Making the Best of the Scion Exchange Part 1

What to Bring

- Supplies for labeling for the scions you collect: masking tape, permanent marker/pen, 1-gallon ziplock plastic bags you can seal, with your name and contact in case you accidentally leave it on a scion table—it happens!
- 2. Your Scion Shopping List (see Part 2: How to Choose Fruit Varieties/Cultivars)
- 3. Labeled cuttings to root and scions from healthy plants known to fruit well, that have been cut at the right time, and stored properly. Please show your donations to someone at the door before you put them on the tables.
- 4. Some money to spend & donate. Entry is \$5 for everyone*, though no one will be refused for lack of funds or membership. Beyond that, the following are offered at little cost: rootstocks, grafting supplies, grafting service, silent auction, rare fruit tasting, raffle tickets, CRFG logo items, and more (depending on the year). Cash, Debit, Credit Apple & Google Pay are accepted.
- 5. Donations for our Silent Auction*, Raffle* or Free Table: plants (only plants that have edible parts) & fruit-friendly items (tools, books, art, coupon for professional services)
 - * All features are subject to change

JOIN CRFG NOW

Enjoy Special Member Benefits when you join California Rare Fruit Growers [CRFG]

STEP ONE Join/Renew CRFG <u>here</u>. **STEP TWO** Join our **Golden Gate Chapter** <u>here</u>

Get invitations to exclusive fruit tastings, private orchard tours, hands-on pruning and grafting workshops, fruit growing classes expert speakers, tours of commercial orchards, experimental orchards and collections, access to an active online forum where you can ask questions, share your experiences, and share growing information.

Find the chapter nearest you here.

Golden Gate Chapter, California Rare Fruit Growers Written & edited 12/2011 by J. Valenzuela, I. Weydemeyer, R. Newburn, K. Pyle. Questions/Feedback? johnvalenzuela at hotmail dot com revised 02/2020, 01/2025

Things to Consider

- Bring clean, disease and pest-free, leafless cuttings. Clean your pruners with 70% rubbing alcohol between different trees you're cutting. We don't want to spread any pests or disease. NO citrus, curry tree, or wampee plants or cuttings. There may be more regulated plants in your county. Check with your local county agricultural commissioner to verify.
- 2. Only bring scions or cuttings to root from trees you know fruited as "true-to-type". It's important to bring scions where you're certain of the variety name. Such as you have received them labeled from a reliable nursery or grower. Do not bring material from trees that have not yet born fruit, as they may have been mislabeled. It's frustrating to collect scion wood, graft, and care for a tree for years, just to find the original scion was a mislabeled donation to the exchange. However, if you have an unusually good fruit without a variety name, bring it and label it.
- 3. Do NOT bring patented scion wood.

 We respect the work of fruit breeders and do not allow cuttings of any fruit varieties protected by a current Plant Patent, i.e., Zaiger varieties. Many older patented varieties/cultivars have expired patents, which are accepted at Exchanges. Search here to see if your cultivar is under patent. If you are uncertain if a plant is currently under patent, please ask a CRFG member.
- 4. Harvest scions at the right time. Do this when the tree is fully dormant (around the New Year). Harvest only from new growth of the current year, found at the tips of branches, down to where the bark changes color or the twig has a wrinkle in the skin. Learn more.
- 5. **Take suitable-sized cuttings.**For most plants harvest 5–8" long cuttings, about as thick as a pencil. For figs, grapes, and mulberries take *longer* cuttings that contain at least four buds.
- 6. Label what you bring (See label template)
- Store your scions properly with a very light sprinkle of water. Put in sealed plastic bags (air removed) in the fridge (35°-37°F).
 Do NOT freeze them.

A good label really helps others to choose what will work for them. We'll have pre-printed labels you can fill in at the Exchange. Or download a <u>label</u> template and print them yourself.

At the very least, please write a basic label for each bag of <u>scions</u> you bring – one that says (for example) something like "red plum, very sweet, early, grown in Berkeley."

Plant Label Template

Date Collected

Provider Name

Kind of Fruit

(eg. apple)

Variety

(eg. 'Ashmead's Kernal')

Description color, taste, season, disease resistance, drought tolerance, harvest early/late month

Where Growing

Original Source

exchange, nursery, private orchard, etc.

Do you have unique varieties in your backyard or neighborhood?

In addition to standard, well-known old and new varieties, we're especially interested in varieties from your backyard/neighborhood that are unique seedlings or otherwise worth saving.

For example, a CRFG member in Berkeley has a unique mature apple tree her father Andy planted from a seed (pippin) in the 1940's. She says the fruit's great tasting and bears in July—very early in the apple season. She has named the variety 'Andy's July Pippin'.

What rare varieties can you share?



Do Your Homework

At the Exchange, there will be information sheets available describing many of the hundreds of varieties of fruit scions you will find there, but it will be much easier to decide on which varieties you want *before* you get there. If you do some homework, and bring your **scion shopping list**, you may find the exchange more enjoyable.

Start Local

Find out what fruit already thrives in your neighborhood. Look for wild berries. Talk to your neighbors. Trade favorite fruit stories. Support each other, and share backyard garden and fruit tree surpluses, learning to eat with the seasons. Perhaps you can grow a delicious piece of history by collecting and growing a scion of a productive, old local tree. Be a good neighbor and only collect fruit and scions with permission.

Start with What You Like!

Make a wish list of your favorite fruit varieties. Will they thrive in your current garden? Research them as explained in this document, or come to chapter meetings and consult the experts there.

Critical Factors to Consider

- Frost/Freeze
- Chill-Hours
- Pollination
- Graft Compatibility

These are essential to the success of your fruit tree. Ignore these factors, and you may not get any fruit.

Climate Considerations

In order for your tree to produce fruit, it is important to consider these temperature affects.

FROST/FREEZE DAMAGE

Temperatures below 32°F can damage many evergreen sub-tropicals; other subtropicals are OK down to 27–28°F or even 25°F. Deciduous fruit trees are unlikely to be damaged by any winter low temps experienced in the Bay Area.

CHILL-HOUR NEEDS

Approximately the total time between 45° & 32°F, accumulated between Nov.-Feb., which some trees need for rest, before they can flower. The number of chill-hours will be *reduced* by the number of hours above 65°F during the winter.

Learn the number of chill-hours units in your area to select appropriate varieties of fruit. If you pick a variety that requires high-chill-hours, and your area does not have enough, you are likely to have poor or no fruit yield. Chill-hour needs are complex, and the number of chill-hours may vary considerably from year to year. It is not an exact science.

POLLINATION CATEGORIES

Without pollination, fruit may not form. Each fruit variety has different pollination needs: **SELF-FERTILE:** pollen not required, may bear more fruit with cross-pollination.

CROSS-POLLINATION: requires two different varieties pollinating each other for each to bear.

STERILE: requires pollination from a different variety, but cannot pollinate the other

Male & Female plants need one male to pollinate a female, up to several females (eg. kiwis)

Distance: Pollination is enhanced when each variety is nearby each other (less than 100 ft), and when there are more pollinating insects.

GRAFT COMPATIBILITY

If you have an established tree you want to graft your scion onto, the scion must be compatible with existing mature tree. If they are not compatible, the graft will fail and die. Create a new tree by grafting scion onto a compatible bare-root "rootstock" tree.

Climate Considerations: Geographic Location Matters

There are many microclimates in the Golden Gate Chapter area, we'll simplify to three:

Site Specific Influences

Flats, Hills, Aspect & Sky Exposure

▶ More Effects

Flatland at base of a valley, North or North-East facing, and/or exposed to open sky.

▶ Less Effects

Land on a hillside. South or South-West facing, including overhead cover of evergreen trees or building eves.

Chill-Hours | Frost | Freeze

Location and site specific factors affect frost and chill-hour considerations. Learn about your area and the influences on your property.

Heat Many stone fruits require proper heat to ripen (sweeten) the fruit.

Pollination

Some plants are **self-fertile** and do not require a second variety to pollinate them. However, fruit set is often improved with pollen from another variety, especially with many varieties of apricots, grapes, olives, pomegranates, figs, and peaches.

Other fruits **require** *cross-pollination* from a second variety of the same fruit, such as most apples, pears, cherries, plums, pluots, paw paw, and akebia.

For cross-pollination to be successful and produce fruit, each of the two varieties need to be compatible, meaning they need to flower at the same time, must be close to each other (less than 100 feet, the closer the better), or even grafted on the same tree.

1 · OCEAN OR BAYSIDE INFLUENCE

cool summer, mild winter

Pacifica, SF Sunset, Berkeley

Chill-Hours: 100-400

Works well: low-chill fruit varieties, many subtropicals: lemons, feijoa, ugni, pepino dulce, tamarillo. Some white-fleshed peaches & nectarines and pale seeded pomegranates. See low-chill deciduous fruit varieties.

Doesn't work well: most cherries, some varieties of apples and peaches (need more chill), most pomegranates and figs, and many peaches & nectarines, and grapes (need more heat). Note: Since some fruit varieties may vary from the listed chill-hours, cherry trees are a good indicator of chill-hours. If you can produce

cherries most years in this climate, you probably

fit better into the Valleys facing the Bay climate.

2 · VALLEYS FACING THE BAY

warm summer, cold winter

San Rafael, El Sobrante, Castro Valley, Hayward, San Mateo midway between Coastal & Inland areas

Chill-Hours: 400-900

Works well: Most deciduous fruit Doesn't work well: some high-chill cherries Note: Idell in El Sobrante has around 400–500 chill-hours in a typical year. Some years have up to 800-900 chill-hours, which yields a bigger cherry crop. She's on a hillside overlooking the Bay, out of the fog zone.

3 • INLAND (over the hills)

hot summer, coldest winter

Concord, Walnut Creek, Lafayette, Danville

Chill-Hours: 600-1500

Works well: Most fruit, especially heat loving pomegranates, jujubes, figs, peaches & nectarines, cherries, and most apples.

Doesn't work well: Frost sensitive sub-tropicals, some heat sensitive apples, and berries.

Note: The best climate for fruit trees that like

more extreme temperatures.

Graft Compatibility

Scions must be compatible with the species of tree it will be grafted onto. Not all fruit varieties will be compatible with your existing tree. A graft of an incompatible variety will eventually fail.

- New Fruit Tree Bare-Root Rootstock
 Don't have a tree already? Create a new tree!
- Existing/Established Trees
 Likely to fruit more quickly, within 2–3 years.
 This grafting technique is called "top working".
 (See Pt 3: What to do with your scions/ cuttings).

Pollination (continued)

You may find a few varieties have **sterile pollen** (like 'Gravenstein' or 'Mutsu' apples), which have no pollen to offer to others. These types still need pollen from another variety. You may need a third compatible variety.

Kiwi plants have **separate male and female** plants, which need at least one male plant around to provide pollen for the female plants to produce fruit.

See pollination charts here:

Raintree Nursery Pollination Chart

Pollination is enhanced when the two pollen sources are close to each other, and when there are more insect pollinators (like bees). "Making the Best of the Scion Exchange Pt 3" has more on planting pollinator habitat flowers.



Graft Compatibility by Species

Graft Onto SELF ONLY

Apples Malus spp.

Autumn Olive & Goumi Elaeagnus spp.

Hazelnut/Filbert Corylus spp.

Juneberry Amelanchier spp.,

Jujube Ziziphus spp.

Nanking Cherry Prunus tomentosa

Olive Oleo europaea,

Pawpaw Asimina triloba

Quince Cydonia spp.

Sea Buckthorn Hippophae rhamnoides spp.

Graft Onto SELF & Others

Ché *Machlura tricuspidata*, self or Osage orange

Cherry Prunus avium

most pie & sweet cherries on each other

Kiwi & Hardy Kiwi Actinadia spp., on each other

Mulberries *Morus spp.*, nigra, alba, & hybrids > onto alba

Pear-Asian Pyrus pyrifolia, self, quince, not European

Pear-European Pyrus comunis

self, most quince, many Asian

Persimmons Diospyros pyrifolia

all three species mostly compatible

Stone Fruit Graft Compatibility Table

Almond = Almd

Apricot = ApricY = yesPeach/Nectarines = Pe/NeN = noPlum-European = Pl-EurM = manyPlum-Japanese = Pl-JapO = other

Rootstock	Scion	Scion	Scion	Scion	Scion
	Almd	Apric	Pe/Ne	PI Eur	PI Jap
Almond	Yes	N	Ob	М	М
Apricot	N	Yes	Ос	Od	Of
Peach/Nect	Y	M	Yes	Oe	M
Plum-Euro	N	?	N	Yes	М
Plum- Japn	Oa	M	N	N	Of
Pluot	N	М	N?	N?	М

Oa - Ok on 'Marianna 2624'

Ob - Peaches short lived and may be dwarfed

Oc - Many peaches do not do well, some are ok

Od - Most European plums not compatible

Oe - Not in interior California

Of - Some Japanese plums compatible

More Selection Considerations

Choosing a fruit variety that works for you depends on several factors.

Taste

The experience of tasting is very personal, and depends on your life history. There are published "Taste Test Results" some collected over many years of tastings: <u>Dave Wilson Nursery Top 50</u>.

Sugar (sweet), acid (tart), sugar/acid balance, aroma (think wine tasting descriptors), and texture all vary from one variety to another. There are places to experience fruit tastings, which feature dozens of varieties that are in season. Online resources include: Andy's Orchard, 'A Taste of Fall' at Filoli, and Wolfskill tasting results. The Golden Gate Chapter makes announcements to its members of these tastings, and has smaller fruit tastings at many meetings, as do other chapters. Monterey CRFG apple tasting

Harvest Season

Plan for a continuous harvest throughout the year. Instead of growing one variety of each kind of fruit (which will ripen all at once), grow "early", "middle" and "late" season varieties of each type of fruit.

Dave Wilson Nursery harvest calendar

Uses

Do you want the fruit for fresh eating, cooking, processing, juicing, freezing, drying, or storing? Each variety has differing qualities in each of these areas.

Visual Beauty

Flowers, fruit skin and flesh, and fall leaf colors should be considered.

Cultural Importance

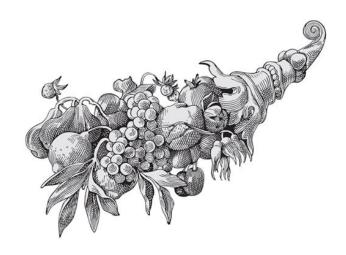
Do you want a fruit that has significance for a family, community or region or that has historical or ceremonial importance? Fruit varieties have been selected throughout our history from indigenous people to missionaries, pioneers, immigrants and California fruit breeders like Luther Burbank and Albert Etter. Consider selecting varieties that reconnect us to our traditions.

Fruit Variety Selection References

- Bay Laurel Nursery, Atascadero, CA
- · Burnt Ridge Nursery, Onalaska, WA
- · Dave Wilson Nursery, Hickman, CA
- Felix Gillet Institute, Sierra Gold Rush Varieties
- Greenmantle Nursery, Ettersburg, CA
 The Ettersburg Apple Legacies of Albert Etter •
- One Green World Nursery, Portland, CA
- Planting Justice Nursery, Oakland, CA
- · Raintree Nursery, Morton, WA
- · Slow Food: Ark of Taste fruit histories
- What you can grow in the Bay area

Books

- Golden Gate Gardening <u>b</u>
 by Pam Pierce
- Fruit, Nut and Berry Inventory > by Seed Savers Exchange
- Cornucopia II:
 A Source Book of Edible Plants >
 by Stephen Facciola



Finding Scions at the Exchange

Once you have your "shopping list" (refer to "Making the Best of the Scion Exchange: Part 2"), look for the scions you want at the Exchange.

Tables of scions are organized by fruit type (ie: Apples, European Plums, etc.) and are often in alphabetical order. When you find something you would like, follow these steps:

- 1. Write a label with permanent pen/marker on some tape *before* you open the bag.
- 2. Take only what you can use, 1-2 sticks per variety/ cultivar are plenty (each bud on one scion can make a tree). Limit 2 per person.
- 3. Wrap your sticks with the label immediately! It's easy to get things mixed up. If an unlabeled scion happens to drop to the floor, just leave it rather than pick up the wrong one.
- Keep them in a closed plastic bag with a sprinkle of water, away from heat, until you get home.

Take only what you can use, and use what you take, you avoid bags of neglected scions rotting in your refrigerator next summer. All "left-over" scions at the end of an Exchange are passed on to the next scion exchange. If you don't find what you where looking for at our Exchange, perhaps you will find it at one of the other great scion exchanges in the Bay Area.

Initial Scion Care

Keep Your Scions Cool

Once you find and label your scions, you must take care of them until you graft them. Keep them in a plastic bag with a gentle sprinkle of water in the fridge, just above freezing (35–37°F is ideal), until the appropriate time to graft.

When to Graft

For bare-root rootstocks of apple, pear or plums, you can graft immediately. For other types of fruit, it is best to graft about the same time as the flowering/leafing-out of the tree in spring. This leafing out time is also good for the grafting of older trees (see "topworking" in step 4 below).

Cuttings that are for rooting may be potted into well draining growing medium any time, but benefit from bottom heat.

Enable Your Scions to Grow

To grow into a fruiting plant, your little 'scion' sticks need roots. Depending on which scions you select, you may have several options.

1. Start with cuttings that can grow their own roots

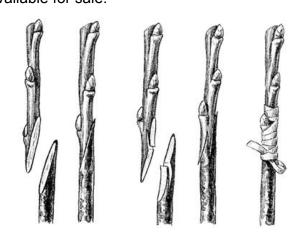
Grapes, figs, pomegranates, currants, olives, some mulberries, some kiwis, some cherry plums, and others can be grown from a cutting that is planted in the soil, and don't need to be grafted onto a tree. Pot up the cuttings in a well drained mix, and keep cuttings humid in a greenhouse or large plastic bag. Rooting hormones, and/or bottom heat can improve rooting.

2. Buy a "rootstock" and graft it yourself or have someone else graft it for you.

A "rootstock" is a tree that is grown specifically so that a selected scion may be grafted onto the top of it. Sometimes rootstocks are chosen to dwarf the mature size of the grafted tree (especially apple). Others are chosen for soil, pest and disease adaptations, drought tolerance, more. Learn about rootstock descriptions.

Rootstocks (bareroot) are available for sale at the Scion Exchange. See *Grafting Compatibility Chart* on page 4 of this document. At the Exchange you may have your selected scion grafted onto a rootstock for a fee. Or, perhaps you have a friend who could graft it for you.

3. Learn to graft at a grafting demonstration, then graft your own scion. The Scion Exchange includes grafting classes & demos, with assistance for those who want to 'do it yourself' right there, or take it home and graft. Appropriate rootstocks for various fruits will be available for sale.



Enable Your Scions to Grow (continued)

4. Graft onto an existing tree, aka "top-working" What can you grow on that old tree in your yard? With an established tree, you usually have plenty of places to add grafts, a single tree can accept many grafts. If you don't cut the tree back too much the first time you graft, then you can try again next year if this year's grafts fail.

See the "Grafting Compatibility" chart in "Making the Best Pt 2" (p 5) above, to determine the appropriate scions for your tree.

Once you find out what will grow on your old tree, you can learn to do "cleft" grafting (for dormant, winter grafting) or 'bark grafting' (for summer grafting) at the grafting class. These "topwork" grafts, can grow quickly, and may bear fruit within a couple of years. Book: **Grafter's Handbook**, R. J. Garner here

Caring for Your Newly Grafted Tree

Do NOT Let Roots Dry Out!

Pot-Up Your Tree When You Get Home

- 1. **Soak the roots** of your bare-root tree in water for 6–12 hours (no more).
- 2. **Pot-up your tree** in a 1-gallon pot if small, or a 5-gallon pot if larger.
- 3. **Water** the potted tree well, then don't water again until the soil is dry down an inch deep.

 Most potted plant die due to over-watering.
- 4. Within the next month or two, re-label your newly grafted tree with a permanent label. Permanent ink markers on plastic tape fades quickly. A label cut from an aluminum soda can, written with a ballpoint pen (deeply engraved), and tied onto the tree with copper wire works well. Adjust the label tie every year to keep it loose around the stem to avoid girdling.
- 5. **Keep the graft wrapped-up** until new growth occurs in spring, then gently remove the graft tape. Remove new growth below the graft union.
- Protect young bark from sunscald with cardboard, or interior white paint diluted 50:50 with water, or Kaolin clay, or "bio-dynamic tree paste" or organic plant guard. Hot summer sun and bright winter sun can damage young tree trunks. Learn more about sunscald.

Ask CRFG members from your area what their favorites are!'

Plant Your Tree in the Ground

- 1. Make your planting hole wide and shallow, Plant roots in native (mineral) soil. It is **not** advised to amend the soil or to use potting-soil in the planting hole. Clay Soil: plant 6-12" inches *higher* than surrounding soil level. 3-6" inches *higher* in lighter soil. Planting too low is a common cause of tree *death*.
- 2. Plant on a mound of soil and expose the root flare. Ensure the top shoulder of largest root at the highest point on the trunk is exposed to oxygen above the soil line and is high and dry. If needed, make a small basin at the top of the mound to accept watering by hand. Learn more the significance of exposing the root flare.
- 3. **Apply organic compost** 1–3" inches deep. Give your plant a *low & slow* watering for 1–2 hours to slowly hydrate the soil over time. Move hose around the tree during this time.
- 4. Add a blanket of wood woodchip mulch 3–4" thick (or other mulch). Leave 6–8" inches around the trunk *free* of wood chip mulch to avoid habitat for bark boring insects and crown rot. *No mulch should be touching the trunk*.

Apply mulch out to at least the <u>dripline</u> (farthest branches) of the tree. It will last for years, reduce watering needs by up to 50%, and moderate soil temperature. Water well. This initial prep means all you have to do is keep it from drying out.

As the tree grows, replenish the mulch to the dripline every year. <u>Chip Drop</u> is an excellent source for wood chips. Get your soil tested if plants don't grow well. Learn how to plant a tree.

From the First Summer Onward

- 1. Keep the tree well-watered (not not overwatered) to encourage root growth for the first three years. With drip irrigation, start with one dripper 5–7" out from the trunk. Watering next to the trunk can cause crown rot. Make a loop of emitters along the dripline, expanding every year or two as the tree grows (along with the expanding mulch). Depending on your soil, you may be able to reduce the watering as it gets to the desired size. Micro-spray irrigation may give better coverage of the root zone.
- Always keep new shoots trimmed off that you see sprouting from below the graft. If you don't, these rootstock shoots will take over your tree and you will have no/poor fruit.

What to Do When You See Flowers and Fruit on Your Tree

- 1. Remove all fruit as they form until the tree is big and strong enough to support the load, about 1–3 years. (You may let only one fruit mature to taste it, but support the fruit with a stake, and keep no more than that!) Leaving fruit on for the first 1 or 2 years tends to stunt the tree, which can be good—if you want a dwarfing effect. Once you begin letting fruits mature, thin the fruits to lighten the load on branches and to get larger but fewer fruits. Without thinning, many varieties of fruit can severely overbear, causing excessive weight broken branches. Thinning reduces 'alternate bearing'. Learn about: Fruit thinning.
- Make notes about the variety. In addition to greater fruit quantity as trees mature, the fruit quality often greatly improves. Document dates of annual flowering and fruiting, and the color and taste of the fruit, to confirm the variety's name. At this point you can share scions of a true to type fruit variety with others.

See the "How to choose fruit varieties Part 2" references for varietal descriptions.

3. Include native pollinator and pest-predator habitat in your plantings. Visit <u>Calscape</u>.

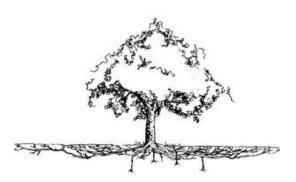
Native plants are essential sources of food and habitat for pollinator insects and pest-predators that keep things in balance. Did you know? There are over 1,600 **native bees** species in the state of California and they **are 2–3 times more efficient pollinators than honey bees**.

Daisy, mustard, and dill families are some of the best providers of pollen and nectar.

Create vital pest-predator habitat: piles of rocks for hiding and sunning places needed by lizards and snakes, a <u>small pond</u> for frogs & dragonflies, leaf misters, <u>waterless ponds</u> and <u>butterfly puddles</u>, owl and bat boxes. All of these combined help to ensure pollinators and pest predators will be ready when you need them.

Did you know? Moths pollinate from dusk till dawn! Use Integrated Pest Management [IPM] practices and organic products to preserve our native ecosystems.

Univ of CA Integrated Pest Management [IPM]
Pest-Predator: Relationship & Flower Mix
Xerces: CA Pollinator Conservation Resources



Grafting, Planting, Fruit Tree Care & Stewardship

University of California <u>Home Orchard</u>

Dave Wilson Nursery <u>Backyard Orchard Culture</u>

Books for Your Permanent Library

The Grafter's Handbook by R. J. Garner ▶
How to Grow and Maintain Your Edible
Landscape Naturally by Robert Kourik ▶
Golden Gate Gardening by Pam Pierce ▶
Gaia's Garden by Toby Hemenway ▶
Grow a Little Fruit Tree, by Ann Ralph ▶
Bringing Nature Home by Douglas Tallamy ▶
The Holistic Orchard by Michael Phillips ▶
Fruit Trees for Every Garden by Orin Martin ▶

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