common milkweed (*Asclepias syriaca L.*) which is the only plant that monarch butterfly larvae will eat.
* Leave the leaves – this is good overwintering habitat for many pollinators such as butterflies, beetles, moths, etc. Put the leaves on vegetable gardens or flower beds to encourage healthy soil.
* Around 70% of CA native bees nest in the ground. Set aside some bare patches of soil for nesting.
* The other 30% or so of the native bees seek wood or other cavities for their nesting. Leave a dead branch, leave a log out, or provide them your own above ground habitat. You can buy or build your own bee nesting box.
* Make water available for the pollinators. Keeping a birdbath is a great way to add water; you could also take a shallow tray, line it with pebbles, and keep it filled with water.

I hope that this quick venture into plant reproductive biology triggers a deeper curiosity about the ecosystem complexity and why pollinators are so important for our gardens. I learn something new each day that I dive into the wonders of my garden. ¤

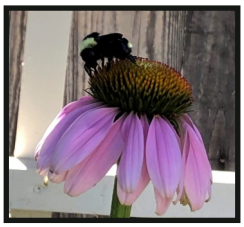


*Photo by Melinda Nestlerode*


Sources:

- University of California Agriculture & Natural Resources Statewide Integrated Pest Management Program (UC IPM)
- University of California Cooperative Extension (UCCE) Master Gardeners of Solano County
- United States Department of Agriculture (USDA) Forest service
- Xerces Society for Invertebrate Conservation



## Sustainable Solano Educational Opportunity

Sustainable Solano is bringing the first Permaculture Design Certificate course to Solano County with a PDC scheduled to start this January. The course will be taught by Vital Cycles' Anne Freiwald and Lydia Neilsen, known for their permaculture instruction in Santa Cruz County. It will be offered in partnership with Benicia Unified School District's Adult Education department.

To meet health and safety guidelines due to COVID-19, the course will be taught in a combination of online weeknight classes and four hands-on weekends in Benicia, CA, doing demonstration projects at a private property and helping to build a resilient neighborhood. Enrollment is limited to make sure that physical distancing and other safety protocols can be followed, so we're encouraging people to sign up early!

For more details, visit SustainableSolano.org/PDC

## A MESSAGE FROM THE UCCE STATEWIDE MASTER GARDENER PROGRAM

**Covid-19 Impact**

To reduce the rate and risk of community spread of COVID-19, the UC Master Gardener Program, UC ANR, and UC Cooperative Extension locations are working remotely.

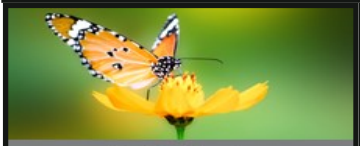
**UC Master Gardener volunteers are still available to support your home gardening questions by e-mail, telephone, or ZOOM. Please note that many UC Master Gardener Program public education events statewide are being rescheduled, postponed or moved to a later date.**

Click http://mg.ucanr.edu/FindUs/ to 'Find a Program' and be directed to your local county based program. You will be redirected to your local county website and contact information. The health and safety of UC Master Gardener volunteers, staff and our extended community is our number one priority. Thank you for your understanding.

Since 1980, the University of California Master Gardener Program has been extending UC research-based information about home horticulture and pest management to the public. The UC Master Gardener Program is a public service and outreach program under the University of California Division of Agriculture and Natural Resources, administered locally by participating UC Cooperative Extension county offices.

The UC Master Gardener Program is an example of an effective partnership between the University of California and passionate volunteers. In exchange for training from the University, UC Master Gardeners offer volunteer services and outreach to the general public in more than 1,286 demonstration, community and school gardens across 52 California counties. Last year 6,154 active UC Master Gardener volunteers donated 446,237 hours, and 6.8+ million hours have been donated since the program's inception.

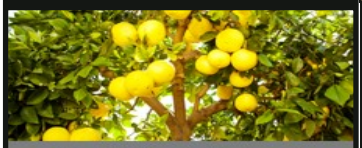
# MASTER GARDENER RESOURCES



The California Garden Web >>>

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

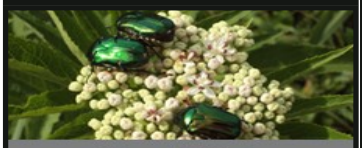
http://cagardenweb.ucanr.edu/



The California Backyard Orchard >>>

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

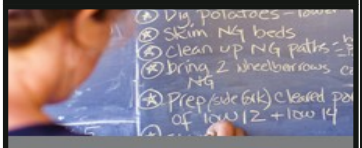
http://homeorchard.ucanr.edu/



Integrated Pest Managment (IPM) >>>

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

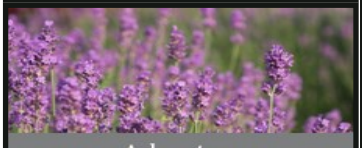
http://ipm.ucanr.edu/index.html



ANR Publications >>>

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

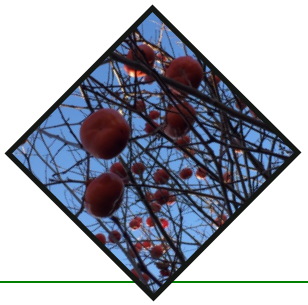
https://anrcatalog.ucanr.edu/



Arboretum All-Stars >>>

The horticultural staff of the UC Davis Arboretum has identified 100 tough, reliable plants that have been tested, are easy to grow, require little water, have few problems with pests or diseases, and have outstanding qualities in the garden. Many of them are California native plants that support native birds and insects. Most All-Star plants can be successfully planted and grown throughout California.
https://arboretum.ucdavis.edu/arboretum-all-stars?id=4

# WINTER GARDENING GUIDE

| | JANUARY | FEBRUARY | MARCH |
|---|---|---|---|
| PLANTING | ◊ Sow California poppy (*Eschscholzia californica*) seeds for spring color<br>◊ Sow indoors cool-season edibles such as chard, kale, and lettuce<br>◊ Plant winter blooming shrubs; purchase now while in bloom to see what you are getting<br>◊ Harvest citrus as it ripens—taste for flavor | ◊ Plant summer bulbs such as gladiolus, cannas, ranunculus, anemone, dahlia, lily, tuberous begonia and delphinium<br>◊ Plant leaf crops like lettuce, cilantro, beets, carrots, chard, peas, and spinach directly in the ground<br>◊ Indoors, start seeds of eggplant, peppers, and tomatoes. Transplant outdoors in 6 to 8 weeks<br>◊ Plant berries: raspberry, boysenberry, and blackberry | ◊ Almost any plant (except tropical) can be planted now. Start seeds of old-fashioned favorites such as apricot foxglove, bachelor's button, blue flax and Oriental poppies. Summer sizzlers like cosmos and zinnias also grow more vigorously from a seed start and catch up fast to nursery-started plants<br>◊ Plant warm season annuals like ageratum, marigold, petunia and sunflower<br>◊ Switch out cool-season vegetables for corn, beans, peppers and tomatoes |
| MAINTENANCE | ◊ Prune deciduous plants while dormant to keep grapes, roses, fruit and shade trees shapely<br>◊ Check mulch. Add more to paths and beds for weed suppression<br>◊ Protect tender plants when cold nights are predicted. Water well—dry plants are more susceptible to frost damage<br>◊ Fertilize azaleas after bloom; cymbidiums with 1/2 strength fertilizer every week or so<br>◊ Collect rain water to use on your garden | ◊ Pinch fuchsias through March; for every stem you pinch, you'll get 2; for every 2 you'll get 4<br>◊ Fertilize: citrus and fruit trees, cane berries, roses (only after you see new growth begin<br>◊ Fertilize fall planted annuals and perennials, and established trees and shrubs with an all-purpose fertilizer. Wait on azaleas, camellias, and rhododendrons until after bloom<br>◊ Mulch exposed areas to prevent weed seeds from germinating<br>◊ Repot cymbidiums if necessary | ◊ Fertilize almost everything<br>◊ Flowering and fruiting plants need phosphorus-rich fertilizer<br>◊ Green leafy plants such as lawns and lettuce require nitrogen<br>◊ Root plants such as potatoes, beets, and bulbs appreciate a handful of potassium. Read the labels.<br>◊ Once soils have dried out, give your irrigation system a tune up. Then set to water deeply and infrequently to encourage deep root growth |
| PREVENTION | ◊ Control snails and slugs by eliminating hiding places, or hand pick<br>◊ Use a dormant spray to control over-wintering insects on deciduous plants. Control peach leaf curl with lime sulfur or fixed copper. Follow directions for proper application<br>◊ Spray roses with dormant oil to control over-wintering insects such as aphids, mites and scale. Thoroughly coat trunk, branches, and twigs. | ◊ Snails and slugs are dormant two times a year, during the hottest part of summer and during the coldest weeks in winter. This is about the time they head out for feeding. Get out early and hand-pick<br>◊ Don't prune out any frost damaged growth for another month or so– the outer dead foliage may protect healthy growth beneath from further frost damage | ◊ Now is the time to get a jump on insect infestations; check for signs of aphids (distorted new growth and tiny, often green or black insects) and spittle bugs (under white foam on stems). Both can be effectively sprayed off with a garden hose<br>◊ Handpick snails at night, or use bait—follow all directions<br>  |

***Seeds For Thought* is produced by the Solano County Master Gardeners**

***EDITOR***

Melinda Nestlerode

***FEATURE WRITERS***

*PATRICIA C. MATTESON, PAULA PASHBY, SHERRY RICHARDS, DARRELL G.H. SCHRAMM*

Have a comment or question about *Seeds For Thought?* Contact us!

*By email:* mgsolano@ucdavis.edu

Please put '*Seeds For Thought*' in the email Subject line.

*U.S. mail:*

Solano County UCCE

501 Texas Street, 1st Floor

Fairfield, CA 94533



*Seeds For Thought* is a quarterly publication of the University of California Master Gardener Program of Solano County and is freely distributed to County residents.

It is available through the internet for free download:

http://cesolano.ucdavis.edu/newsletterfiles/newsletter130.htm

Jennifer M. Baumbach

Master Gardener Program Coordinator

***U.C. Cooperative Extension***

***UCCE Master Gardeners-Solano***

501 Texas Street, 1st Floor

Fairfield, CA 94533