

California Rare Fruit Growers San Diego Chapter Newsletter

May 25, 2006

Room 101, Casa del Prado, Balboa Park

General Meeting: 7:00 – 7:20 pm

Program: 7:20 pm– 8:20 pm

THE AVOCADO

Fruit Tasting/Break: 8:20 – 8:50 pm

Opportunity Drawing: 8:50 pm

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THE VIEW FROM THE CHAIR

One thing is for sure: If we didn't like fruit ...



none of us would be here!

DAVID SILVERSTEIN

Membership!

Only \$13 per year!

Join Now!

Send payment to:

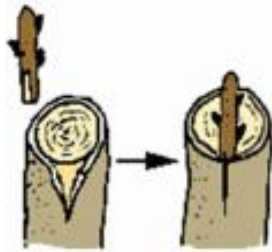
CRFG, San Diego Chapter
c/o Paul Fisher
1266 Vista Del Monte Dr.
El Cajon, CA 92020

AT THE APRIL MEETING ...

David Silverstein and Tom Del Hotal opened up the program with a question and answer session on Loquats (yum!). This quickly segued into Tom's presentation on grafting. Tom began by showing live pieces of stock and scion wood and discussing the selection of wood size and graft location for a whip graft:



This was followed by a 30-minute slide show detailing bark grafts ...



and T-grafts:



Interested readers can find an online tutorial at: muextension.missouri.edu/xplor/agguides/hort/g06971.htm

After Tom's presentation, Jim Neitzel began showing the varieties of loquats he brought to share, and a feeding frenzy ensued.



In The Garden



Plant:

- Tropical and sub-tropical plants
- Bulbs such as *Tuberose*, *Gladiolus*, *Watsonia*, *Zantedeschia*, *Canna*, and *Lilies*
- Seeds for summer and fall vegetables

Prune/Thin:

- Clip ends off of vines longer than five feet on squash-like plants such as cucumbers, melons, zucchini, etc. to promote new vines and maximize yields
- Remove (clip) fruits from pencil-thin limbs of pome and pit fruit trees
- Prune winter and spring blooming ornamentals that have spent their blossoms

Water:

- In most areas, lawn-watering is now 3 minutes in the morning and 3 minutes at night, daily.



Plant:

- Succulents and Palms

Prune/Thin/Divide:

- Clip runners on strawberries
- Dead-head roses, esp. on climbers. Trim back to nearest "five" leaf.
- Divide Cymbidium

Pest Management Update

The state of California is currently funding an outreach program aimed at educating the public about the large quantities of pesticides being transported into our waterways and coastal environments. San Diego is a major contributor to this problem, with consumers in San Diego County alone spending over 70 million dollars per year on pesticides. More information about the outreach program can be found at www.projectcleanwater.org or your local nursery.

The University of California Cooperative Extension office in San Diego (cesandiego.ucdavis.edu) has much to offer the local gardener, including up-to-date seminars on local pests. Tom Del Hotal reports from the May 9th IPM (integrated pest management) seminar that two invasive critters are making headways in our gardens: (1) the citrus root weevil, *Diaprepes*; and (2) the bacteria *Xylella*, carried by the stingless glassy-winged sharpshooter wasp. Free publications about both of these pests can be found at anrcatalog.ucdavis.edu. Note that the glassy-winged sharpshooter is commonly found in plantings of impatiens.

Our battles with the citrus leaf-miner are not over. Now that the local daytime temperatures are heating up, they will become very active. The CDFA is releasing counter-organisms in known areas of infestation: this probably does not include your neighborhood. Your local nursery stocks Spinosaid – a fluid containing bacteria that destroys leaf-miner eggs. Note that the product label restricts you to 5 applications per season and no more than once per week. As an alternative, you might try Spinosaid once per month and Malathion (staggered by 2 weeks) once per month also during the leaf-generation season. Malathion is relatively safe on citrus, although some mandarins exhibit chlorosis-like stress from monthly applications. This is easily treated with Ironite, Kelp Extract, or any other soil conditioner that targets chlorosis.

SOILS, FERTILIZERS, AND ALL THAT

Good fertilization practice involves an effective balance between (1) a particular plant's needs, (2) the present state of the soil, and (3) the demands you wish to make of the plant. For example, a rose bush has certain basic needs, but your fertilization program might go way beyond that if you demand a huge crop of blossoms from the plant.

Soil Chemistry.

O.K., so what about the basic needs of plants? Biologists have identified 18 minerals that are deemed essential to plant life. Among these, Carbon (C), Hydrogen (H), and Oxygen (O) are supplied by air and water. The remaining minerals must be in the soil for the plant to interact with or consume. If too much of a mineral is present, the plant can suffer. In addition to the 15 minerals listed below, Silicon (Si) and Cobalt (Co) are also beneficial but not essential to most plant species.

Primary minerals: these are what you see listed (by law) on packaging of fertilizers and soil conditioners, the "N-P-K" (available % nitrogen, % phosphorous, % potassium). For example, a fertilizer rated 5-3-1 contains 5% nitrogen, 3% phosphorous, and 1% potassium that can be processed by plants, plus 91% "other stuff" ($91\% = 100\% - (5\% + 3\% + 1\%)$).

Nitrogen. (N) The most used nutrient. Stimulates growth. Nitrogen is made available by soil bacteria. A healthy, mature semi-dwarf subtropical fruit tree that bears a full crop of fruit will remove about 1 pound of nitrogen from the soil each year.

Phosphorous. (P) Needed for seed, root, flower and fruit growth. Mature semi-dwarf fruit trees consume about 1/10th of a pound of phosphorous per year.

Potassium. (K) Improves overall plant vigor and disease resistance. Encourages root growth and fruit quality. Regulates absorption of Calcium, Sodium and Nitrogen. Helps roots withstand compacted soils. A mature semi-dwarf subtropical fruit tree bearing a full crop will consume about 3/4 pound per year.

Suppose you wish to supply a fruit tree with 1 pound of nitrogen. If your fertilizer is rated 8-6-8, then 8% or about 1/12th of each pound is nitrogen that can be processed by a plant. Consequently, you will need to feed the tree 12 pounds of that fertilizer over the year.

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Secondary minerals. Not always listed or present in fertilizer, but still essential for plants.

Calcium. (Ca) Needed for Nitrogen uptake, cellular structure and division. Promotes root growth and strong branch structure.

Magnesium. (Mg) Essential for consumption of phosphorous and chlorophyll production. Plants in the families Rosaceae (incl. pome and prunus fruits) and Rutaceae (incl. citrus) are heavy users of Mg.

Sulphur. (S) Encourages plant growth and seed formation. Will increase soil acidity when present in significant amounts.

Micronutrients. Needed in far less quantities than primary minerals, but necessary to maintain normal growth.

Molybdenum. (Mo) Needed for protein generation. Plants in the family Leguminosae (legumes, incl. Peas, Beans, Alfalfa, and Ice Cream Bean tree) consume additional amounts for nitrogen fixation.

Nickel. (Ni) Required for Nitrogen and Iron absorption, seed germination.

Copper. (Cu) Essential for enzyme systems and reproductive growth.

Zinc. (Zn) Regulates plant growth.

Manganese. (Mn) Essential for chlorophyll production. Also activates Nitrogen uptake and promotes plant maturity.

Iron. (Fe) A catalyst for the production of chlorophyll. Also essential for new growth.

Boron. (B) Necessary for seed, root, and fruit development. Must be available throughout the life of the plant.

Chlorine. (Cl) Enables movement of fluids in the plant.

Sodium. (Na) Also enables movement of water within the plant and regulation of ion chemistry.

Further, when clay is present in the soil it is beneficial to add weak carbonic acids – sometimes called humic acids. This will permit the many naturally occurring minerals bound in clay compounds to be liberated and flow to the plant. Note that nutrient flow is not about water flow: it is about soil chemistry.

A soil conditioner is a fertilizer that puts all of the essential minerals, needed bacteria and humic acids in the soil. For example, expeller-pressed kelp extract (a liquid, not raw kelp) has an N-P-K of 0.1, 0.1, 1.5. It contains all essential minerals, B-vitamins, and of course weak carbonic acids. Kelp Extract is available from GrowMore, www.growmore.com.

Both of the brand names “Dr. Earth” (www.drearth.com) and “Gro-Power” (www.gropower.com) offer a granular product with an N-P-K of 3-3-3, all necessary minerals, humic acids, etc. Note again that by “soil conditioners”, we are not talking about gypsum and water percolation, but weak carbonic acids and soil chemistry.

Acid or Alkaline Soil?

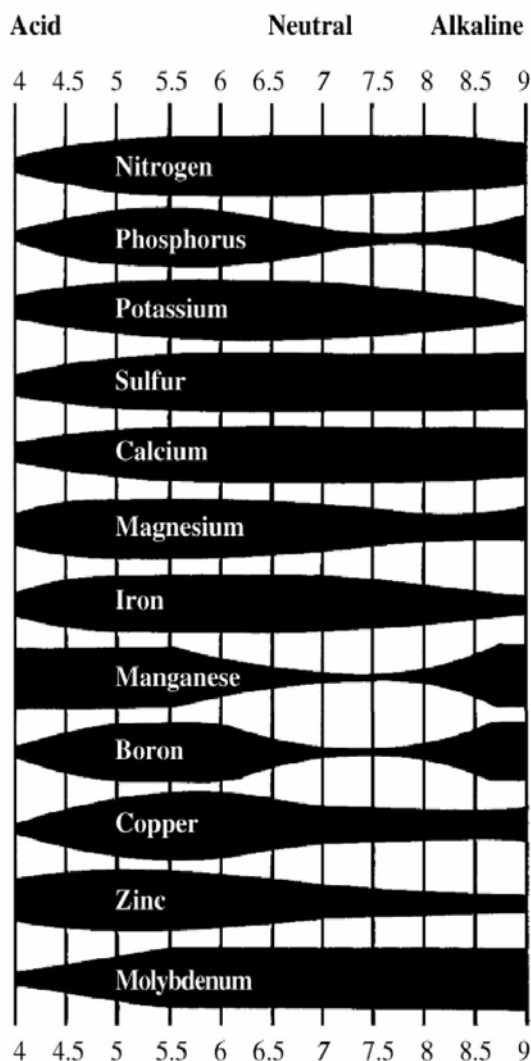
The next piece of the picture is soil pH. This is a scale from 0 to 14 of how acidic (numbers less than 7) or how alkaline (numbers greater than 7) the soil is. As an example: weak ammonia and lye soap have pH in the range of 10-11, whereas orange juice (containing citric acid) has a pH near 4. The soil pH can be easily measured with an inexpensive probe available at many hardware and garden stores.

Most of us have heard that certain plants are picky about the soil pH. For example: the Canyon maple (*Acer grandidentatum*) likes a pH of 8-9, grasses prefer 7 (neutral), roses and blackberries like 6.2, southern blueberries are optimal near 5.2, and northeastern cranberries desire 4.2! As the chart below shows, all this variance really has to do with the proportion of minerals the plant desires for sustenance.

The most commonly used products to adjust soil pH are Dolomite Lime (to increase pH #) and Granulated Sulphur (to decrease pH #). My own experience has taught me that either one must be used with caution: it can and most likely will take a full year for the granules to take full effect. That is, if after 6 months the pH is not where you want it: wait! Adding more before the end of 12 months might (and often will) take you way past your target pH #.

There are alternatives to purified lime and sulphur. To lower the pH of neutral soils to 6.2 for blackberries, boysenberries, youngberries, etc.: consider using a twice- or thrice-yearly commercial rose food that contains a small amount of sulphur; e.g., Ada Perry’s Magic Formula, Vigoro Rose Food, or Ortho Rose Food. For blueberries, maintaining a 3-inch thick layer of peat moss and regular applications of a rose or azalea food should keep the soil pH in the desired range. To *raise* the pH of neutral soil to 8: try applying ½ gallon of wood ash (2 lbs.) per 100 square feet, once per year. (cont. →)

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Availability of soil minerals according to soil pH. Wider bars = more availability; e.g., almost 100% of molybdenum in the soil is available to plant roots at soil pH of 5.5 and higher.

Methods of nutrient application.

In a commercial setting, nutrients, soil conditioners, and fertilizers are applied in gas, liquid, or solid form. Suitable gases (e.g., nitrogen) can be dissolved directly into the water supply. Some liquids can be applied as a foliar spray, while others are dispersed through a “fertigation” tank – a container that mixes liquid into the water supply at a desired rate. Such systems are also available in 1–3 gallon sizes for home use; e.g., EZ-Flo tanks, www.ezfloinjection.com.

Solids and of course all liquids can be applied directly to the soil or mulch where the water will contact them.

A solid might be the product of a chemical factory or simply a raw organic or inorganic material such as cow manure or ground aluminum ore tailings. Solids that do not contain a soil penetrant must be cultivated into the mulch or soil. Research at UC Davis has repeatedly shown that bulk fertilizer application to fruit trees in Aug.-Sept. is far more effective than in the traditional periods of Dec.-Jan.

Natural Sources of Nutrients.

Some gardeners prefer raw, natural materials to supply nitrogen and other essential plant minerals. Listed below are the N-P-K of some common *composted* manures, guanos, plant materials and an (uncomposted) salt. The right column of the table shows the annual application rate to supply 1 pound of nitrogen to a full-size bush or semi-dwarf tree of 3 to 7 years of age:

Manure, Guano, etc.	N - P - K (composted)	cu. ft. / yr. / tree
Cow	0.2 - 0.1 - 0.2	10.5
Steer	0.7 - 0.3 - 0.4	3.5
Horse	0.7 - 0.3 - 0.6	3.5
Sheep	0.7 - 0.3 - 0.9	3.5
Sea Bird	1 - 10 - 1	0.2
Chicken	1.1 - 0.8 - 0.5	0.8
Shredded Alfalfa	2 - 0 - 3	1.5
Rabbit	2.4 - 1.4 - 0.6	1.75
Desert Bat	8 - 4 - 1	5.8
High-Nitrogen Sea Bird	13 - 12 - 2	0.3
Natural (NH ₄) ₂ SO ₄ (a salt)	20 - 0 - 0	0.25

The (NH₄)₂SO₄ (ammonium sulfate) is the least-costly in the short-term. It could however be very costly in the long-run if the plant does not tolerate the residue sulfides well. Both Desert Bat guano and composted Rabbit Manure have great high-nitrogen profiles, and the rabbit manure appears to be the more cost-effective of the two.

For fruit trees, our goals are obviously on fruit production. In the case of semi-dwarf pit fruits, pome fruits, berries of the genus *Rubus*, and roses in general – these plants will *permanently* remove the following amounts of nutrients from the soil each year they bear a full crop of fruit:

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SEMI-DWARF EUROPEAN FRUIT TREES	
<i>Mineral</i>	<i>lbs. / plant / year consumed</i>
nitrogen (N)	0.7
Phosphorus (P)	0.1
potassium (K)	0.9
calcium	0.1
magnesium	0.04

When these minerals are not present, the plant cannot bear fruit. Examining the previous table of raw natural materials, it appears that only sheep manure plus calcium and magnesium supplements would have the required minerals in more-or-less the desired proportions. Now 3.5 cu. ft. of sheep manure is approximately two 40 lb. bags at \$3 each. A soil conditioner should also be applied at least once per year to insure all eighteen essential nutrients are present.

Professional Grade Fertilizers.

A less bulky albeit more costly approach is to use professional grade fertilizers tailored to the needs of the plant. So instead of 80 lbs. of manure for \$6 per tree per year, about 12 lbs. of a granular for about \$12 per tree per year will achieve the same and often better results. Liquid fertilizers offer an even greater economy of size and distribution – particularly when a fertigator is used.

For fruits of the *Prunus* and *Rosaceae* families, six cups of a 6-12-12 granular fertilizer every three months should be sufficient for mature semi-dwarf trees. One way to achieve this is with a half-and-half mixture of GroPower-Plus and GroPower “Flower and Bloom”. A liquid fertilizer can work equally well. One example is Dyna-Gro “All Pro” (www.dyna-grow.com), mixed at a 1:100 ratio once per month. Another possibility is Grow More 20-20-20 water-soluble fertilizer (www.growmore.com). Using an application rate of 5 lbs. per tree per year to obtain 1 lb. of nitrogen per year, the cost is equivalent to most high-grade granulars but can be easier to apply.

Citrus, avocados, and other subtropical fruits have different requirements than the more common fruits of the northern latitudes. In particular, the nitrogen requirements are higher, the phosphorus requirements lower, the iron, manganese, and zinc requirements higher, and often little or no stimulation is needed to flower and bloom. A quarterly application of a granular citrus-avocado food (NPK near 8-6-8) will meet the fruiting needs of almost all subtropicals. Alternately, a liquid tropical plant formula such as Dyna-Gro Foliage Pro (NPK 9-3-6)

or water-soluble Grow More 30-10-10 will also suffice.

Watering.

Nearly all plants profit from deep, infrequent watering – only once or twice per week. Some exceptions are plants with very short roots such as grasses, and botanicals from high-humidity climates. Full size peach trees and other European fruits grown commercially in California’s central valley are provided about 300 gallons per week per tree, but in well-draining soil. Citrus and other subtropical fruits are given twice that amount. For backyard orchard culture in closely spaced plantings and mixtures involving clay soils, 1/3 of those amounts are recommended.

Soil Mechanics.

The physical composition of a soil and how materials flow through it is called soil mechanics. Putting aquatic plants aside, there are few plant varieties that will tolerate having their roots sit in water-logged soil. Thus, soil mechanics is mostly about drainage.

Ask your local nursery expert how to plant a bush or fruit tree from a 5-10 gallon pot into the ground, and they will likely tell you: dig a large hole and if it is not on a slope or otherwise doesn’t drain well, then dig a “french drain” so that excess water will drain off *somewhere else*. When considering how much excess water there might be, remember the heavy rains of 2005.

Now what to put in that hole? First, take the material excavated from the hole and remove all the rocks larger than a golf ball. Ideally, you should have enough material left to fill half the volume of the hole. If you have more material than that, then put aside the excess. If you have less – which is often the case, then compensate by adding washed or rinsed coarse sand. Bulk coarse sand often needs rinsing because it contains salt. “Finish and Joint Sand” for setting walkway pavers is sometimes salt-free. Use an inexpensive salt test kit if unsure.

O.K., now the other half volume of the hole is plant-dependent. For most outdoor full-sun palms and other plants that don’t tolerate moist soil for extended periods of time (e.g., many California natives), use a palm & citrus planting mix such as the one offered by Whitney Farms (www.whitneyfarms.com), or the one offered by your local bulk soil supplier. For plants that do want moisture retention, choose a planting mix that contains peat – such as Dr. Earth Planting Mix or Sunshine All-Purpose Planting Mix (www.sungro.com). Whatever your needs, be sure to mix it well *before* placing it back in the hole.

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How big should the hole be? In clay soil, the larger the hole the faster a young tree will develop. Ideally, this means about a cubic yard (27 cubic feet, or 202 gallons). Commercially this is done with a tractor. In a suburban yard, the same approach can be taken with a compact Bobcat, Caterpillar, or John Deere excavator.

The approach for pot & tub culture is similar. If you are only going to re-pot for a year or so before placing the plant in your garden, then you should follow exactly the recipe above, using soil from the target location in your garden. For permanent pot culture, a good recipe is: 1/3 rinsed coarse sand (see discussion above), 1/3 rinsed pumice – about 3/8" size, and 1/3 plant-dependent planting mix. For plants that like to drain completely, rinsed Coir is an excellent choice for the final third. For most plants though, a blend of a peat-based planting mix and a small amount of earthworm castings is a better choice for the final third of the mix.

A final thing to consider for container culture: pot size and shape. Shrubs and trees that primarily feed by surface roots will do well in a shallower depth (18-24"), but wider tubs. Those that attempt to put down deep root systems, including pit fruits and coffee do better in standard 100-200 gallon tubs.

Mulch.

Mulch is essential for plants that desire water retention in the soil; i.e., moist (not soggy) soil. Also, certain plants – avocados and evergreen oaks for example, have feeder roots right on the surface that are subject to rot when bacteria that normally lives in mulch is not present. In particular, both of these trees can be killed by continually raking away their leaf mulch. There is a happy flip side to this though: Evergreen oaks drop a portion of their older leaves each winter. Typically, this is done in excess for the needs of the tree. The enterprising gardener can find loads of dried oak leaf along roadsides, in drainage ditches, etc. in the spring. These leaves are not only good for oaks and avocados: they are a favorite food of all acid-loving plants.

Many other options are available for mulch and there is a plethora of information available on generating your own. Both Kellogg's (www.kelloggsgarden.com) and Whitney Farms have a long history of producing good mulch products, and the city of San Diego has all you want for free at the Miramar landfill site (www.sandiego.gov/environmental-services/). A word of caution: if you are working with a plant that likes high pH #'s (alkaline, not acidic soil), then be aware that most commercial mulch products are

acidic. You need to find one that will maintain your alkaline chemistry.

Mulch should be laid out 2-3" thick and extend to the edge of the plant leaf canopy or 3 feet from the trunk, whichever is greater. Take care to keep mulch 6" or so away from the trunk of the plant as organisms in the mulch can damage the bark. Plastic edging or fine wire mesh works great for this.

R. FROST



Looking for sources of "Utah Sweet" Pomegranate. Please contact: Barry Simmons; 706-546-1716, bsdds@bellsouth.net

Wanted: secretary for your very own San Diego chapter of the CRFG. Please contact: David Silverstein, chair@crfgsandiego.com



CALENDAR OF MEETINGS AND EVENTS OF CHAPTER INTEREST

2006 – The Year of the Healthful Grape

Month	Event or Meeting
May 20	10am – North County San Diego Chapter tour of the Mary Schieber Grove in Bonsall. Call Carol Graham for details: 760-753-6757.
May 25	The Avocado – A Presentation On Varieties And Effective Growing Techniques. 7pm.
June 17	9am – Fruit Tree Care, Summer Pruning, & Fruit Tasting (10am–2pm). Walter Andersen Nursery, 3642 Enterprise Street San Diego. 619-224-8271. Free Event.
June 10 to July 4	Del Mar Fair ,; www.sdfair.com
June 22	Lychee And Longan -- Growing Them And Fruiting Them In San Diego. 7pm.
July 27	Grapes – The Ins And Outs Of Grape Growing. Special Attention To Choosing Varieties For Quality And Extended Production. 7pm.
August 24	Exotic Fruit Ice Creams. We Will Be Tasting Wonderful Fruit Ice Creams From South Of The Border (The Mexico/U.S. Border). 7pm.
September 2	Plant Sale! 9:30 to 4:30, place TBD.
September 5–9	Festival Of Fruit , San Luis Obispo. www.crfg.org
September 28 Room 102	Mangoes, Discussion Of Varieties Culture And Lore; followed By Mangos And Ice Cream. 7pm.
October 26	Pomegranates. Discussion Of Varieties, Culture And Lore Of This Fruit, Followed By Tasting Of Some Unusual Varieties. 7pm.
November 17 Friday – Rm 104	Winter Pruning Of Deciduous Fruit Trees. 7pm.
December 15 Friday	Holiday Party And Gift Exchange. 7pm.

Local Sources for Plants, Supplies, and Services

- ◆ **Anderson's La Costa Nursery.**
Open Daily. Full service nursery.
400 La Costa Avenue, Encinitas.
760-753-3153.
www.andersonslacostanursery.com
- ◆ **Atkins Nursery, Inc.**
Open Daily. Fruit varieties for San Diego Co.
3129 Reche Road, Fallbrook. 760-728-1610.
atkins-nursery.9000824447004.worldpages-ads.com
- ◆ **Bonita Creek Nurseries.**
By appointment only. Rare fruit enthusiast.
619- 470-2005.
<http://www.yellowpages.com/sp/moreinfo/?id=39178239>
- ◆ **Briggs Tree Company, Inc.**
Open Daily. Large nursery with many plants.
1111 Poinsettia Avenue, Vista.
760-727-2727.
www.briggstree.com
- ◆ **California Tropical Fruit Tree Nursery.**
By appointment only. Rare fruit enthusiast.
2081 Elvado Road, Vista. 760-434-5085.
www.tropicalfruittrees.com
- ◆ **City Farmers Nursery.**
Open M–Sat., 9–6. Full service nursery.
4832 Home Avenue, San Diego.
619-284-6358.
www.geocities.com/thecityfarmer/
- ◆ **Edible Eden.**
Home Orchard Care Specialist.
858-748-3316.
www.edibleeden.com
- ◆ **Evergreen Nursery.**
Open Daily.
4 large drive-through locations.
858-481-0622.
www.evergreennursery.com
- ◆ **Exotica Nursery, Inc.**
Open W–Sun, 9–5. Rare fruit enthusiast.
2508-B East Vista Way, Vista.
760-724-9093.
- ◆ **Fantasia Gardens Nursery.**
By appointment only. Rare fruit enthusiast.
619-454-2628.
whtmtnequinox@earthlink.net
- ◆ **J.D. Andersen Nursery.**
Open Daily. Many palms and sub-tropical fruits.
2790 Marvinga Lane, De Luz.
949-361-3652. Call or get directions from:
www.jdandersen.com
- ◆ **Kniffing's Discount Nursery.**
Open daily. Full service nursery.
14940 Oak Creek Road, El Cajon.
619- 561-0611.
www.kniffingsnurseries.com
- ◆ **Las Pilitas Nursery.**
Open daily. California native plants.
8331 Nelson Way, Escondido.
760-749-5930.
www.laspilitas.com
- ◆ **Merritt Mountain Nursery.**
By appointment only. Rare fruit enthusiast.
1266 Vista Del Monte Drive, El Cajon.
619-322-4141; Mageethor@aol.com
- ◆ **Ong Nursery.**
By appointment only. Rare fruit enthusiast.
2528 Crandall Drive, San Diego.
858-277-8167; quang12@aol.com
- ◆ **Ben Poirer.**
By appointment only. Rare fruit enthusiast.
760-751-1605; benplant@tfb.com
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3642 Enterprise Street, San Diego; and
12755 Danielson Court, Poway.
619-224-8271 (SD) / 858-513-4900.
www.walterandersen.com

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