
Photo by Melinda Nestlerode

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Seeds For Thought

Solano County Master Gardeners

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THE ONCE RARE HELLEBORUS

Beth Wells, U.C. Master Gardener, Solano County

A plant with eye-catching, whimsical flowers is what first caught my eye one day while I perused an English garden magazine. Helleborus is one of the first spring bloomers, and can be seen peeking through snow in colder climates. Their droopy bell-shaped flowers rise from deep evergreen leathery foliage, and can have smooth or serrated edges. They are a relative of the buttercup family. Stems extend from the base plant, with fingered leaves and , almost wax-like flowers at various points. Unique flowers, petal-like sepals, can range in color from mellow whites tinged with green or purple, limey greens, pale greens touched in purple, or a range of pinks or purples, mauve shades, and deep burgundies. Some new varietals include crazy pink flowers and variegated foliage. Once a rare plant, new selections continue to expand. New hybrids can appear with double blossoms and dramatic veining. Although yellow flowers are supposedly unusual, I have seen plants with lemony yellow flowers splashed with deep purple dots near the center.

All Photos in This Article by Beth Wells

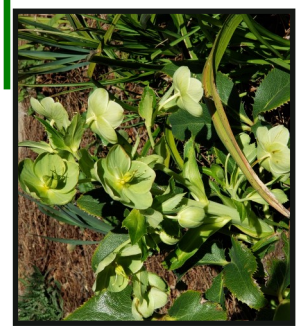
Although not particularly tall, helleborus can range from twelve to twenty-four inches, and the same in width. Their shape is compact. I noticed that many eastern U.S. gardens display this plant under lush shade or a large tree canopy. Alas, I thought, this plant must require tender care, and our Mediterranean climate with our intense heat and drought-like conditions could never sustain this beauty Or can it?

While at a UC Davis Arboretum Spring Plant Sale one day, I caught a glimpse of this familiar plant. They had masses of them in many colors. In fact, this plant is one of their Arboretum All-Stars, meaning it is reliable and suitable for planting in this area. The Corsican hellebore (*H. argutifolius*) is pale green, and prefers dry shade, and the Lenten rose (*H. x hybridus*) is pink, and both are easy-care plants. Helleborus are also featured in their Ruth Storer and Arboretum gardens, in well-mulched areas under tall trees. I had to buy a couple to take home. I planted one under a large camelia, in total shade, no mulch, and moist soil. I planted the other by my shed, in all-day sunlight with some limited afternoon shade and weekly water. Both plants have survived, but the latter plant has done famously. I learned that these spunky plants can handle considerably more sunlight and heat than I initially thought, but do better with several inches of compost to help conserve moisture. Some regular watering in the hottest part of summer is helpful.

Helleborus are considered drought tolerant and may appear dormant in summer. Yet, their flowers last for many months, eventually turning green. Sources suggest minimal fertilizing; maybe twice or so a year. They like slightly alkaline, well-drained soil, but can grow in more neutral or acid conditions. Leaves may drop or be

(Continued on Page 2)

(Continued from Page 1—The Once Rare Helleborus)



sparser in winter. Some varieties do not take well to transplanting, but can self-sow thus providing new seedlings, which may vary in appearance from the original plant.

A word to the wise, all parts of this plant are poisonous if eaten and may be harmful to pets. Helleborus is bitter tasting and is deer resistant. In fact, as an ancient plant, it shows up in Greek mythology (the name and plant have Greek origin) and in fables used as a poison. The Dutch masters (painters of the 17th century) included the helleborus flower in bouquets, characteristically hanging over the edge of a vase. They are often the subject of botanical prints.

Helleborus flowers face downward and at times you must get on your hands and knees to get a full view of the flowers, or to see if they have bloomed, but I have noticed them rising skyward to face sunlight in the late afternoon. They are great for tone-on-tone arrangements. The flowers can be bunched in a bud vase, or placed alone in a small cup of water. Or, snip a long stem, and add it to a large arrangement. To extend the life as a cut flower, trim the stem, dip in hot water, and place in cold water. Helleborus are so distinctive, and a joy to grow. ¤ (*NOTE: Just this week, Beth Wells passed away suddenly. She will be greatly missed.*)

HOW TO PLANT CALIFORNIA NATIVES

Maureen Clark, U.C. Master Gardener, Solano County

California natives are wonderful plants to have in the garden. They need the appropriate installation to get them going and make them happy. Natives do not like to be fertilized. These plants can take one to three years to become established. Mimic nature in your plant selection, irrigation, mulching, weed control and pest control.

Encelia California (Bush Sunflower)

All Photos in This Article by Maureen Clark

Preparing to Plant

Figure out what type of soil texture you have by doing a ribbon test using your hands. Learn how to conduct a ribbon test, and other important facts about your soil on the Master Gardener blog located at: https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=43607.

Remove the weeds, but do not till. Tilling will bring the seeds of weeds and other unwelcome plants to the top of the soil surface. Then, check your soil percolation. California native plants don't like saturated soils because it prevents oxygen and airways in the soil. They need to be planted in either fast draining sandy or loamy soils. In slow draining clay soils, plant them on a slope. Check out this article which describes how to do a percolation test: https://todayshomeowner.com/diy-soil-drainage-perk-test-for-your-yard/.

Know how much sun light your will garden bed will receive. California natives that thrive in partial sunlight do best near the coast, elevated ranges and in sections that do not receive hot afternoon sun.

Get to know your California native plant. Does it have moderate, low, very low or extremely low water requirements? Read the plant label, or ask someone at your plant nursey. Calscape has a great website. Type in your address, and the database will show you which California natives will grow in your area: https://calscape.org/.

Create garden beds with the same watering requirements. Design a bed so all the extremely drought tolerant plants are together, another bed with low drought tolerant plants and a third bed with moderately drought tolerant plants.

How much wind do you get? The plants will need additional watering and/or staking if you live in a high wind area. Place the stakes perpendicular of the plant. Space accordingly. Design the plants so there is enough space in between them when they become mature. Don't over crowd; they need air flow or they will get diseases and detrimental insects.

Let's Get Your New Plants Into The Ground!

Water your plants thoroughly. This will ensure the roots are hydrated and will reduce transplant shock. Dig and fill the hole with water and let it drain to ensure sufficient moisture for the new plant. If soil is very dry, repeat this step two to three times.

Native plants like undisturbed soil. If you have to create better drainage, plant them on a slope or add 1/3 amount of crushed

(Continued on Page 3)

(Continued from Page 2—How to Plant California Natives)

lava rock to the native soil or buy native plants that do better in clay soil.

The plant hole should be two to three times wider than the width of the container and ½ -1" less in depth of the container. Rough up the sides of the hole so the roots will be able to permeate the soil. Loosen the plant from the container by gently squeezing or rolling the container from the bottom, don't pull the plant out by its head. Native plants do not like their roots teased a lot. Use care, leave their roots as undisturbed as possible. Place your plant into the hole and tamp loose soil gently into the gaps. Don't push down on the root ball. The crown of the plant should be installed ½" - 1" above the level of existing soil. This will allow the plant to settle into the soil.

Back fill the area with the native dirt and gently tamp the soil to remove any air pockets. Air pockets will kill the roots. Water it, and gently tamp the soil two to three more times to remove all air pockets. Do not create a berm around the plants if you plan to use drip irrigation or overhead irrigation.

Mulch should be 2"-3" above the soil. Use leaf matter, rocks, gravel or organic bark. Stay away from shredded redwood bark. It acts like a sponge and doesn't let the water infiltrate into the soil; it's also highly flammable. Don't use bark nuggets or colored bark. Keep the mulch 2"-3" away from the crown (stem) of the plant. Consider also using a "nurse rock", a rock about the size of a softball or larger, on the south side of the plant. Over time, the plant will create its own preferred organic mulch by dropping leaves.

Immediately after you plant it, water it slowly and thoroughly, until the soil is wet below and around the root ball. Check on your newly planted babies. Test the soil 2"-3" down in the ground using a screwdriver or your hands, to see if the soil around the plant is dry or moist. Do this two times a week. Do NOT water if the soil is moist.

New plantings will require additional irrigation during the first one to three years. Water deeply and regularly. It's important to keep the root ball moist but not soggy during the first three months after planting. During the rainy season, you might not have to water at all. If there's no rainfall after planting, you'll probably have to water one to two times per week during this period. After the first three months, start less frequent, but deeper watering. Make sure the root ball is only slightly moist before each new deep watering, usually every two to three weeks if there's no rain. Then give it a good soaking.

Use the following information to determine how much to water once the plant has been established:

- Extremely drought tolerant plants: Every 14-21 days, or less
- Very low drought tolerant plants: Every 10-14 days
- Low drought tolerant plants: Every 3-7 days, or more ¤

Phacelia distans (Wild Heliotrope)

Dear Readers,

We miss you! We miss talking with you at our local farmers markets, Home Depot, Ace Hardware, and Morningsun Herb Farm. We miss discussing plants and gardens with you at the Dixon May Fair, and "Tomatomania" at Pacific Hardware. We miss interacting with you during our workshops at Dunnell Nature Center and our County libraries. We miss YOU!

We hope to get back to in-person activities by Fall 2021. In the meantime, we have our hotline at (707) 784-1332, or you can email Program Coordinator Jennifer Baumbach at jmbaumbach@ucanr.edu to get a plant problem diagnosed.

See you soon,
UCCE Master Gardeners-Solano County

APRICOTS—CALIFORNIA GOLD

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

All Photos in This Article by Melinda Nestlerode

Our first local apricots usually appear in the Winters area in late May, followed by the Vacaville and Suisun Valley areas in June. Some early varieties lack the good flavor found in later varieties such as the Royal (also called the Blenheim). Once picked, the ripe fruit keeps best in the refrigerator. It is rare to find good apricots in a supermarket because they do not ship or store well.

Apricots are my favorite fruit to process because they don't need to be peeled, and it's easy to remove the one seed. They may be safely canned by using the boiling water bath method described at http://nchfp.uga.edu.

I always chop or grind some of the raw fruit into a coarse pulp to freeze in containers for later use in jams and fruit leathers. To prevent darkening of the top layer in freezer containers I cover the surface with about 1½ teaspoons of lemon juice. For pies or cobblers, you can toss halves or quarters with a mixture of ½ cup sugar and 1 tablespoon lemon juice or ¼ teaspoon ascorbic acid granules. You may also add a thickener of ¼ cup tapioca for each pie. Freeze in an empty pie plate lined with plastic wrap; then remove from pie plate, and wrap securely in freezer wrap or bag for use later as a pie filling or for a cobbler.

Apricot jam is best made by carefully following directions in the boxes of assorted pectins available in the markets. Some pectins are designed to be used with little or no sugar. Use the exact quantities of ingredients called for in the recipe; to deviate can result in a disappointing product. Apricot jam is notorious for requiring two weeks or more before it becomes firmer. One reason my apricot jam may remain softer is that I use very ripe fruit to gain more intense flavor and color. The riper the fruit, the less natural pectin in the fruit. To overcome this problem, I ignore the time in the directions and cook my apricot jam an extra minute or so before canning it.

Drying apricots may be done in many ways, but the most colorful results are by sulfuring plus sun drying. Sulfur helps retain vitamins, inhibits mold, and prevents darkening. Sulfuring, however, is a bit more complicated than other methods in that the cut fruit must be exposed to the fumes from burning powdered sulfur (outside) in a semi-tight enclosure such as a large cardboard box. When sulfuring is not feasible you can use a home-dehydrator or oven.

To help retain color, the cut fruit may be pretreated in various ways. It is easy to soak the fruit for two minutes in a solution of one teaspoon of ascorbic acid crystals or one teaspoon sodium bisulfate (available in health food stores) per quart of water. Avoid sulfur treatments if you are allergic to sulfur compounds. You can also try a quick dip in lemon juice or pineapple juice. Actually, pretreatment is not essential for preservation; it is more for appearance. Place drained fruit on drying racks, following instructions in your dehydrator manual or a good book such as the *Ball Blue Book* of preserving. I think you will also enjoy the very helpful site of the National Center for Food Preservation at http://www.uga.edu/nchfp.

If you are considering adding an apricot tree to your yard, you should find it easy to grow. In the surrounding areas you can still find a few of the old Royal trees left over from the old orchards. For flavor and keeping qualities you cannot beat the features of the Royal Blenheim. We have one Moorpark tree, which produces very attractive and flavorful fruit, but they do not have the keeping qualities of the Royal. Once established, apricot trees are fairly drought tolerant, and I think you will really enjoy this delicious fruit. ¤

PROPAGATING BOUGAINVILLEA SHRUB FROM CUTTINGS

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

Healthy Bougainvillea With New Growth

All Photos In This Article by Paula Pashby

We have a treasured bougainvillea (*Bougainvillea glabra*) in our garden that has been with us for many years. This shrub has delightful magenta-colored flowers when it blooms, and we would love to see more of this color around the garden. Instead of purchasing more bougainvillea shrubs, we decided to propagate this one by using a softwood stem tip cutting method, a technique that has worked well for us with other plants and shrubs. If you are interested in giving this propagation method a try, follow along with the steps I used, as depicted in this article.

Once you know the type of plant, shrub, or tree species you want to propagate, it is best to understand the type of stem cutting method that would work best for that species. The approach is slightly different, depending on whether you have either hardwood, semi-hardwood, or softwood growth. Some plants, such as camelias do well with all three methods. Before I get into describing the bougainvillea project, the following is a quick summary on the other propagation cutting methods.

Hardwood cuttings are taken during the plant's dormant time, generally from October through late winter, and can be taken from both evergreen and deciduous plants that have no leaves. The aim with the hardwood stem cutting method is to take a cutting from last season's growth. American boxwood (*Buxus sempervirens*), California lilac (*Ceanothus leucodermis*), holly (*Ilex*), and many more species propagate well with this method.

Cuttings prepared from the semi-hardwood method are taken from a stem that has partially mature wood of the current season's growth, typically best if taken from mid-July to early fall. Some examples of plants that do well with this type of cutting are broadleaf evergreen species, such as photinia (*Photinia × fraseri*), camellia (*Camellia japonica*), magnolia (*Magnolia grandiflora*), and more.

Softwood cuttings are taken from soft new growth from either evergreen or deciduous species. There is not a specific time of year to take this type of cutting, however, usually the best opportunity to use this method is in the springtime with all the new growth. Many species do well with this type of cutting, including clematis (*Clematis occidentalis*), fuchsia (*Fuchsia magellanica*), pelargonium (*Pelargonium inquinans*), pyracantha (*Pyracantha coccinea*), and many more.

Let us focus on taking cuttings from the bougainvillea. Cuttings have the best chance of rooting when taken in the morning and since we are using the softwood stem cut method, we are looking for new spring growth. This bougainvillea that we are taking cuttings from is healthy, has no sign of disease, and has a lot of new growth, so I am in luck!

45˚ Diagonal Cut Below Node

First, make sure to sterilize the cutting tool with rubbing alcohol or a solution of 1-part bleach to 9-parts water. Continue to sterilize the tool between cuttings to prevent spreading disease from parent plants and the cuttings. Choose a stem piece from the plant that does not yet have flowers or buds growing, as the stem may continue to put its energy into the new growth instead of producing roots. It is best to choose cuttings that have at least 4 nodes on the stem. The nodes look like bumps on the stem, which is where buds, leaves and branching twigs grow. Cut the stem just below a node at a 45-degree angle.

Leaves Removed, Ready For Rooting Hormone and Planting

Next, remove the lower leaves from just about one-third to one-half of the cuttings (usually around 2 to 3 inches of the lower half of the cuttings). This seems counterintuitive because it looks like the plant is stripped of growing resources. This step can be hard to do for many gardeners because the cuttings look a bit sad without their leaves, however, this step helps in root production. If the leaves are not removed, the water necessary for root growth will be lost through transpiration. Note that if we were working on cuttings that have only a few large leaves, we could just cut the leaves in half.

(Continued on Page 6

(Continued From Page 5 - Propagating Bougainvillea Shrub From Cuttings)

For extra sterilization, place the cuttings into a bleach solution and rinse with regular water. You can then dip the cuttings into a rooting hormone, which is optional. The hormone can help to increase root growth and promote healthier roots in some plants. To reduce the introduction of disease into the main rooting hormone container, empty some of the rooting hormone into a smaller container to dip the cuttings.

Next, identify the pots you will use for growing the cuttings. Any type of flats or pots with good drainage can be used, but make sure to sterilize them with rubbing alcohol or bleach if you are using recycled pots. Once that is done, put a rooting medium into the pots. There are many types of rooting blends available. One that seems to work well is a fifty-fifty mix of perlite and peat. Moisten the rooting medium and then place the cuttings at least 2 inches deep into the pots, and with luck, the buried node or nodes will produce roots.

Now that the cuttings are happily nested in their new homes, make sure to provide them with indirect lighting until roots appear. Also, cover the pots with plastic bags to maintain soil humidity. Just make sure the bags do not touch the cuttings:

Planted Bougainvillea Cuttings

popsicle sticks, or pencils work great. Every so often, remove the plastic for air flow. Once there are solid roots growing, usually within a few weeks, move the pots to a spot with brighter light. Next, transplant them into larger pots, or if conditions are favorable, straight into the garden.

I am anxiously waiting for the roots on my bougainvillea cuttings to develop and already have new locations in my garden waiting for transplants. Enjoy your propagation ventures and good luck! Careful, watch for those darn thorns if you are working on a Bougainvillea… Ouch! ¤

Sources

- California Master Gardener Handbook, Second Edition
- UC Davis College of Agricultural and Environmental Sciences

KEEPING BEES, BUTTERFLIES AND BENEFICIAL INSECTS IN THE GARDEN

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

All Photos in This Article by Melinda Nestlerode

As wise gardeners turn more and more to sustainable and even entirely organic gardening, they may still—at least for the first year or two—contend with insect pests. Among these are aphids, blister beetles, cucumber beetles, curculios and other weevils, leafhoppers, and thrips, to name just a very few.

While the choices of commercial products—insecticides, pesticides, and repellents—are not myriad, they are in great plenty. Unfortunately, most of them are fairly to very indiscriminate in killing beneficial insects as well as the harmful.

For a few years now the decline in butterflies and bees has been a concern of not only gardeners but also farmers and orchard owners. Yet, truth to tell, butterflies and bees are merely an obvious signal of the precipitous decline in thousands of insects worldwide.

A few solutions exist to safeguard not only our plants but also our beneficial insects. Some of these helpful creatures we should encourage to stay in our gardens and on our planet are assassin bugs, virtually all bees, butterflies, the common black ground beetle, damselflies and dragonflies, the hover or syrphid fly, ladybugs, lacewings, pirate bugs, praying mantis, soldier beetles, the crab and the wolf spiders, and most wasps. There are, of course, many more.

One rather safe solution is the use of azadirachtin and neem oils, botanical extracts that come from the same tropical tree. They can prevent the maturation of various immature pests when sprayed onto plants. Both, however, are somewhat toxic to bees and to helpful parasitic wasps, but even more so when mixed with soap. Avoid using either one in seasons when pollinators are active.

Bacillus thuringiensis (Bt) is a biological insecticide, having several sub-species or variations. Most of them have little or no toxicity to bees. The Bt aizawai version, however, is very toxic to

(Continued on Page 7)

(Continued From Page 6 - Keeping Bees, Butterflies, and Beneficial Insects in the Garden)

honey bees. Likewise, Bt kurstaki can be harmful to butterflies and moths should it drift from farmer fields onto caterpillar host plants such as milkweed or wild anise (*Pimpenella anisum*). Take care to read the container information of the Bt variety you buy.

The compound of most cinnamon oils, Cinnamaldehyde, used mostly as a fungicide for botrytis and mildews, is toxic to certain soft-bodied insects, nematodes, and mites (yes, there is a beneficial predacious mite). This cinnamon compound has been found to have low toxicity to honey bees.

Garlic oil is sometimes recommended for garden use, but it can be repellent to bees in general (hence, no pollination by them) and poisonous to worker honey bees and their larvae. While the leading cause of decimation to honey bees is varroa mites, we do not wish to contribute to their demise by careless use of oils and other insecticides.

The following products are best used as night time applications when pollinators have turned in for the night:

- Horticultural oils. Only on direct contact are they harmful to bees.
- Insecticidal soaps. These work only when sprayed directly onto pest insects. If directly applied to beneficial insects and foraging bees, it will kill them. Again, minimize the risk by applying only at night,
- Pyrethrins. Derived from the genus *Chrysanthemum*, they have been used for centuries as insecticides. Though a short -lived product, they are, nonetheless, highly poisonous to beneficial insects, especially parasitic wasps and bees.

In addition, multi-purpose "All in One" or "3 in 1" products contain a blend of insecticide, fungicide, and fertilizers, and have no specific pest or disease target, while also contaminating the soil to no purpose. They harm or kill pollinators and beneficial insects.

Of course, the least harmful way to care for horticultural and agricultural plants is to grow flowers, shrubs, vines, fruit and nut trees that attract beneficial hosts and pollinators, which in turn will feed on the pests. Keep in mind that it's most effective to sow or install plants of the same type in large patches. And know which plants will host certain insects. For instance, bees, butterflies, and lacewings are attracted to asters, sunflowers, Seaside Daisies (*Erigeron glaucus*), to mention just three flowers.

Buckwheat and yarrow also attract them along with ladybugs and syrphid flies. Also, some plants are more inviting to one kind of bee, butterfly or beneficial than another: honey bees shun tomato flowers, marigolds, and rhododendrons, but bumblebees revel in tomato blossoms. For more plants that attract these and other beneficial insects, see the list (in the box) at the end of this article. A combination of these plants will attract not only several kinds of butterflies and bees—as my garden does—but also a company of valuable insects, not to mention a happy variety of birds, birdcalls, and birdsong, an added gift. ¤

- Alyssum
- Almond
- Angelica
- Apple
- Bee Balm, (*Monarda*)
- Breath of Heaven, (*Diosma*)
- Buddleia
- Calendula
- Campanula
- Ceanothus
- Chrysanthemum
- Clematis
- Coreopsis
- Dahlia
- Daisy (various)
- Delphinium
- Echinacea
- Felicia
- Freesias (scented)
- Fuchsia
- Gaillardia
- Globe Mallow, (*Sphaerea, ambigua*)
- Goldenrod, (*Solidago*)
- Guara
- Heliotrope
- Hellebore
- Honeysuckle
- Hummingbird Sage, (*Salvia spathacea*)
- Hydrangea
- Iris
- Joe-Pie Weed, (*Eupatorium*)
- Lavender
- Lilac
- Madagascar Jasmine, (*Stephanotis*)
- Mint
- Oregano, (allow it to flower)
- Phlox
- Pincushion flower, (*Scabiosa*)
- Plumbago
- Rockrose, (*Cistus*)
- Rosemary
- Roses
- Rudbeckia, (Coneflowers, Black-eyed Susans)
- Sage
- Snapdragon
- Spider Flower, (*Cleome*)
- Stokes' Aster, (*Stokesia*)
- Thyme
- Violets (scented)
- Yarrow, (*Achillea*)

PELLETED AND OTHER SEEDS

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

Ever harvested snapdragon seeds from the dry flower buds on the plant? The dried buds look like tiny skulls, the seeds are itty bitty and rattle inside the "skull." Seeds can be quite interesting! Seeds come in many different shapes and sizes.

Pelletized Seeds

Photo by Sherry Richards

I ordered some flower seeds and they were "pelletized." I had never used pelletized seeds, so I did a little research. Here are a few things I learned.

Pelleted seeds are tiny or irregularly shaped seeds. They are coated with a material to make them a uniform shape. Pelleted seeds were originally developed for commercial growers using machines to sow seeds because tiny or irregular seeds would jam seeding machinery.

Home Gardener Benefits of Pelleted Seeds

Pelleted seeds can help to keep from sowing too many tiny seeds in one area saving seed waste, seed costs and avoiding having to thin seedlings. Thinning is important so seedlings have room and enough nutrients to grow. I have grown some really twisted carrots because I did not thin seedlings and scattered too many seeds when planting.

Be sure to follow the seed company's instructions for pelleted seeds. For example, the soil may need to be kept moist (to a certain point) to dissolve the coating, so the seeds can germinate. The seed company's webpage and seed packages will have details.

Pelleted seeds may have a shorter shelf life because of the coating so consider buying only what you need for this season. Always check the seed company's recommendations about this, for more details and availability of pelleted seeds.

Information About Seeds in General

According to the California Master Gardener Handbook (May 2017 edition), "…Seeds, which are the products of sexual propagation in plants, comprise three parts, the outer seed coat that protects the seed; the endosperm, a food reserve tissue; and the embryo, which is actually a developing young plant relatively dormant state".

Seeds may be from plants that were:

- Open-pollinated – plant was pollinated naturally, i.e., by insects, wind, so the seed produces a plant like the original.
- Heirlooms –usually open-pollinated seeds handed-down from earlier generations of gardeners.
- Hybrids – in general, two different plant varieties of a species are fertilized under controlled conditions for preferred characteristics like appearance, disease, pest resistance. Seeds from hybrid plants will probably revert to one of the dominate plant varieties used for hybridization. As a result, the plants you grow from these seeds likely will not look like the original hybrid plant.
- Organic – no chemicals have been used to produce the plants the seeds were collected from.
- Genetically Modified (GMO) – seeds produced by other than natural processes.

Seed Packages

Seed packages include when to plant, how deep and far apart to plant seeds so the plants have room to grow to their full mature size; whether the plant is for sun or shade; lifecycle, annual, perennial, biennial. You will find other valuable information about the seeds and plants on the package. Sometimes the seeds are best started indoors or sown directly in your garden. Please see the links below to watch helpful videos or articles on seed starting.

Try to buy high quality seeds for best results. Always use a "seed starting" mix when starting seeds indoors. Lightweight, it lets the seedlings "stretch out" roots and the new seedling "poke" up after germination. Some people use peat pellets instead of seed starting mixes to start seeds. You will see them in the stores with directions on how they are used.

There are links below for flower and vegetable seed starting dates many gardeners find useful. Saving leftover purchased seeds? Be sure to keep them in a dry, cool, dark location.

Seed Tape

Seeds are spaced exactly in paper tape. You roll out the tape in the garden, cutting at whatever length needed, and cover with soil. The seed paper disintegrates in the soil. No waste, no thinning of seedlings!

(Continued on Page 9)

(Continued from Page 8—Pelleted and Other Seeds)

Seeds From Your Garden

Always save seeds from your healthiest plants. "If you choose to save seeds, clean and dry them, then place in a container that will keep them dry and store in a cool location" (California Master Gardener Handbook, May 2017 edition). For helpful details see link below to the UC Marin County article "Savings Seeds…."

For an easy way to check stored seeds to see how many will germinate, Google: *"Understanding Seeds and Seed Biology"*, *Testing Stored Seeds 2020 Penn State*, or use the following link: Understanding Seeds and Seedling Biology (psu.edu). ¤

Sources and References:

- "Using Seed Packet Information to Help Your Garden Grow", Ralph Morini – Piedmont Master Gardeners, March 2016—Using Seed Packet Information to Help your Garden Grow | Piedmont Master Gardeners
- "Starting Seeds Indoors", Cleve Campbell, March 2015, Piedmont Master Gardeners
- Google: UC Marin Master Gardeners "Seed Saving" April 29, 2020—Seed Saving - UC Marin Master Gardeners (ucanr.edu)
- YouTube: "How to Start Seeds" Santa Clara County Master Gardeners
- Sacramento Flower Seed Planting Schedule: http://sacorg.ucanr.edu/Flowers;

SOME GARDENING TERMINOLOGY SO YOU CAN TALK LIKE A PRO

Dottie Deems, U.C. Master Gardener, Solano County

I hope we can agree that the starting point for any great garden is the soil, but what is soil? Isn't it just dirt? Are fertilizers different from soil amendments? Is mulch the same as compost? Are you confused yet?

Dirt vs. Soil

Dirt and soil are not one in the same. Dirt is a lifeless mix of minerals, air, and water. Soil is a mixture of minerals, air, animals and other living things. Those living things include algae, fungi, microscopic bacteria, protozoa, nematodes, micro-arthropods, earthworms, insects, and even small vertebrates.

Topsoil

There is no legal definition for topsoil. It is meant to be the top dressing above the soil, but no, it does not contain soil as defined above. It is a combination of sand, clay, and silt. It does not contain any organic matter, but it can contain inorganic materials. It is usually coarse, dense, compacts readily, and gets waterlogged. It has no place in a garden but can be used for lawns and for filling holes.

Garden Soil

Garden soil is a combination of topsoil, peat moss, and other biological materials such as manure, fertilizers, and wood in some form. It is meant to be used in the garden. Add it to vegetable and flower beds and mix it into the existing soil. If not well mixed it tends to compact and stop water from reaching the soil beneath it. Garden soil is not the same as potting soil. They are not interchangeable.

Potting Soil

Potting soil contains no soil at all. No, I am not trying to confuse you. It is meant to be used as the growing medium for container planting. Potting soil can include peat moss, pine bark, perlite, vermiculite, shredded Styrofoam (I kid you not), mycorrhizae, coconut coir, worm castings, and the list keeps going. The combination of ingredients is meant to provide a good medium for healthy root growth, water retention, good drainage, and proper aeration.

Raised Bed Soil

Raised bed soil is a combination of garden soil and potting soil. It is lighter than garden soil and does not compact as easily. It contains peat moss, wood products such as chips, bark, and shavings, and possibly fertilizer, worm castings, biosolids, nutrients, and sometimes mycorrhizae.

Soil Amendments

Materials mixed into the soil that indirectly aid plant growth by improving the physical properties of the soil such as water retention, permeability, drainage, aeration, and structure. Amendments include manure, compost, peat moss, wood chips and bark, coconut coir, biosolids, or worm castings.

Fertilizer

Whether liquid or solid, organic, or not, fertilizers directly affect plant growth by improving the supply of nutrients in the soil. Take the time to test your soil before buying and adding fertilizer. That is the only way to make sure you are adding the nutrients you need to improve your soil rather than wasting

(Continued on Page 10)

(Continued From Page 9—Some Gardening Terminology So You Can Talk Like A Pro)

your money and time.

Compost
An organic product that has been allowed to decompose naturally by the action of air, heat, water, and micro-nutrients before it is added to soil. You can make your own of grass clippings, dry leaves, non-diseased plant material, straw, fruit and vegetable waste, coffee grounds, eggshells, etc., or you can buy bags of compost at a garden center. Compost enriches soil, helps retain moisture, suppress disease and pests, and can reduce the need for chemicals. Using compost improves soil structure. It is an excellent addition to raised beds.

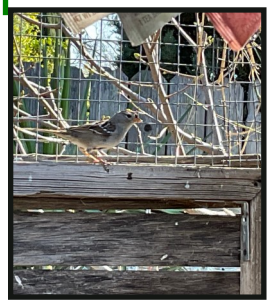
Mulch
Sometimes overlooked, mulch is anything used on top of soil as a protective cover. Its purpose is to retain moisture in the soil and prevent weed growth. Common mulch materials are wood chips, grass clippings, straw (not hay), and leaf litter.

Manure
Animal waste such as bat guano, steer manure, and chicken manure. Manure increases the nitrogen level in the soil. Nitrogen is an essential nutrient necessary for plant growth and is generally the nutrient that is most quickly depleted. Apply manure several weeks or months before planting and make sure to work it into the soil well.

Mycorrhizae
Beneficial fungi that help stimulate plant growth and accelerates root development. ¤

HOW TO IDENTIFY BIRDS IN YOUR BACKYARD

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



All Photos in This Article by Tina Saravia

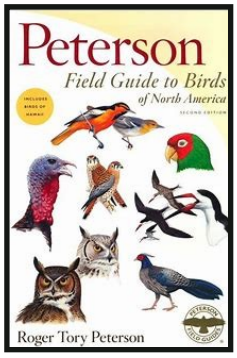
It may have started last fall or even earlier, but we've had birds come and go all the time. After all, we live across the highway from the marsh. We're in the direct path of migrating and homing birds. I recall my husband saying for the first time, "Look, the Air Force," referring to the flock of ducks flying over our property back home to the marsh for the night.

I'm not a birder—a person who does bird watching as a hobby. I enjoy seeing birds visit our garden, making it feel like a bird sanctuary. I appreciate the benefits they could bring to my garden—like extra fertilizer. I also like the crows flying around, making their warning sounds for the chickens to take cover from potential predators. But, I'm not a bird-feeding gardener either.

So, when I started noticing, at first one little bird, then two, and as many as five in the chicken run, turning it into an aviary, I started getting interested in who else is eating the chicken feed.

My first effort was to use a fan-out Birds of America guide I've had for many years, collecting dust from never being used. It has large color drawings of different common birds, but none of them fit the description of the free-loading birds.

The next step was to find an app that will help me identify those birds. I've heard that there's an app for everything. Although I have not found one for cleaning my house. The Audubon Society has just the right app. It's also very easy to use. The hardest part is to get the birds to stop frantically flying in the "aviary/chicken run" long enough for me to take a picture with my new iPad Air with a gazillion megapixels. After about 10 minutes or so of clicking, and about a dozen or so fuzzy pictures, I finally got a decent one to identify the birds.



They are white crowned sparrows (*Zonotrichia leucophrys*). According to the Peterson Field Guide to Birds of North America, the adult has "clear grayish breast, puffy crown striped with black and white." Their habitats include brush, forest edges, thickets, chaparral, gardens and parks.

That was easy, but what if someone does not have the technological ability and patience. What does one do to identify the birds in their garden? There are numerous guide books available. I opted for borrowing from the library, both the printed and eBook formats.

One book is Birds and Blooms' Name that Bird. This one claims to be "A Simple Approach to Identifying Your Backyard Friends." It's illustration of the white-crowned sparrow does not quite look like my sparrows. The crown looks "puffy" in the drawing, more like spiky or a bad hair day.

(Continued on Page 11)

(Continued From Page 10—How To Identify Birds In Your Backyard)

Another book, the Golden Fields Guide has a more similar drawing of my sparrows. It also mentions that "song is of clear whistles and buzzy trills."

I learned from the Peterson Field Guide that some birders use their ears to listen for different bird sounds to identify them without even seeing them.

Armed with these books, a tablet for taking pictures, and a pair of binoculars I've owned since the last century, I sat on a rickety garden chair in the backyard next to the chicken run and listened and observed.

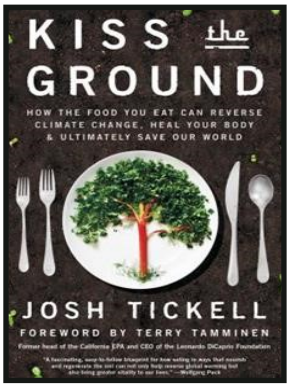
I heard bird sounds I've never noticed before. I even observed one of the sparrows, with my binoculars, casually walking around the yard and flying off. I saw a larger bird, that looks like our visitors, but with a puffy crown, perched on top of the neighbors' orange tree. It was calling-out with clear whistles and buzzy trills. Could it be calling out to its babies? It eventually flew away. So did our little visitors, until next time.

It has been nice to have all the different aids to help me identify those birds, but I realized that the best part of it was simple, good old-fashioned observation. I may have started a new hobby. ¤

KISS THE GROUND

Winona Victery, U.C. Master Gardener, Solano County

San Francisco Chronicle headline, 2/14/2021, Business Section: "Farms could be model in climate change fight"



This month's article will share highlights of the Kiss the Ground documentary film and book by same name.

In Marin County, the Straus Family organic dairy farm uses a methane digester to produce electricity and uses the energy to power the tractor. The farm hopes to be carbon neutral by the end of 2021. Yolo County Full Belly Farms integrates cover crops and compost to continually improve the soil and reduce greenhouse gas emissions generated by farming. This includes no or low till soil practices.

Sustainable Solano is a local non-profit working to establish community-supported food forests in our towns, to supplement the food supply in areas that are facing food insecurity. I learned of the Kiss the Ground documentary and book through them. I started learning about Regenerative Agriculture. The film is available on Netflix and is well worth watching!

Agriculture generates about a third of the greenhouse gas emissions in the US. Using regenerative techniques, soil health and erosion can be improved. By providing animals to forage on the grass, fertilizer is naturally deposited on the soil. As the grasses have long roots, there is additional removal of carbon from the atmosphere leading to a reduction of carbon dioxide in the atmosphere. The roots help direct rain down into the soil and reduce drought conditions.

Kiss the Ground author Josh Tickell happened to meet Ryland Engelhart in Venice, California. The Engelhardt family live in Solano County and run the Be Love Farm on Bucktown Lane in Pleasant's Valley, near Vacaville. This family manages restaurants in the South Coast area that are completely vegan, organic, and doing well at the time. This chance meeting led Josh Tickell to follow the story, by visiting farmers and political leaders in France and learning their farming techniques that improve the soil and reduce CO2 in the air.

Josh develops the story of the big ag business after the World War, when new chemicals were sold to increase the production for profit used in so much of the U.S. Central Plains. He works with a National Resource Conservation Service soil conservation advisor, who sees farmers in seminars he gives to anyone who will listen. His message is stark: we are losing our topsoil and biodiversity; growing only the crops that the government supports with subsidies and fixed prices. Every once in a while, he finds a farm that has completely changed practices, has improved the soil health, and is making a good profit from it.

One such farmer is Gabe Brown whose farm is near Bismarck, North Dakota. After a series of crop failures due to hail and

(Continued on Page 12)

(Continued From Page 11—Kiss The Ground)

wind events, he eliminated the farm subsidy program and began to retore the fertility of his fields by planting cover crops in the winter, allowing cows and chickens to graze and feed on the bugs that were supported by a seed mix that provides nectar and nutrition to pollinators and encourages carbon sequestration in the soil. The soil carbon has increased from 1.7% to 6 %, which retains one hundred and fifty thousand gallons of water.

I am now finding many other books about world farming practices using the Solano Library Hoopla service. Our future and that of the earth depend on adequate food supplies and the ground does a better job when it is kissed by better management. ¤

THE NOT SO ORDINARY HISTORY OF "ORDINARY" GRAPEFRUIT

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

Grapefruit, an ordinary fruit in our day, has anything but an ordinary history. Most citrus fruit is native to Asia. Grapefruit's origins are, however, from the West Indies. Citrus trees were planted by Europeans all over that area in the 1600s. Citrus hybridizes easily. Plant different types of citrus near each other and another new variety pops up in only a matter of time. Odette Phillippe is the Frenchman credited with bringing the seeds from the hybrid trees and planting huge plantations of grapefruit, his personal favorite, near today's St. Petersburg, Florida in the 1820s. This was not easy. The area was swampy and the local natives did not look kindly on him. Phillippe gave away grafts to his neighbors so they could grow their own grapefruit. At that time all grapefruit was yellow and sour and super-seedy.

In 1892, Kimball Chase Atwood, a New York City insurance man from Maine moved to the area just south of Tampa. He burned the forest to the ground and planted 16,000 grapefruit trees (all the Duncan variety) on over 265 acres. In 1910, one of Atwood's laborers discovered one of those trees producing pink grapefruit, which was also still sour but also a little sweet. Atwood patented the fruit calling it Ruby Red in 1929, and he became the single largest world producer of grapefruit. It was now a "luxury" item. This grapefruit was a result of natural mutation. When DNA is damaged, it tries to repair itself. The repair doesn't always look like the original tissue, much as a scar would appear on a human body after a laceration.

The first commercial crop grown in Texas was planted in 1893. Many thought the area too frigid for grapefruit, but soon learned that trees frozen to the ground numerous times, recovered and still produced fruit. Today most commercial grapefruit is grown in south Texas in the Rio Grande Valley. It is red grapefruit, known as Rio Red, and farmers and scientist are continually working on redder, sweeter and even less-seedy grapefruit.

After World War II and the dropping of the atomic bombs in the initial test in Alamogordo, New Mexico, and the two devastating ones in Japan, the Brookhaven National Laboratory for Peacetime Nuclear Research was opened about 70 miles from New York City with the goal of finding positive uses for nuclear energy. Dr. Singleton, a researcher there, planted a concentric 3-acre area with sweet corn, oats and other crops around a central pole with gamma-ray-producing Cobalt-60. Everything closer to the pole bombarded with gamma rays on a constant basis died. The mutations of what did survive made oats resistant to crown rust and sweet corn resistant to bacterial wilt. President Eisenhower's speech in December 1953 encouraged agriculture to try it out, and ordinary people were able to get Cobalt-60 in small quantities until the early 1960s to try out on their own. In the early 1960s some of the Ruby Red bud sports were sent to Brookhaven to hopefully produce bright red grapefruit. Radiation causes small nicks and cuts in DNA and the resulting self-repair is unpredictable. It took 10 years before the Rio Red came to fruition. The trees and the fruit are not radioactive, so fruits have been and still are safe to eat.

Today researchers are using CRISPR technology to remove and replace part of the genetic code to get redder, even more seedless (less than 9 seeds per fruit) fruit. It is more exact and takes a lot less time to produce the exact desired result. Grafts are still grafted to sour orange trees for sturdier, longer-lasting trees. Research continues with CRISPR technology at the University of Florida Citrus Research and Education Center, where Dr. Nian Wang and his fellow researchers have modified a susceptibility gene in one species of grapefruit for citrus

(Continued on Page 13)

(Continued From Page 12—The Not So Ordinary History of "Ordinary" Grapefruit)

canker and are working on the susceptibility gene for citrus greening (Huanglongbing). Today, grapefruit is grown in many parts of the world. In the US, commercial grapefruit groves can be found in Florida, Arizona, California and Texas.

Some grapefruit aficionados swear the heirloom Duncan, and its two white-fruited seedlings (Marsh and Walters) that gave us the first pink-colored fruit have the best flavor, even if they have lots of seeds. Less than 1% of Florida's grapefruit crop was the Duncan heirloom in 2016. Others want seed-free, sweet, red grapefruit. Trader Joe's is even selling red grapefruit already segmented, for those who don't have the energy to peel the fruit.

And as for its name, no one knows for sure. One story is that the fruit typically grows in clusters like grapes. Another is that, when it is green and not ripened, it tastes like grapes. Grapefruit is not ordinary at all! ¤

BACKYARD COMPOSTING: PRIMING MY PRIMORDIAL INSTINCTS

Ravi Shankar, Master Composter, Santa Clara County

GUEST AUTHOR DESCRIBES HIS MASTER COMPOSTER TRAINING EXPERIENCE

All my life leading up to enrolling in the Santa Clara County Master Composter Training in 1991-92, I had very little awareness as to how critical earthworms and all the hundreds of bugs in the soil play a role in breaking down the green-nitrogen rich, and the brown-carbon rich yard clippings, weeds, leaves, grass, etc.

Like many children who follow their dads or moms, or even their gardener, around the house, I wondered how many million leaves are there in any tree and how many million trees make countless number of leaves ... just like the stars in the night sky ... why leaves fall from the trees and how do they come back again next year ... how do the roots of plants and trees know how to get nourishment from the soil they are growing out of?

The Author Turning Compost at the Vallejo Peoples Garden

One of the first lessons our County teachers told us was that earthworms and the hundreds of bugs/organisms in the soil are the real farmers or composters; not the gardeners, who only assist the process! My thinking turned upside down. I was in awe, placing an earthworm in my palm, delicately gazing at it ... wondering how does this amazing creature breakdown all kinds of things piled up on the ground, into a fine, nutrient-rich "humus' or compost?

Asking a lot of questions, myself and other trainees followed our instructors into San Jose, CA, Emma Prusch Park (under Hwy 101 x 280). Teachers Ken and Sarah showed us a pair of bins assembled with pallets, which were filled with what looked like alternate layers of mostly green and mostly brown garden materials, like grass clippings, fallen leaves and twigs ... like a "lasagna"! We took turns building more layers of the same, one after the other, until all the trainees got their chance to add to the pile. We were taught to make sure the layers settle by spreading them as evenly as possible and spritzing with a light spray of water. You can add coffee grounds, tea bags and veggie/fruit scraps from the kitchen, as well as layers of cardboard and shredded newspaper, which are carbon-rich. Egg shells, coffee grounds, tea bags, orange and banana peels form good materials that the worms like to eat and breakdown, aided by fungi, bacteria, air and moisture. We used a pitch fork or a stick to "aerate" the mixture/pile.

"When do we get compost?", asked an enthusiastic trainee. Our teachers took us to the next set of already filled, covered bins, set up a few weeks earlier. Removing the tarp and a log/block on top, they soon showed us the process of turning the bins. Using a pitch fork, the top layer is removed and placed on the top of the adjacent (almost empty) bin. "Notice how this set of bins already appears to have decomposed and broken down from their original structure and appearance," said the teacher. Bringing a garden thermometer probe, he stuck it deeply in three or four areas of the bins for a few moments, and showed us the reading. "It is beginning to get warm, guys -- do you all feel it?", he asked.

(Continued on Page 14)

(Continued From Page 13—Backyard Composting: Priming My Primordial Instincts)

Another trainee asked if the compost was ready yet, and our teachers replied, "Soon. Now, you all follow me." Like a railcar following the engine, we all followed him a few yards away to another set of bins filled to the top and covered by a tarp. The teacher asked me to use the garden thermometer probe at several points and report the temperature, which I stated was "one hundred thirty eight", with an unbelieving look on my face. When asked how it got that hot, the teacher explained that, in the 1st and the 2nd set of bins, where the layers were first built in a pile and compacted, then sprayed with a little water, the mixture began to build up heat, as all the bacteria, fungi, bugs and worms started breaking it down. We had turned the layers top-down, bottom-up -- giving the green and brown mixture a good fluff and mix.

We asked what to do if the mixture becomes too soggy. Our teacher advised us to use materials which "absorb more moisture/water fast, but also can compost". Add saw dust or wood-turnings so that the ratio of moisture is balanced with dry, carbon rich material, at roughly a 50/50 ratio. The more you do it, the better you get at composting; developing a sense of the green and brown materials, the size of the twigs/yard waste, quantity of water/moisture and frequency of aerating/turning the pile, etc. Nature breaks all organic matter down every day, whether we turn the mixture or not. If the mixture is too dry and hard, add more grass clippings, spray some water and stir things!

In the end, we all got to turn the entire bin which looked almost like finished compost, dark and smelling like earth. It was hard to believe the change between what we saw first, and now in the final set of compost bins.

It was time for questions, and someone asked if we could use meat, cheese, or oily stuff for composting. For most domestic and small scale composting projects, they are NOT recommended, i.e., do not use them in the compost. Besides taking a very long time to compost compared to the other green, brown materials, they may attract rodents, and we want to avoid that.

Another question concerned the bins, and why not simply stack/layer it all up in an open pile? The answer is YES, that's possible, but as the volume gets bigger, a structure like a 3' x 3' or larger bin gives the materials a holding space, containing it stably and driving the core temperature higher, faster. Some people use 3 or 4 piece 'stacker' as they build up and down the layers, alternately. A few people even use a 'tumbler', a rotating drum, pivoted on hinges and provided with a handle to turn the gear that rotates the drum slowly, tossing/turning the contents well, and aerating them too. However, tumblers get heavy with moisture and are not large enough for a garden.

Industrial scale composting has rows 3 to 5 feet wide, and 4 to 6 feet tall, piled in long rows and mixed from an automated device, driving along the side with a light spray of water....like in farms.

Like my teachers mentored me in India, where I grew up before immigrating to the US—the exercise of pulling weeds, turning the compost bin and aiding the layers of organic matter to breakdown faster and better is therapeutic. I have adopted to use those teachings to practice being calmer and patient, to pay attention to the amazing natural phenomenon occurring before my very eyes in these compost bins. Besides, when turning compost, I breathe double or triple my normal stationary breath vs. dynamic breathing, and through healthy sweating, remove toxins from my body efficiently. This also gives me a good appetite after the composting exercise, with increased blood circulation during the practice.

The fun part is working with other volunteers, or showing visiting seniors or children how a garden works amazingly with the birds and bees on one side, and the earthworms and bugs in the soil/garden on the other. It is gratifying, and gives me hope to inspire a few young lives mentored to continue my work after my life.

In conclusion, my awareness in life and active gardening improved as a result of backyard composting training and practice for years. Plants, flowers, and trees grow, and hundreds of bugs and bacteria and fungi work in harmony with earthworms, moisture in the air and sunshine, to operate with the universe's/planet's divine intelligence to breakdown organic matter into nutrient rich soil that vegetation thrives on to give humans and animals our own abundant supply of nutrition! NAMASTE! ¤

For Further Information on the Santa Clara County Composting Education Program, Use the Following Links:

- Master Composter Initial Training - Santa Clara County (ucanr.edu)
- Composting Education - Santa Clara County (ucanr.edu)
- Composting Education Program - Recycling and Waste Reduction Division - County of Santa Clara (sccgov.org)
- Basic-composting-brochure.pdf (sccgov.org)

For General Composting Information, Use the Following Links:

- Composting Is Good for Your Garden and the Environment (ucanr.edu)
- Compost - Solution Center for Nutrient Management (ucanr.edu)

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.

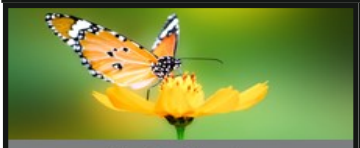
UC Master Gardener volunteers are still available to support your home gardening questions by e-mail, telephone, or ZOOM. Please note that many UC Master Gardener Program public education events statewide are being rescheduled, postponed or moved to a later date.

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 >>>

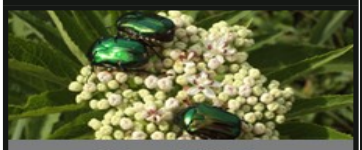
The California Garden Web serves as a portal to organize and extend to the public the University of California's vast collection of research-based information about gardening.

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.

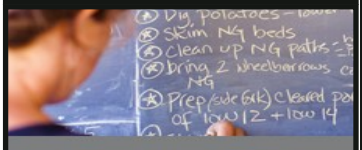
http://homeorchard.ucanr.edu/



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

SPRING GARDENING GUIDE

	APRIL	MAY	JUNE
PLANTING	◊ Edibles: Loose-leaf lettuce, culinary herbs, chard, carrots, radishes, spinach, sorrel ◊ Warm-season annuals: Ageratum, alyssum, bedding dahlias, impatiens, lobelia, petunia, phlox, portulaca, salvia, sunflower, zinnia ◊ Perennials: Ceanothus, lavender, coreopsis, penstemon, rudbeckia, dwarf plumbago, scabiosa, verbena	◊ Edibles: Beans, corn, cucumbers, eggplant, melons, okra, peppers, pumpkins, squash, tomatoes, watermelon ◊ Butterfly, bee and hummingbird attractions: agastache, alstroemeria, bee balm, coneflower, coral bells, fuchsia, honeysuckle, penstemon, salvia ◊ Plant chrysanthemums for fall color ◊ Perennial shrubs, trees or vines ◊ Loose roots of pot bound nursery plants before planting in the garden	◊ Edibles: Melon, beans and corn from seed; tomato, squash and cucumber seedlings ◊ Successive plantings of basil and cilantro ◊ Summer annuals: Cosmos, marigolds, portulaca, sunflowers, zinnias ◊ Summer-blooming perennials: Daylilies, gloriosa daisy, Russian sage, salvia, yarrow
MAINTENANCE	◊ Control weeds—pull or hoe them as soon as they appear ◊ Fertilize and clean up around azaleas, camellias, and rhododendrons ◊ Fertilize citrus ◊ Tune up motor, and sharpen blades on lawn mower. Mow often enough that you cut no more than 1/3 the length of the grass blade in any ne session ◊ Spray olives, liquidambar, and other messy trees with fruit control hormone or blast with hose to curb fruit production	◊ Aerate and fertilize lawns ◊ Fertilize citrus and established perennials and vegetables ◊ Deadhead spent flowers to encourage new bloom; pinch back petunias and fuchsia ◊ Allow spring bulb foliage to yellow and dry out before removing	◊ Roses: Cut back faded blooms to 1/4" above first five leaflet that faces outside bush ◊ Fruit trees: Thin apples, pears, peaches, and nectarines, leaving about 6" between fruit ◊ Sprinklers: Summer heat increases water needs by 2" per week. Adjust sprinklers for adequate coverage and irrigation ◊ Fertilize annual flowers, vegetables, lawns and roses ◊ Dig and divide crowded bulbs; allow to dry before replanting
PREVENTION	◊ Bait for snails and slugs, following all product instructions ◊ Rid new growth of aphids with a blast from the hose every few days ◊ Dump standing water to slow mosquito breeding	◊ Tune up drip irrigation systems ◊ Build basins around the bases of shrubs and trees; mulch those and garden plants to conserve moisture and reduce weeds, leaving a mulch -free margin around plant crowns and stems ◊ Stake tomatoes and perennials ◊ Remain vigilant against snails, slugs and aphids	◊ Mulch to keep roots cool and to retain moisture ◊ Check underside of tomato leaves for hornworms ◊ Spray roses with Neem oil to help control aphids, black spot, whiteflies, and powdery mildew ◊ Inspect garden for earwigs ◊ Remain vigilant against snails and slugs 

***Seeds For Thought* is produced by the UCCE Master Gardeners-Solano Co.**

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