



ALL ABOUT THAT DIRT

Christine Macgenn, U.C. Master Gardener, Solano County

I can remember my mother’s voice asking, when I would come in from outdoors covered with smudges of all sorts, “Have you been playing in the dirt again?” My answer would be the same today as it was then, “Yes!” Digging was and is a favorite activity for me. As a child I lived on a farm in Astoria, Oregon. The soil was rich and black and full of little bugs and worms. To me it was a magical kingdom. I didn’t understand where the magic came from but I knew it was full of surprises. After reading *Dirt, The Ecstatic Skin of the Earth* and watching *Dirt, The Movie*, a film based on the book, I have a very good idea where the magic comes from. These two works will change the way you think about dirt.

The Book

Dirt, The Ecstatic Skin of the Earth by William Bryant Logan, certified arborist and Quill & Trowell Award winning writer, is a series of passionate essays with names like Stardust, The Circulation of Stone, The Pharmacy of Mold, Wind and Soil, On Gopher Humps, The Earth for Jefferson and Adams and, Dio-He-Ko – Corn, Beans, Squash. These essays elevate the subject of dirt from “the ground we walk on” to “that upon which all life depends.”

Logan wrote *Dirt* because of something that happened in his friend Clyde’s pickup truck. Clyde was a handyman working in New York City. He was asked to fix one of the stones on the face of the Cathedral of St. John the Divine. Unfortunately, Clyde fell from the scaffolding and was out of commission for many months. His open-bed pickup truck sat under a maple tree day in and day out, through all the seasons of a year. Dust and leaves and papers and cups blew into the flat bed. They were rained on and then dried out in the blazing sun. Pigeons left their droppings in the truck. More dust blew in and rain fell. More bits of trash were tossed in and then everything was heated and reheated in the sun again and again, layer upon layer upon layer. And then, one day, Logan noticed that there

were plants growing in Clyde’s old pickup truck. Beautiful green plants were growing out of a rich potent soil. He knew right then he had witnessed something profound. In that

moment Logan knew he wanted to know everything he could about dirt.

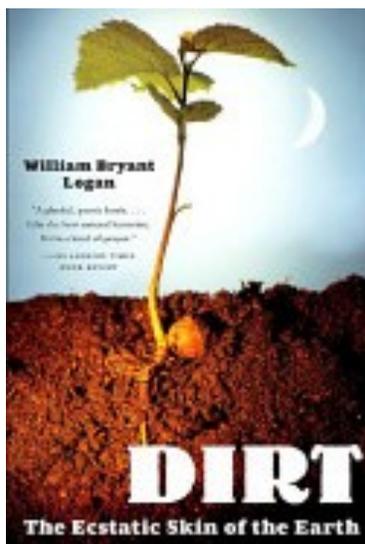
Great Science, Great Storytelling

Both witty and wise, *Dirt, The Ecstatic Skin of the Earth* is the kind of book you can curl up with in front of the fire. You know you are reading science, and learning so much, but it also speaks directly to your heart. It reminds us of the vitality of soil, of its innate ability to

recycle — air, water, and even waste and turn it into something fertile and productive — and that it has been doing this since the beginning of time. *Dirt* teaches us that whether we are learning about the history of agriculture, diversity in burials, backyard gardening, deforestation, or urban sprawl, life begins and ends with soil and it always has. Rather than a “how to” on making soil healthy, *Dirt, The Ecstatic Skin of the Earth* is a reverent and comprehensive study, compelling us to honor dirt and support and nourish its ability to save us and our planet.

Peter Warshall, of Whole Earth, reviewed *Dirt* like this: “Logan sets out to purify dirt, to embed us so intimately in the skin of Earth that we will live, momentarily at least, entranced by its vibrancy....This is the most literate book to bring soil to soul and

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APRICOTS—CALIFORNIA GOLD

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

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 in canning books. Layer halves in the jar with the cut side down, and cover with a boiling sugar syrup (1 cup sugar to 2 cups water). Process 25 minutes for pints and 30 minutes for quarts. Instead of a sugar syrup it is safe to use fruit juices or even plain water.

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 1 ½ 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 pectin's 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. ☺



BEES

Marian Chmielecki, U.C. Master Gardener, Solano County

Bees are not...

Many things may be mistaken for bees. Wasps and yellow jackets, for instance are often thought of as bees. However, bees eat only nectar for energy and collect pollen for feeding their young. Wasps and yellow jackets, on the other hand, are meat-eating. They eat the flesh of other insects, love your barbecued chicken, and do sting when threatened, so give them a wide berth. But they are not bees.

The drone fly or European hover fly (*Eristalis tenax* and *Eristalis pertinax*) and the hover fly (*Syrphid*) both look very much like bees, but are not in any way related to bees. The syrphid is in



Female Mountain Carpenter Bee (*Xylocopa tabaniformis orpifex*) on Borage
Photo by Marian Chmielecki

fact a very beneficial insect. Like the bee, it feeds on nectar and pollen, as well as honeydew, but it lays its eggs on leaves of plants and its larvae devour aphids and mealybugs--as do some wasps. So don't fear the hoverfly. Thank it, and watch it dart from flower to flower in your garden.

Bees are....

There are at least 20,000 different species of bees (possibly as many as 30,000) in the world today, and they live on every continent except Antarctica. There are, in fact, more species of bees than there are of mammals, birds and reptiles combined.

Bees are flying insects, with two pairs of wings and a body that is usually fuzzy so that pollen sticks to it well. When a bee flies, it gives off a magnetic charge that causes pollen to literally fly to it. Some bees collect pollen mostly with their hind legs (Honey Bees); others collect it with a fuzzy abdomen (Leaf Cutter-, Carder- and Mason Bees). Some have scoops on their legs (Bumble Bees) and still others ingest the pollen and regurgitate

it back at the nest (Masked Bees). Regardless of how they do it, all bees collect pollen as food both for themselves and for their progeny. And they eat nectar as "flight fuel", according to Dr. Robbin Thorp, emeritus entomologist at UC Davis, who gave a very informative talk at Rush Ranch recently.

According to Dr. Thorp, 75% of known bees are solitary, meaning that they do not live in hives with other bees, but rather are out on their own. The females lay eggs in tunnels, either in the ground (Mining Bees) or in nests that they have built in logs or other woody material (Leaf Cutter Bees, Carder Bees, Mason bees); pack pollen around each egg in its own little compartment; and go on about their business leaving the eggs to develop and hatch out to begin their own life cycle.

An interesting group of bees are the Cuckoo Bees. They do not build a nest or dig any tunnels, but rather sneak their eggs into the layers around others' nests, where their larvae will then eat the larvae of the host family and take over that nest. This is called *kleptoparasitic* behavior.

The remaining bees in the world today live in a social structure. These are the Honey Bees and the Bumble Bees. These colonies feature a queen, whose job it is to lay eggs--thousands a day--thereby assuring that the colony continues to thrive and survive.

The Bumble Bee colony is established often in small, vacated rodent burrows. These colonies endure only one year. At the end of the season the many queens that have been created burrow into the ground on their own and hibernate until spring, at which time they each begin their own new colony.

On the other hand, Honey Bees, (genus *Apis*) which make up about 10% of the world's bees, build a hive that may endure for years and years. There is only one queen in any Honey Bee colony and she, too, may live for years. When something happens to her, the drones (specially reserved males) of her colony fertilize one of the female larvae that will then develop into the new queen. All of the worker bees in a Honey Bee hive are sterile females, and they and all the drones follow the lead of the queen and protect her fiercely when danger threatens. Honey Bees will sting only when threatened and otherwise are quite calm and mind their own business.

All bees are pollinators. Pollination of flowers by insects (bees and others) is called *entomophily* and is responsible for the production of some 35% of the world's food crops. Pollination is

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MORE FLOWERING PLANTS AT NO COST

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

In a second-hand bookshop tucked away in the foothills of Gold Rush country, I chanced across a thick circular written by a name I recognized: H.M. Butterfield. I promptly bought it. Entitled “Home Floriculture in California,” it was published in 1931 by the Agricultural Extension Service of UC Berkeley. Some things, I discovered, never grow old with age.

The section on propagation of flowering plants was particularly fascinating. While I know how to propagate by stem cuttings, by layering, and—less so, it’s true—by budding, I was unaware of the large variety of plants that can be propagated by simple division (though I do it all the time with iris, daylilies, aloe and asters) and by leaf cuttings.

By simple division we mean merely pulling apart a clump of like plants, i.e., separating them by hand, by knife, or by shovel. Butterfield extensively lists the following that lend themselves to division:

Agave	Dicentra	Mahonia
Aloe	Doronicum	Musa
Amaryllis	Echinops	Nymphaea
Anchusa	Eremurus	Peonia
Anemone	Erigeron	Paulownia
Aquilegia	Erythrina	Philadelphus
Armeria	Gallardia	Phlox
Aster	Gazania	Potentilla
Astilbe	Geum	Primula
Aubretea	Gypsophia	Rudbeckia
Bauhinia	Helenium	Scabiosa
Berberis	Heleanthemum	Sedum
Campanula	Helleborus	Sempervivum
Canna	Heuchera	Statice
Chrysanthemum	Hydrocleis	Strelitzia
Cornus	Iris	Thalictrum
Cotyledon	Kerrea	Zantedeschia
Cyperus	Laburnum	
Dahlia	Leucothoe	
Delphinium	Linum	

Acquiring plants through leaf cuttings requires slightly more effort. Whole leaves and sometimes even leaf sections can be used to propagate a plant. Plants with thick or fleshy leaves, usually growing in rosette formation, and numerous succulents lend themselves to leaf propagation.

For succulents, gently pull a healthy leaf from the parent plant, being sure that a small segment of skin is attached. Leave it in partial shade for a day or two so that the wound forms a callus, then insert it into a small pot of peat or clean compost and sand (in equal measures). Be sure that the leaf is upright, and then firm the soil around it with your fingers. You may need to cover the soil around it with small gravel to keep it upright.

Try to maintain a springtime temperature of about 70 degrees, misting it with water daily. Usually after about two weeks, new growth appears. At that point, pot the rooted plantlet with ordinary potting mix. Top-dress with grit or tiny pebbles.

Just a few of the succulents that lend themselves to leaf propagation: *Aeonium arboreum*, *Begonia icana*, *Begonia venosa*, *Cotyledon undulata*, *Crassula ovata*, *Crassula perfoliata*, *Dudleya ingens*, *Dudleya rigida*, *Echeveria elegans*, *Haworthia attenuata*, *Hoya australis*, *Pachyphitum oviferum*, and *Sanseveiria*.

While Butterfield does not inform his readers of how to facilitate leaf propagation, the American Horticultural Society does. Butterfield lists *Cotyledon*, *Echeveria*, *Gasteria*, *Gloxinia*, *Haworthia*, *Nymphaea*, *Pawlownia* (young leaves), and *Tellima* as useful for leaf cutting from entire leaves. *Tellima* (Fringecups), by the way, can also be propagated by division of its clumps in spring. And he does add that a cutting from a section of a leaf from the *Begonia rex-cultorum* group can create a plant.

Surprisingly, Butterfield does not include *Saintpaulia* (African violets) in his lists, which fortunately the AHS does, using it as an example. Choosing mature, healthy leaves, cut them off at the base of the leaf stem. (Some people then allow them to root in water before the next step.) Insert each leaf stalk into its own small pot of soil mixture so that the base of the leaf touches the soil. Water the soil, then cover each pot with a cloche, such as an upside-down clear plastic bottle from which the upper section has been cut. Keep it out of direct sunlight but in a warm, light place until it produces a few plantlets—usually a rosette of leaves. They should be ready then to repot and grow individually. Be sure always to label your pots.

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QUARTERLY PEST NOTES

Contributed by Dave Harper, U.C. Master Gardener, Solano County

LESS TOXIC INSECTICIDES

Insecticides are substances applied to control, prevent, or repel insects. Insecticides can be an important part of integrated pest management programs; however, some products can worsen pest problems or harm people or wildlife. Other products—often called less toxic pesticides—cause few injuries to people and organisms other than the target pest. The less toxic insecticides listed below should be a first choice when you need pesticides to control insects. Always check product labels to be sure the pesticide is registered for your plant or pest situation.

SOAPS (POTASSIUM SALTS OF FATTY ACIDS):

Insecticidal soaps control aphids, whiteflies, and mites; come in easy-to-use squirt bottles for small jobs; and require complete coverage of pests and sometimes a repeat application.

INSECTICIDAL OILS:

Oils control aphids, whiteflies, mealybugs, scale insects, spider mites, lacebugs, psyllids, and thrips. Good coverage of plants is required. Don't apply to water-stressed plants or when temperatures are above 90°F. Petroleum-based oil products include superior, supreme, narrow range, and horticultural oils. Plant-based oil products include neem and canola oils.

MICROBIAL INSECTICIDES:

Microbials are derived from microorganisms that cause disease only in specific insects:

- ◆ *Bacillus thuringiensis* (Bt) subspecies *kurstaki* (Btk) controls leaf-feeding caterpillars. Bt subspecies *israelensis* (Bti), sold as mosquito dunks, plunks, and bits, controls mosquitoes and fungus gnats.
- ◆ Codling moth granulosis virus (sold as Cyd-X) controls codling moth.
- ◆ Spinosad is a microbial-based insecticide that controls caterpillars, leafminers, and thrips; but it can also harm some beneficial insects.

BENEFICIAL NEMATODES:

Entomopathogenic nematodes are microscopic worms, mostly *Steinernema* and *Heterorhabditis* species, that attack and kill lawn insects, clearwing moths, and carpenterworm. Because nematodes are living organisms, they are very perishable, so order through the mail to assure freshness.

BOTANICAL INSECTICIDES:

Derived directly from plant materials, botanicals vary greatly in their chemical composition and toxicity but usually break down in the environment rapidly.

- ◆ Pyrethrins (pyrethrum) are used against a range of insects but are toxic to fish and aquatic organisms.
- ◆ Azadirachtin (from the Neem tree but different from Neem oil) has limited effectiveness against pests but low toxicity to nontargets.
- ◆ Garlic, hot pepper, peppermint oil, and clove oil are sold as insect repellents that protect plants. Limited information is available regarding effectiveness.

AVOID THESE MORE TOXIC PESTICIDES:

- ◆ Pyrethroids such as permethrin, cyfluthrin, cypermethrin, and bifenthrin move into waterways and kill aquatic organisms.
- ◆ Organophosphates such as malathion, disulfoton, and acephate are toxic to natural enemies.
- ◆ Carbaryl harms bees, natural enemies, and earthworms.

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needed for fruit production in these plants and for the production of seed to assure future generations of plants. Not only do the flowers need the bees, but bees also need the flowers. Some bees have become specialized to a single type or family of flower: sunflowers; *curcubits* (squash, pumpkin, cucumber, melons); alfalfa. Nonetheless, all do live on flowers. Without flowers they perish. And herein lies our current predicament. Legions of bees have perished.

Bees need our help!

In searching for reasons for what we have termed Colony Collapse Disorder, or the sudden and unexplained disappearance of huge numbers of bees since the 1990's, scientists have come up with 3 likely suspects. One is the varroa mite, a parasite that lives in symbiosis with the Asian Honey Bee, but infects and destroys the European Honey Bee, which is what we have in North America. Another probable contributing factor is the ubiquitous use of pesticides--especially the neonicotinoids. These may be doing any number of things from killing bees outright if they are sprayed directly, to disabling their "homing sense" so that they seem not to be able to find their hive after ingesting these pesticides in nectar or pollen. And finally, many bees are likely dying of hunger. Bees work from early spring to late fall. As things are now, much natural habitat has been built over. Other vast stretches of earth are monocultures (almond orchards, huge corn fields, etc.) Therefore, there is neither variety nor three-season-long availability of flowers. Bees go hungry.

What can we do? We can stop using bee-killing pesticides. Additionally, Dr. Thorp suggests restoring and conserving natural lands, planting flowers on green roofs, flowers along roadsides and golf courses and creating bee-friendly urban gardens, where we can also leave patches of bare earth (no mulch even) for burrowing bees to inhabit, and building "bee condos"--pieces of lumber drilled with tunnels as another option. Most importantly, we can plant a wide variety of pesticide-free flowering plants to feed the bees throughout their active seasons from early spring to late fall.

There are a variety of sources for finding information on bees and bee-sustaining plants. The Xerces Society deals with pollinator conservation, The UC Berkeley Urban Bee Lab website has a wealth of information on bees, and UC Davis has planted the Häagen-Dazs Honey Bee Haven, a garden dedicated to all things bee. Go for a visit. Additionally, there are on-line lists of the best plants for bees among the UCD Arboretum All-Stars, the North American Pollinator Protection Campaign (NAPPC) and the US Department of Agriculture's Natural Resource Conservation Service. And finally, there are some nurseries such as Annie's Annuals that carry plants specially marked as great for bees.

With the focus on converting our thirsty-turf yards to something more California- appropriate, let's make this new year all about the birds, the butterflies and the bees as we plan and plant our gardens. ☺

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Streptocarpus rexii, *Streptocarpus* hybrids, and Rex begonias can also be propagated by using scored leaves or sections of a leaf. Score or cut the strongest veins on the underside of the leaf. Place that underside in contact with the soil. You might need to pin it to the soil with a hatpin or the like. Put the container in a plastic bag or propagator away from direct sunlight. Inflate the bag to prevent the plastic from touching the leaf, and seal it. Keep the cutting in a warm place until plantlets develop from the cut veins. Remove them from the bag, cautiously lifting and separating each plantlet, being sure to retain some soil around the roots. Pot them individually.

Similarly, you can cut out the midrib of a leaf and place each leaf half on its sides so that the exposed veins are touching the soil of a shallow container. Press the soil gently along both sides of the leaf. Once plantlets have formed alongside the leaf, they are ready to be repotted.

In short, if you already grow any of the above-mentioned plants, and you want more of them (who wouldn't want more Columbine or Delphinium?), you need not patronize a nursery. You become your own nursery. And should you have more than enough, how simple it is to exchange plants or make a gift through this simple division or the cutting of a leaf. ☺



RAIDING YOUR RECYCLING CART FOR GARDENING SUPPLIES

Kathy Low, U.C. Master Gardener, Solano County

Growing up, my parents told me stories of their childhood during the Great Depression. They spoke of everyone's need to use and reuse items until they were useless because no one had any money to replace them. So they got creative about reusing and repurposing everything. In many ways, the Great Depression can be viewed as the unofficial start of the recycling movement, not out of concern for our environment, but out of financial necessity. We can learn a lot from their resourcefulness.

If you take a moment to look inside your blue lid curbside recycle bin, you'll find numerous items that can be re-purposed in your garden. You'll save money and help the environment. So let's take a peak insides your recycle cart and look at garden uses of what you'll find there.

CORRUGATED CARDBOARD

Corrugated cardboard can be used as seasonal or short term mulch. It blocks out light preventing weeds from growing, yet allowing air and water to pass through it thereby keeping the soil healthy. If you want to get rid of your lawn this year, you can layer corrugated cardboard over it to kill it.

GALLON WATER, PLASTIC MILK, OR JUICE CONTAINERS

These empty re-sealable containers are perfect for catching your daily shower warm up water. Depending upon how far your water heater is from your bathroom, you'll be able to save one to three gallons of water daily that would normally go down the drain.

This clean saved water can be used to water your garden or indoor plants.



FROZEN MEAL SINGLE COMPARTMENT TRAYS, PLASTIC PIE OR CAKE CONTAINERS

These trays and containers can serve as planter saucers. And when they crack or warp in the sun, they're easily replaced by another one from your recycle cart. Just make sure you wash and clean them before using them as saucers.

NEWSPAPERS

Old newspapers have multiple uses. They can be used as earwig traps. Simply roll them up and place them on the soil near plants just before dark. The next morning shake out the accumulated earwigs into a soapy pail of water.



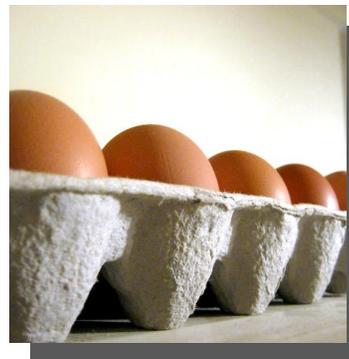
You can use old newspapers to make pots. Take a glass and roll the newspaper around the glass leaving half the paper overlapping the top of the glass. Once rolled, push the newspaper into the open glass the pull the glass out. Push the bottom of the glass into the rolled pot to squish the extra paper down flat, forming the bottom of the pot.

PAPER LUNCH AND FAST FOOD BAGS

If you have an apple or pear tree and have been plagued with worms in the fruit, you can use paper bags to help control and break the culprit codling moth cycle. Cut a two inch slot in the bottom of a lunch bag and slip it over the fruit when it is still one half to an inch long and staple the bag shut. Remove the bag when the fruit begins to ripen.

PLASTIC STRAWBERRY AND LIKE CONTAINERS, CEREAL AND SIMILAR CHIPBOARD BOXES, CARDBOARD EGG CARTOONS

If it holds soil and provides drainage, it can be used as a planter or seed starting pot. If you use a plastic fruit container, be sure to wash it before using it as a pot. And for cereal and other chipboard boxes, simply cut them down to a size to meet your needs.



The nice thing about using items from your recycle bin in your garden is that when they no longer serve your needs, they can be put right back into your recycle cart. 😊



SPRING GARDENING GUIDE



	APRIL	MAY	JUNE
P L A N T I N G	<ul style="list-style-type: none"> ◇ 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, penstamon, rudbeckia, dwarf plumbago, scabiosa, verbena 	<ul style="list-style-type: none"> ◇ 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, penstamon, salvia ◇ Plant chrysanthemums for fall color ◇ Perennial shrubs, trees or vines ◇ Loosen roots of pot bound nursery plants before planting in garden 	<ul style="list-style-type: none"> ◇ 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
M A I N T E N A N C E	<ul style="list-style-type: none"> ◇ 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 one session ◇ Spray olives, liquidambar and other messy trees with fruit control hormone or blast with hose to curb fruit production 	<ul style="list-style-type: none"> ◇ 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 	<ul style="list-style-type: none"> ◇ 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 ◇ Deep water trees to encourage deep, strong root growth
P R E V E N T I O N	<ul style="list-style-type: none"> ◇ 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 	<ul style="list-style-type: none"> ◇ 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 	<ul style="list-style-type: none"> ◇ 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



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soul to the subterranean!" It's so true. Logan's words pierce our consciousness, evoking thoughts and feelings that resonate deep within us long after we put the book **down**.

Over time *Dirt* has developed an almost cult following across the world. It is as full of captivating characters and stories as any great work of literature. St. Phocas, earthworms and Darwin, compost, penicillin, and Thomas Jefferson traverse the pages together. And to that end we come away from reading this book knowing fully that we must interact with dirt and treat it with respect because our future depends on it.

Dirt...The Movie

"Of all the known planets in all of the galaxies in the universe only one has a living breathing skin called dirt." So begins the incredible film, *Dirt... The Movie*. Based on Logan's wonderful book, it brings his brilliant essays to life.

A compilation of powerful images, poignant animations, profound science, history, and ecology, as well as interviews with renowned environmentalists and political activists the world over, *Dirt... The Movie* is passionate, exciting and inspiring. It communicates a message of hope about our future. But, it is also a cautionary tale. The impact of humans on dirt has been and continues to be devastating. We take dirt for granted.

Oh, Precious Dirt

According to Wangari Maathai, Nobel Laureate and founder of the Green Belt Movement, "We think diamonds are very important, gold is very important, all these minerals are very important. We call them precious minerals but they are all forms of the soil. The part of these minerals that is on top, like it is the skin of the earth, that part is the most precious of all."

The skin of the earth is just five centimeters deep, and yet, soil is the mother. The source of all fertility. The only quality food that we can produce is a byproduct of our relationship with soil. What happens above ground and below ground is totally connected, and we are not separate from it. Vandana Shiva, physicist, farmer, and activist, tells us, "We are made of the same five basic elements that the earth is made of." We breathe the same air, drink the same water, we are in community with



the soil.

Dirt is alive. It has in it all the kingdoms of life — bacteria, fungi, algae, microbes, and slime molds. In fact, when you look at the all the species existing in dirt, it just might be even fuller of vitality than we are. There are tens of billions of organisms living in the soil and they are all living together, in cooperation and in competition. They have fantastic strategies for getting along with each other, for getting rid of each other when necessary and for making their own space in the ground. These relationships are brilliant, primal, and the very foundation of keeping our biosphere healthy.

Our Suffering Soil

Deforestation, monoculture, pesticides, urban development, and the violent and devastating practice of strip mining are all wounding and suffocating our mother earth — killing dirt by destroying its root structure, altering its natural balance, and robbing it of the elements necessary to maintain its equilibrium. That's what happened in the dust bowl of the 1930s. Through monoculture we starved the dirt of the diversity it needed to survive. The wind came up and blew it all away. When dirt with no root structure is displaced by wind and water, we are left with rock. You can't do much with bare rock.

Soil does not scream like we do, "Ouch you are hurting me." But it does cry out in its own way. Erosion is a sign of soil's pain. Paul Stamets, mycologist, suggests that we contemplate those billions of organisms in dirt and then ask ourselves, "What if they could form a united organization and each organism had a right to vote. Would we as humans be voted off the planet? We as humans reject viruses; what if the earth could reject us as if we are a virus? Where would we be then?" The truth is, our planet cannot survive without its ecstatic skin. Drought, crop failure, global warming, and starvation all begin with the decimation of our soil.

A Call to Action

In a forest there is a natural and beautiful process of decomposition and renewal. The mycelia under a fallen log are the interface between the log and the soil — and these mycelia are very active. They are busy decomposing the log and building soil. If, when we cut trees down we left chips and logs behind to cover the ground, we would be helping to build the soil. We aren't doing that enough. Instead, we are creating more and more micro deserts, displacing farmers, and sentencing vast communities to a life of poverty and hunger.

Near the end of the *Dirt, The Movie* there is a beautifully animated story — *The Story of The Hummingbird* as told by

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(Continued from page 9--All About That Dirt)

Wangari Maathai. "One day there was a huge forest being consumed by a fire. All of the animals in the forest come out and they are transfixed as they watch the forest burning. They feel very overwhelmed and powerless. Except for this one little hummingbird who says, I am going to do something about this fire! So it flies to the nearest stream and gets a drop of water and puts it on the fire. Up and down and up and down it goes as fast as it can. In the meantime, the much bigger animals, like the elephants with their big trunks who could bring much more water, they are standing there helpless and they are saying to the hummingbird 'What do you think you can do? This fire is too big. You are too little. Your wings are too little and your beak is so small you can only bring a tiny drop of water.' Without wasting any time the hummingbird turns to them and says, 'I am doing the best that I can.'"

We Are the Stewards of the Earth

This film reaches into our senses and teaches us that we can each do more to save our precious dirt. In our gardens, we can plant

cover crops that will naturally feed, nourish, and support the health of our soil. We can compost. Mixing our waste and organic matter into our soil is the highest form of recycling, cleansing and healing the dirt. We must join the Global Worm movement, supporting and protecting our earthworms that work like little intestines, taking in nutrients and waste, processing it, and then excreting something renewed and productive. Darwin believed that at the end of times worms would be recognized as the most important species because they were the soil builders. Turning concrete playgrounds back into dirt playgrounds, creating inner city gardens, green roofs and developing organic and diverse commercial agriculture and preserving our parks and forests are all ways we can re-establish our relationship with dirt and heal it. It takes a village.

Dirt, The Ecstatic Skin of the Earth and Dirt, The Movie are love stories about soil. They beckon to us, imploring us to be like the hummingbird and do the best we can do. We are, after all, the stewards of the earth. ☺

(Continued from Page 5—Quarterly Pest Notes)

- ◆ Systemic neonicotinoid insecticides (such as imidacloprid) can be very toxic to bees and parasitic wasps, especially when applied to flowering plants.
- ◆ Metaldehyde, a common snail bait, is toxic to dogs and wildlife. Use iron phosphate baits instead.

Look at the active-ingredients section of the pesticide label to see if it lists one of the less toxic chemicals.

Active Ingredient

Spinosad (a mixture of Spinosyn A and Spinosyn D).....0.5%
Other Ingredients.....99.5%

KEEP OUT OF REACH OF CHILDREN

CAUTION See back panel booklet for additional precautionary statements.

NET CONTENTS: 1 pint (473.16 ml)

Less toxic pesticides are sold under many brand names.

- ◆ Minimize the use of pesticides that pollute our waterways. Use nonchemical alternatives or less toxic pesticide products whenever possible. **Read product labels carefully** and follow instructions on proper use, storage, and disposal. <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/warning.html>

- ◆ Read more about Using Pesticides. <http://www.ipm.ucdavis.edu/RETAIL/pesticide.info.html> ☺

Find your pest at the Pest Notes library

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



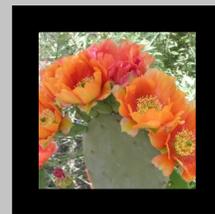
The Web site <http://www.ipm.ucdavis.edu/index.html> can help you learn about Integrated Pest Management (IPM) and how you can apply it to your pest problems. Your local Cooperative Extension/Master Gardener Hotline can also help—
(707) 784-1322

UC COOPERATIVE EXTENSION MASTER GARDENERS SPECIAL EVENT



SUCCULENT EXCHANGE

April 18, 2015
9:00 am to 12:00 pm
UC Extension Office, 501 Texas Street, Fairfield, CA



Master Gardeners are propagating succulents and cactus **now** to share with attendees. The public is **encouraged to bring their own** succulents and cactus to share—nothing over one gallon size, please! Label the plant with the genus and species, if possible. We will have cuttings, pieces and potted plants. Questions? Call Jennifer Baumbach 707-784-1321

MASTER GARDENERS IN THE COMMUNITY

FAIRFIELD HOME DEPOT
2121 Cadenasso Drive, Fairfield

Dates Master Gardeners will be at Home Depot 



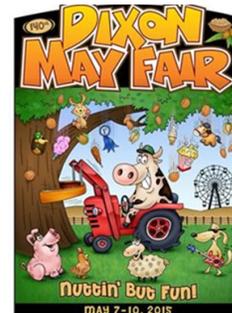
Time:
10 am until 2 pm.

The 2015 dates are:

- March 14, 28
- April 4, 18
- May 2, 17, 30
- June 6, 20
- July 11, 25
- August 1, 15, 29
- September 5, 19
- October 3, 17

DIXON MAY FAIR
May 7, 2015 through May 10, 2015

Solano County Master Gardeners will man a booth located in the floriculture building during the Dixon May Fair. We will answer horticultural questions and provide information. They will also feature the IPM Kiosk where you can look up problems in your garden.



SOLANO COUNTY FARMERS MARKETS
Solano County Master Gardeners man a booth be at the following Farmer's Markets:

- Vacaville ☀ May 2, 2015 to October 10, 2015
- Vallejo ☀ All Year
- Benicia ☀ April 30, 2015 to October 29, 2015



SOLANO COLLEGE SPRING PLANT SALE

May 7, 8 and 9, 2015

Thursday: 8:00am to 8:00pm * Friday: 8:00am to 5:00pm * Saturday: 9:00am to 2:00pm

-Louise Wilbourn Yarborough Horticulture and Plant Science Institute (formerly Building 1000) at Solano Community College-

The Horticulture Club at Solano Community College will host its annual spring plant sale from Thursday through Saturday, May 7th, 8th, and 9th. The sale will feature varieties of tomato plants, including heirloom and hybrid, vegetable starts, CA natives, plants and trees for outdoor landscaping, herbs, succulents, seasonal flowering plants, houseplants, floral arrangements, etc. Drawings for door prizes will occur throughout the sale. Proceeds from the sale provide scholarships, equipment and reference materials for Solano Community College horticultural students.

Contact Ken Williams (707) 975-6856, or kennav27@aol.com for further information

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

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It is available through the internet for free download:

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

A handwritten signature in black ink that reads "Baumbach".

Jennifer M. Baumbach
Master Gardener Program Coordinator



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SEEDS FOR THOUGHT



**spring
2015**