



the Urban Scion Post

a publication of the Seattle Tree Fruit Society,
chapter of the Western Cascade Fruit Society

A Letter from the President

Thanks to all of you who helped out at our “in person” work party on June 13th. I counted 18 people in attendance during the morning and early afternoon. We pulled weeds, mulched, thinned, pruned, netted and bagged fruit. There is still plenty to do. If you feel up to it, please head down to the demonstration orchard on your own, and add to our effort.

I recently attended (by Zoom) the 2nd quarter meeting of the Western Cascade Fruit Society (WCFS), our parent organization. At this meeting, each of the (9) clubs reported on their recent activities. Naturally, most clubs didn’t have much to report, due to the limitations imposed by the COVID-19 restrictions. However, some clubs have adjusted to this by having ZOOM meeting presentations. The Snohomish chapter, the South Sound chapter, and the Bainbridge chapter all conducted ZOOM meetings. The Peninsula Fruit Club will be conducting an upcoming ZOOM meeting. Our club will investigate the possibility of doing likewise. Our next scheduled meeting is in September. So, we will monitor the COVID situation and make a decision sometime during August. We still feel that it’s too risky to have garden and orchard tours, so none have been scheduled.

Another topic discussed at the WCFS meeting was the editorship of the “Beeline.” Marilyn Couture will be stepping down from that position, after serving for many years. If any members would be interested in this opportunity, Please contact me (mikewan@aol.com), and I’ll provide more information. Also, keep in mind that the Beeline is always in need of articles submitted for publication.

The WCFS has annually provided small grants to individuals who are interested in a fruit-related project. Past grants have included a study of plum rootstocks, signage, spotted wing drosophila control, and the establishment of demonstration orchard blocks. If you are interested in funding for a fruit-related project, please contact me immediately, as the deadline for this round is rapidly approaching.

Due to the challenges that we have faced with the COVID pandemic, we haven’t been able to provide the programming and opportunities that you would expect. The Board of Directors considered reducing membership rates this year to compensate for this. However, our membership already allows a reduced-rate dues payment. We encourage everyone to take advantage of that. At your next renewal, please pay what you want. We have enough of a financial cushion to weather through these times. We’ve saved money by not needing to rent meeting space or pay speakers. We continue to sell maggot barriers. And, we’ve secured a stock of plant material to sell at our future events. So, please continue to support your club, but feel free to do so at a lower rate.

I’ve received excellent feedback about our new color Urban Scion Post. Thanks again to all that made that happen.

Yours truly, Mike Ewanciw

Urban Scion Post

Inside this issue:

President’s Letter	2
July 2020 by M. Tilbury	3
Branleberries	4-6
Fungal Diseases of Spring and Early Summer	7-8
Loquats in Your Neighborhood	9
Beneficial Insects, Spiders and other Mini-creatures in Your Garden	10-12
Fruitful Kitchen	13
Officers, Directors & Membership	14
STFS: Who We Are	14



On the cover

Clockwise from upper right: Loganberry, “Heritage”, dewberry, Rubus x “Genyss” (Alta Rosa Farm), “Nirwoot”, “Raspberry Shortcake” (VFC orchard)
Photo: Laure Jansen

July 2020

by Marilyn Tilbury

Are you still waiting for your lawn to turn brown (so that you don't have to continue to mow it every single week)? Alas, the weather folks are predicting that this grass-growing weather may continue into summer. If true at least our plants, including those fast growing weeds, will be happy.

If you grow June bearing strawberries, July is the time to either high mow the patch of old leaves or to hand prune them to just above the crown. Then lightly fertilize and water the bed deeply. Place a rock on desired runners and continue to prune off excess runners as they form. Keep the patch watered thru summer now and reap your fruitful reward next June.

Day neutral strawberries are another animal. They produce few runners so try to root any you see. Don't shear them but let these hard working plants continue to produce fruit. Be sure the patch is getting adequate water. It's hard to get more than 2 years' production from day neutrals, while June bearers may go 5 years before needing replacement.

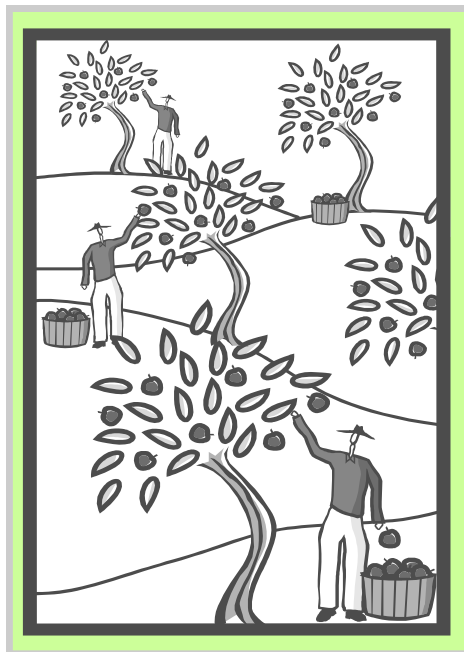
As soon as the last cherry is picked (whether by you, raccoons, starlings or jays) is the time to prune cherry trees. All stone fruits profit from pruning immediately after harvest. They bear on last year's growth so help that growth to occur down where you can safely reach it next year.

How about those reach-for-the-sky pear trees or apple trees on more vigorous rootstocks? Are they getting too tall to safely harvest or to net? The last week of July and the first of August are the best time to downsize. Try to time all pruning such that the weather will be dry for a couple days afterward to reduce chance of disease.

Another end of July opportunity is that tree bark will slip easily, allowing us to try T-budding. It's a fun way to get a pollinizing cultivar close, and into, another cultivar. Sometimes it's hard to place these so that they aren't accidentally pruned when dormant. A tag or some kind of ID may help

prevent this accident. Chip budding is another great technique with a much longer time window. Perhaps post Covidtimes will allow us to have a workshop on these fun activities.

Have your pear leaves developed orange splotches yet? This fungal disease is called pear trellis rust, a disease slowly spreading south from BC where it was accidentally introduced on nursery stock from Europe in the 1980's. There is no treatment but it can be reduced or eliminated by either distancing the alternate host, most juniper cultivars, or removing them.



The New York Times story about "murder hornets" (aka Asian giant hornets) got the public's attention. The infestation is confined to our northern border but many folks have been mailing squashed insects or sending photos of same to WSDA. Only one of these has been an actual AGH but many innocent victims have been valuable pollinators such as bumble bees. Tell curious friends that AGH are not furry but they are large—like 1.5" to 2" long.

One benefit of this public response is that WSDA is learning the distribution of many other insects in our state and seeing a few new species to boot.

Hopefully you have removed your osmia nest blocks to a safe place by now (this should have been done by the start of June). Many of us experienced a very poor return this year. One STFS member reported that none of his nest holes was filled. We have no explanation for this—was it the lack of other flowers besides fruit tree blossoms? A new disease? It seems like they flew out and just didn't come back. Do take good care of your osmia, and let's hope for a better return next year.

The first two weeks of July are the time to seed winter veggies. If you prefer to buy starts, get them in the ground before the end of the month.

Last, as our Gov is fond of saying, wear your mask! We've all got to adapt to this very contagious virus that can infect others before a person even feels sick, especially since a vaccine or good treatment is months away.



Bramble Berries

Rubus species and Hybrids for the Fruit Garden

By Laure Jansen

Photo: bipartisancafe.com

Brambles and briars are the stuff of fairytales, growing wild and producing delectable fruit that can be obtained only by braving the dangerous thorns and prickles. Generally these are fruits in the rubus genus: blackberries or raspberries, and even salmonberries in the Pacific Northwest. The season for wild fruit is often brief, and that has led pomologists to select and develop domesticated cultivars that have advantages not found in the wild, such as longer seasons, fewer thorns, hardier plants, and disease resistance.

The rubus genus contains more than 250 species, and only a small number of those are native to North America. Often differences between species are small, and it can be difficult to tell them apart, particularly the blackberries.

Historically, many of the species used in commercial hybridization are from the northern hemisphere, as they are already adapted to our climate. Rubus species are far ranging, with many occupying large portions of the eastern, central and western United States. Some are quite rare and grow only in small ecosystems in one location. Wild rubus are often part of the front line recolonizing disturbed land. In the PNW, cleared and logged areas grow thickly with native dewberries (*R. ursinus*), salmonberries (*R. spectabilis*), with thimbleberries (*R. parvifolius*) on the shady edges, with

the occasional blackcap (*R. leucodermis*) thrown in. And of course, the unforgettable Himalaya invaders.

It is difficult to categorize so many species. Blackberries and raspberries occupy the largest portion of the genus. They are often the most productive and certain some of the tastiest species.

Raspberries mostly fall into the subgenus *Idaeobatus*. This includes those raspberries commonly used in hybridizing: the European raspberry (*Rubus idaeus*), American raspberry (*R. strigosus*), eastern black raspberries (*R. occidentalis*), western blackcaps (*R. leucodermis*). There are other raspberries native to North America, such as the purple flowering raspberry (*R. odoratus*) which is thornless, fruits in late summer and early fall, but most are obscure and not used in commercial hybridization.

Blackberries are grouped in the subgenus *Rubus*, formerly *Eubatus*. There are so many of them, that they are further subdivided into 12 sections: *Allegheniensis*, *Arguti*, *Caesii*, *Canadenses*, *Corylifolii*, *Cuneifolii*, *Flagellares*, *Hispidi*, *Rubus fruticosus* agg., *Setosi*, *Ursini*, and *Verotriviales*. Many of these sections have species that grow in North America. But not very many of them are used to develop hybrid

Native Blackberries Common in the US

- *Rubus alumnus*, the **oldfield blackberry**, native to the eastern and central United States (from Maine south to North Carolina and west as far as Oklahoma, Kansas, and Minnesota)
- *Rubus allegheniensis*, known as **Allegheny blackberry** and simply as **common blackberry**.
- *Rubus argutus* also sawtooth blackberry
- *Rubus frondosus* leafy-bracted blackberry.¹
- *Rubus pensilvanicus*, known commonly as **Pennsylvania blackberry**
- *Rubus cuneifolius*, the **sand blackberry**
- *Rubus ursinus*, the dewberry, Pacific trailing blackberry or

Native Blackberries Uncommon in the US

- *Rubus invisus*, the **upland dewberry**, found in Indiana, Kentucky, Maryland, Massachusetts, Missouri, New Hampshire, New York, Ohio, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia, inhabiting areas of rocky soil and partial to full shade.
- *Rubus trivialis*, commonly known as **southern dewberry**, native to the southern United States and northern Mexico
- *Rubus andrewsianus*, common name **Andrews' blackberry**, is found rarely in scattered locations in the north-eastern and east-central United States

Introduced Northern Hemisphere

- *Rubus armeniacus*, the **Himalayan blackberry**¹¹ or **Armenian blackberry**, commonly thought to have been introduced by Luther Burbank.
- *Rubus laciniatus*, the **cutleaf evergreen blackberry** or **evergreen blackberry**, native to Eurasia.
- *Rubus phoenicolasius* (**Japanese Wineberry**, **wine raspberry**, **wineberry** or **dewberry**) is an Asian species of raspberry (*Rubus* subgenus *Idaobatus*), native to China, Japan, and Korea. Introduced to North America as an ornamental plant and for its potential in breeding hybrid raspberries. It subsequently escaped from cultivation and become naturalized in parts of North America.

berries. The most commonly used species are our native dewberry (*R. ursinus*), Himalaya blackberry (*R. armeniacus*), and *R. fruticosus*.

Breeding Rubus in the United States

Luther Burbank was one of the early modern botanists working with rubus hybridization, but in earlier centuries and decades there were growers who make selections of wild plant with more commercially valuable traits. Commercial blackberry cultivars got started in the US about 1834, when Lewis Seacor discovered a berry in his neighbor's field with large size and rich flavor. Originally known as "Seacor's Mammoth", it was distributed beginning around the time of the civil war under the name of "Lawton. It is an upright, thorny plant which reproduces via undergrown runners.

The Loganberry was developed by Judge Logan in California in 1880, a selected cross of the Auginbach blackberry (*R. ursinus* cv. "Auginbach") and *Rubus ideaus* cv "Red Antwerp", although alternate sources indicate the parents may have been the eastern blackberry cultivar Crandall and "Auginbach". Fruit is purple when ripe, long, downy and plum. Flavor is aromatic, distinctive and different from all other hybrid berries, though quite acidic until fully ripe. The canes are less vigorous than Boysenberry, and trailing, and can be thorny or thornless.

Boysenberry was developed by Ralph Boysen of California in 1920. It is a hybrid selection of *R. ursinus* x *R. xloganobaccus*. The berries are purple-black, downy, long and plum, with an aromatic, acidic flavor when ripe. The canes are vigorous and trailing. Fruiting is midseason.

Phenomenal berry was developed by Luther Burbank around 1914 from *R. ursinus* cv. "Auginbach" and an American raspberry, "Cuthbert" (*R. strigosus*). Ploidy is not known, but due to the ploidy of its parents, it must be a poly-ploid. The fruit is larger than the Loganberry, bright reddish-purple, with a flavor slightly sweeter and more like a raspberry. The leaves are brighter green and the canes brighter red than Loganberry.

The Youngberry was developed by B. M. Young of Louisiana in 1926, a selection of *R. ursinus*, most likely "Phenomenal" x "Austin Mayes". The plant is similar to the boysenberry, with vigorous, trailing canes, cropping one to two weeks earlier than the boysenberry. The flavor is aromatic and acidic with a different aroma than

the boysenberry. It should not be grown near boysenberry, as the pollen may cause flower failure in the boysenberry. There are two named cultivars: **Black Satin** and **Lock Ness**. This is an excellent berry for freezing.

The **Olympic berry** was developed on Vashon Island in the 1920s by Peter Erickson, and patented in 1937, from a cross of Luther Burbank's "Phenomenal berry" and the native black raspberry, *R. leucodermis*. The fruit is large, glossy wine-black, with soft seeds, and a good keeping quality. The flavor has been described as "a startling sweetness, almost a butter richness, and just the necessary slight hint of tang".

Olallieberry, a cross between loganberry cultivar "Mammoth" and youngberry, themselves both hybrid berries, was developed in Oregon, the original cross being made in 1935 and released as a named cultivar in 1950. It is elongated, black and resembles a youngberry

Breeding work continued on the west coast, and soon the **Marionberry** was developed by F. J. Lawrence in the USDA-OSU breeding program, released in 1956 from a selection of *R. ursinus*. The fruit is glossy, black and long, with an excellent, aromatic wild blackberry flavor. It produces fruit later than Silvanberry but has a moderate to low yield. The canes are very vigorous, but brittle, thorny and trailing, with distinctive green leaves.

The **Silvanberry** was developed by K. Kroon of Agriculture Victoria in 1962 from seed of mainly *R. ursinus* cv. "Marion" obtained from OSU, with some possible Boysenberry genetics. Fruit is glossy red to black at ripeness, moderate in size. The berries are soft and easily damaged when full-ripe. The flavor is excellent, aromatic and acidic, nearest of all to the flavor of the wild blackberry. The canes are very vigorous, thorny and trailing, producing heavy crops.

The **Tayberry** was developed in Scotland in 1962, from a complex parentage of *R. ursinus*, blackberry (*R. ulmifolius*, *R. vitifolius*, *R. allegheniensis*) and hybrid raspberry. The canes are of low vigor, trailing and spiny, and require excellent soil structure free of weeds. The fruit is long, conic, dark red-purple, with excellent, acidic, highly aromatic flavor, retained when processed. This hybrid was used in breeding some US hybrids.

Less well-known hybrids by amateur breeders and the **Hildberry** (1980s), a tayberry/boysenberry cross which has unusually large flowers (1.5 to 2" across) and the **Skellyberry** (2000s) from Texas, a cross between *R. invisus* and *R. phoenicolasius*.



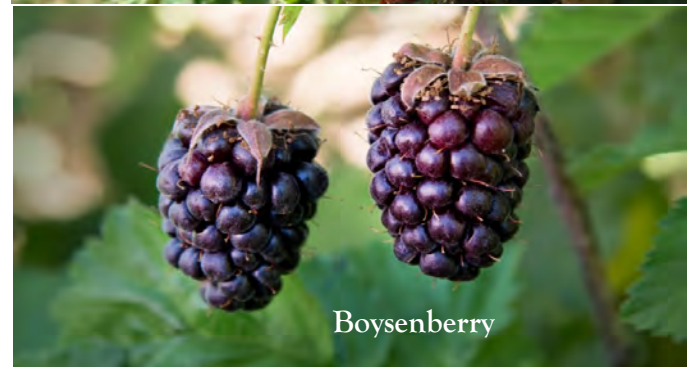
Silvanberry



Marionberry



Loganberry



Boysenberry

Sources:
"Cultivated Blackberry Varieties". AG0543, [Agriculture Victoria](#), Jan 2000
"Olympic Berries" by Rebekah Denn. [The Seattle Times](#), May 30, 2017
Oregon Berries. <https://oregon-berries.com>. *Photos*.

FUNGAL DISEASES OF SPRING AND EARLY SUMMER: Powdery Mildew, Peach Leaf Curl, and Apple & Pear Scab

Weather conditions in the spring and early summer can have a powerful effect on the proliferation of certain fungal diseases in our fruit crops. This can be frustrating for growers, as we have little control over the weather, which can vary considerably from year to year. We can control only our treatment of the infections and our selection of cultivars. This spring of 2020 appears to have provided excellent conditions for growth of a variety of fungal infections in fruit trees. The three most damaging fungi found in the maritime northwest are powdery mildew (*Podosphaera leucotricha*), apple scab (*Venturia inaequalis*), pear scab (*Venturia pirina*), and peach leaf curl (*Taphrina deformans*).

If you spray your trees with fungicides, you might have been successful in suppressing some infections. But it is hard to overcome the climactic conditions that encourage fungal growth. Temperature is the most important factor, as temperatures between 66°F and 71°F are optimal for infections to occur, whereas temperatures below 50°F or above 86°F considerably slow down most fungal growth. Some fungi require moist conditions, such as , whereas others like powdery mildew can proliferate in warm but dry conditions. Since cultivars resistant to one fungus may not be resistant to others, the best option is to choose cultivars that are most resistant to the conditions prevalent in your orchard.

Powdery Mildew

Powdery mildew of apple is caused by the fungus , a different species from the one that causes powdery mildew on other fruit species, such as cherry. Powdery mildew of apple overwinters in buds infected during the previous season and when weather conditions become favorable in the following spring, malformed shoots emerge from infected buds. The fungus produces new spores that can be spread by wind to initiate new infections on blossoms, leaves and especially new shoots. Powdery mildew can negatively impact photosynthesis, shoot growth, and reduce fruit set. The fungus causes whitish fuzzy lesions and causes leaves to curl. Under high disease pressure, the fungus can cause the fruit to russet.

Cultivar susceptibility is a key factor to consider when selecting cultivars for your orchard. apple. Susceptible or highly susceptible cultivars are “Granny Smith”, “Pink Lady” (Cripps Pink), “Williams’ Pride” and “Honeycrisp.

Apple Scab

This scab fungus infects crabapples and apples (*Malus spp.*), mountain ash (*Sorbus spp.*), pear (*Pyrus communis*) and Cotoneaster (*Cotoneaster spp.*) However, there are different strains of *V. inaequalis*, and each strain is specific to the genus of its host. So the strain adapted to malus will infect apples, crab apples; the strain adapted to pyrus will infect pears, and the strain adapted to sorbus will infect mountain ash.

Since these strains are all the same fungus, the conditions for infection are the same. The apple scab fungus overwinters on fallen diseased leaves, leaves still hanging in the tree and possibly unhardened-off growth at the end of branches. In spring, the mother fungi produces spores which are released into the air. Spores are carried by wind to newly developing leaves, flowers, fruit or green twigs. If there is moisture present for a period appropriate to the temperature, the spores will start new infected lesions that will produce more spores within 9 to 17 days. At 39°F, a period of 28 hours of continuous wetting is required for infection, while at 61 to 75°F, only 6 hours are required.

If you have a problem with apple scab in your garden or orchard, it is recommended to select varieties that are resistant to the *V. inequalis* fungus. Some of these are **Crimson Crisp** (Co-op 39), **Crimson Gold** (Svatava), **Crimson Topaz**, **Enterprise** (Co-op 30), **Freedom** (NY58553-1), **Galarina™**, **GoldRush** (Co-op 38), **Jonafree**, **Liberty** (NY55140-19), **No-vamac**, **Nova Spy**, **Otava**, **Pristine™** (Co-op 32), **Pixie Crunch™** (Co-op 33), **Querina** (Florina), **Redfree**, **Rubinola**, **Scarlet O'Hara™** (Co-op 25), **Sundance™** (Co-op 29), **WineCrisp™** (Co-op 31) and **Williams' Pride**. For heritage varieties, try **"Ashmead's Kernel"**, **"Discovery"**, **"Egremont Russet"**, **"Lord Derby"** and **"Reverend W. Wilks"**. Note that none of these cultivars are necessarily resistant to other diseases like powdery mildew and fireblight.

Pear Scab

Sometimes referred to as black spot, **pear scab** is also caused by a *Venturia* fungus, specifically *Venturia pirina*. Initially, the fungus causes round, brown spots on the upper surfaces of leaves. These spots become velvety-looking and release spore packets, called conidia, which spread the **disease** throughout the tree, similar to the apple scab infections. Generally the pear fruit are even more affected than the leaves, and serious infections can cause cracking of the skin and rot in the fruit. Prevention is similar to apple scab, although it is often more difficult to prevent infection in pear trees. Pear fruit become more resistant to infection with age. The severity of pear scab infection is highly correlated with amount of inoculum present, just like apple scab.

Recommended cultivars that are scab-resistant are: **"Orcas"**, **"Rescue"**, **"Arganche"**, **"Barnett Perry"**, **"Batjarka"**, **"Muscat"** and **"Passe Crassane"**. Avoid Barlett and Barlett-types, as they are very scab prone.

Peach Leaf Curl

Peach leaf curl, also known as leaf curl, is a disease caused by the fungus *Taphrina deformans*. The disease affects the blossoms, fruit, leaves, and new shoots of peaches and nectarines. The distorted, reddened foliage that it causes is easily seen on the trees in the spring. When severe, the disease can reduce fruit production substantially.

The peach leaf curl pathogen also infects young green twigs and shoots. Affected shoots become thickened, stunted, distorted, and often die. Infrequently, reddish, wrinkled or distorted (or hypertrophied) areas develop on fruit surfaces. If these appear, later in the season these infected areas of fruit will become corky and tend to crack. If leaf curl infection builds up and is left uncontrolled for several years, the tree may decline and need to be removed.

Once again, the best recommendation is to plant cultivars that are resistant to this fungal disease. "Frost", "Indian Free", "Muir", and "Salish Summer" (Q-1-8), "Betty", "Avalon Pride", "Autumn Rose", "August Etter", "Avalon", "Early Charlotte", "Oregon Curl-Free", and "Nanaimo".

The peach cultivar "Frost" is reportedly very tolerant but must receive fungicide applications the first 2 to 3 years. "Redhaven" peach and most cultivars derived from it are said to be tolerant to peach leaf curl (although may not be in the PNW), whereas "Redskin" peach and cultivars derived from it range from susceptible to highly susceptible to the disease.

Sources:

Powdery Mildew Management in Conventional and Organic Orchards. Achour Amiri; WSU

Apple Scab. Robert Crassweller, Ph.D.. Penn State Tree Fruit Production Guide 2020-21. <https://extension.psu.edu/apple-disease-apple-scab>

Pear Scab. *New England Tree Fruit Management Guide* <https://netreefruit.org/pears/diseases/pear-scab>

Peach Leaf Curl Management Guidelines. University of California. <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7426.html>

Growing and Variety Trials: Organic Peach Growing. <https://www.cloudmountainfarmcenter.org/peach-leaf-curl-resistance/>



Loquats in Your Neighborhood

by Barb Burill

Reprinted from the City Fruit website

In June a neighbor of the City Fruit Beacon Hill office stopped by to ask if we could harvest her loquat tree ("Her what?" one of us thought. "Loquats? Cool - I want to pick them!" thought another. "I want to taste one!" thought a third.)

"Of course we will harvest your loquats!" said Executive Director Kate.

Then City Fruit harvested them and tasted them, and they were good.

So what are loquats?

The loquat is a large evergreen shrub or small tree native to southeastern China, and distantly related to apples, pears, stone fruit, and medlars. It was first introduced to Japan, and now grows wild in warm regions on six continents. Loquats thrive in a warm, sub-tropical climate. If winter temperatures fall below 30°F, the tree will not flower. Our unusually warm winter was good news for loquat production in Seattle. Loquats look something like a small apricot, 1-2 inches in length, with a fuzzy or smooth yellow or orange skin. The flesh is yellow, white, or orange and is more tart than an apricot, with citrus and mango overtones. Instead of a pit like stone fruit, there are three to five big brown seeds.

The fruit should be left on the tree to ripen for best flavor. Then the stems are clipped individually to avoid tearing of the fruit. Or the entire cluster of fruits can be clipped from the tree. Loquats are eaten fresh, used in cooking tarts and pies, and preserved in jam, jelly, and chutney.

Wine is made from the fruit and an Italian liqueur from the seeds. Loquats are known for bruising easily and not storing well as fresh so commercial production is limited. Japan is the largest producer of loquats, followed by Israel and Brazil.

Known as nisperos in Mexico, loquats are in season right around Day of the Dead / Dia de los Muertos (November 1). They are often used as food offerings at Day of the Dead altars.

But, remember, they bear fruit in June in Seattle which makes them a welcome, early treat. All the more reason for celebrating loquats in your neighborhood - keep them in mind for next year!



Pickled Loquats
photo: LiveLoveLaugh-



Loquat Freezer Jam
photo: LiveLoveLaughFood



Using a pole pruner to pick Loquats in the International District. Photo: Trent Elwing

Know of any loquat trees in the greater Seattle area? Many STFS members are interested in growing loquats from seed, so please contact any STFS board member if you know of tree locations from which we can collect seeds. Maybe of 2021 spring event will include grafting loquat trees?

An excerpt from:

Beneficial Insects, Spiders, and Other Mini-Creatures in your Garden

Who They are and How to Get Them to Stay

WSU Publication EN067E, part of the WSU Extension Home Garden Series

Most of the insects, spiders, and other mini-creatures that pass through or live in your garden or home landscape are beneficial—or do little to no harm to you or your plants. Only a handful of garden-inhabiting species are harmful to your plants; unfortunately, these give the majority of the mini-creatures found in gardens a bad name. An ecologically-healthy garden or landscape has a diverse fauna of insects, spiders, mites, centipedes, and harvestmen—each with a unique, and usually beneficial, role in keeping your backyard habitat healthy and functioning efficiently.

Harmful insects are represented by the few plant-eaters (such as mites, aphids, and tent caterpillars) that congregate and feed, or occur in large numbers (thrips). Most plant-eating insects and mites occur at low densities and cause minimal damage, so they can often be tolerated in the garden. For example, the caterpillars of many moth and butterfly species usually occur at low densities, and their feeding damage is usually negligible (except for that of mature larvae of some large moths, like hawk moths). These low-impact herbivores not only improve landscape diversity, but serve a valuable role in the garden as sustenance for carnivorous insects that will be needed when infestations of high-impact plant feeders occur.

So who are the “good guys” that provide free pest control for the home garden? A veritable squadron of “natural enemies” is available in Pacific Northwest garden landscapes, or present in nearby refuges (riparian areas in parks, along creeks, and the like). This native complex of natural enemies of pests, insects, and mites, occupies all natural and undisturbed habitats. The trick is to get this helpful fauna to visit your backyard (and stay), and set up defense lines against the troublesome herbivores. Strategies to encourage beneficial insects, spiders, and mites to visit and stay in your garden landscape, are discussed at the end of this manual.

First, it is important to be able to identify insect, spider, and mite allies, and to recognize who your insect

friends are, in order to gauge how the “war” against pests is going in your garden. Beneficial arthropods (insects, mites, spiders, centipedes, and harvestmen) that help maintain a garden with few or no outbreaks of damaging plant pests, are either predators or parasitoids. Predatory insects and spiders hunt, attack, kill, and consume insect and mite prey, usually smaller than themselves. They are the equivalent of big cats in the jungle, and range in size from microscopic predatory mites to praying mantids that are 3 to 4 inches long. Parasitoids are usually very small parasitic insects that develop inside the bodies of pest insects, eventually killing them. Table 1 summarizes the groups of predatory and parasitic arthropods described in this publication, along with the prey or pest species they attack and kill. Another group of beneficial insects are those that visit flowers for nectar and provide pollination services. Populations of many native pollinators, including bees and butterflies, are declining, and well-managed home garden landscapes will likely play an increasingly important role in providing habitat and resources for these charismatic beneficial insects.

Pollinators

Many of the predators and parasitoids described above also play a secondary beneficial role in the garden—they help in flower pollination. As adults, hover flies, predatory bugs, lady beetles, lacewings, predatory wasps, predatory flies, and many others will feed on nectar or pollen. Similarly, adult parasitoids, like tachinid flies and parasitic wasps, fuel themselves by feeding on sugary nectar. In the process of feeding, all of these pest-regulating insects also provide pollination services.

Non-carnivorous insects also play a role in flower pollination. The most important group of pollinators is, of course, the bees—both the introduced honey bee and the hundreds of native bee species that are found in the Pacific Northwest. Native bees are receiving renewed interest at a time

when the introduced honey bees battle adversity and decline. Gardens stocked with bee-attractive flowering plants can play an important role in encouraging and con-serving native bee species.

Butterflies are a group of pollinators with immense appeal, so much so, that some gardeners design and cultivate “butterfly gardens.” These gardens contain flowers and caterpillar host-plants aimed at attract-ing and retaining some of the 160 or more butterfly species found in the Pacific Northwest. The only butterfly caterpillar that causes plant damage is that of the cabbage white but-terfly (*Pieris rapae*), which, as its name suggests, feeds on cabbages and related crucifers.

The geographic location of a garden or landscape will determine the species that are attracted to it. Inland gardens located east of the Cascades, generally have a wider variety of butterfly species visiting. In many eastern Washington gardens, growing the native chokecherry or ornamental green ash, along with butterfly-attracting flowering plants like coneflower, columbine, asters, and blaz-

ing star, virtually assures the residence of the largest butterfly in western North America—the two-tailed tiger swallowtail (*Papilio multicaudata*). Coastal gardeners have a good chance of seeing the closely related western tiger swallowtail (*Papilio rutulus*), if they provide maples, willows, or cottonwoods for the caterpillars; and lilac, columbine, phlox, and the like, for the adult butterflies to feed on.

Strategies for Attracting and Keeping Beneficial Insects in Your Backyard

The single greatest impediment to attracting and maintaining a good population of beneficial insects and other arthropods in your backyard, is the regular use of synthetic, broad-spectrum pesticides. Infrequent use of certain narrow-spectrum pesticides is more compatible with some beneficial insects, but, generally, the fewer chemical inputs there are, the greater and more diverse the beneficial insect community will be. Some native bees and butterflies are extremely sensitive to pesticides, whether broad- or narrow-spectrum. Extensive lawns are also non-

Table 1. Summary of Predatory and Parasitic Arthropod Groups

Natural Enemy	Prey or Pest Targeted
Praying mantid	Flies, wasps, bees, caterpillars, moths, and butterflies.
Predatory bugs (true bugs, including damsel bugs, big-eyed bugs, minute pirate bugs, mirid bugs, stink bugs, assassin bugs, ambush bugs, etc.)	Mites, aphids, leafhoppers, thrips, caterpillars, mealybugs, beetles, scale insects, and insect eggs.
Predatory beetles (ground beetles, lady beetles, rove beetles, soldier beetles, etc.)	Mites, aphids, leafhoppers, mealybugs, thrips, insect eggs and small larvae, scale insects, and whiteflies.
Earwigs	Aphids, mites, thrips, leafhoppers, centipedes, millipedes, caterpillars, insect eggs, and whiteflies.
Lacewings and snakeflies	Mites, aphids, leafhoppers, whiteflies, thrips, mealybugs, caterpillars, insect eggs, and scale insects.
Predatory flies (hover flies, robber flies, bee flies, dance flies, long-legged flies, predatory midges)	Mites, aphids, scale insects, thrips, caterpillars, beetle larvae, flies, wasps, grasshoppers, and bees.
Predatory thrips	Thrips, mites, aphids, scale insects, and small caterpillars.
Ants	Aphids, mites, thrips, leafhoppers, centipedes, millipedes, caterpillars, insect eggs, and whiteflies.
Stinging wasps (paper wasps, yellowjackets, hornets)	Caterpillars, spiders, mantids, and beetles.
Predatory mites	Mites, scale insects, insect eggs, and nematodes.
Spiders (orb-weaver, crab, jumping, etc.)	Aphids, mites, caterpillars, flies, wasps, beetles, wasps, bees, grasshoppers, leafhoppers, whiteflies, thrips, mealybugs, moths, and butterflies.
Harvestmen (daddy-long-legs)	Small larvae, beetles, mites, aphids, earthworms, slugs, and spiders.
Centipedes	Spiders, cockroaches, beetles, caterpillars, earthworms, pill bugs, and earwigs.
Parasitic wasps (chalcids, encyrtids, braconids, ichneumonids, etc.)	Aphids, mealybugs, caterpillars, true bugs, beetles, grasshoppers, leafhoppers, spiders, whiteflies, and insect eggs.
Parasitic flies (tachinids, bee flies)	Aphids, mealybugs, caterpillars, true bugs, beetles, grasshoppers, leafhoppers, spiders, wasps, bees, whiteflies, and insect eggs.



Mantis religiosa



An adult ground beetle (*Carabidae*).



An adult damsel bug (*Nabis sp.*)



Adult rough stink bug (*Brochymena affinis*)



An adult big-eyed bug (*Geocoris sp.*)



The adult ambush bug (*Phymata sp.*)



Adult minute pirate bug (*Orius tristicolor*)



An adult transverse lady beetle (*Coccinella transversoguttata*)



The adult assassin bug (*Rhynocoris ventralis*)



An adult predatory mirid (*Deraeocoris brevis*)



Adult rove beetle (*Staphylinidae*).



The adult hover fly (*Sphaerophoria sp.*)

conducive to attracting and retaining a diversity of **beneficial insects, mites, and spiders**, so it's best to minimize lawn areas and maximize shrub and bush plantings.

Populations of all the beneficial insects described in this publication reside naturally in riparian (river- or creek-side) and other natural areas near many backyards. Natural dispersion from these refuges ensures that some beneficial insects will visit backyards, but they will not stay unless food, hosts, and shelter resources are available in the back yards. Native plants have closer affinities with native insects, and therefore provide most of these resources. Current research at Washington State University is identifying the plant species and communities that provide optimal resources for beneficial insects and other arthropods (<http://www.wavineyardbeautywithbenefits.com/>).

Generally though, providing some elements of a native habitat in and around backyards, will improve the abundance and diversity of natural enemies of pests and pollinators. A garden with a good diversity of local, native flora will soon attract a good diversity of local, beneficial arthropods. Native flora also provide natural overwintering sites for many beneficial insects, and it is useful to leave at least a small area of native vegetation undisturbed during fall and winter.

Some species of beneficial insects (lady beetles, lacewings, predatory mites) are available for purchase from commercial suppliers. However, the benefits from introducing these beneficial insects to your garden are usually limited and short-lived. Upon release, commercially obtained lady beetles and lacewings often disperse and rapidly leave your backyard, despite the presence of prey and suitable nectar resources. Purchased insects generally originate from non-local populations and may not be well-adapted to the conditions of the Pacific Northwest.

Further Reading

- Cranshaw, W. 2004. *Garden Insects of North America*. New Jersey: Princeton University Press.
- Flint, M. L. and S. H. Dreistadt. 1998. *Natural Enemies Handbook: The Illustrated Guide to Biological Pest Control*. Berkeley: University of California Press.
- James, D. G. and D. N. Nunnallee. 2011. *Life Histories of Cascadia Butterflies*. Corvallis: Oregon State University Press.
- Mader, E., M. Shepard, M. Vaughan, S. Hoffman Black, and G. LeBuhn. 2011. *Attracting Native Pollinators*. Storey, MA: The Xerces Society Guide.
- Marshall, S. A. 2006. *Insects Their Natural History and Diversity*. New York: Firefly Books Ltd.
- WSU Hortsense. Managing plant problems with IPM. *Washington State University Extension*. <http://pep.wsu.edu/hortsense/>.

from the Fruitful Kitchen: Roasted Apricot Sorbet

Ingredients

1 ½ pounds apricots
¾ cup sugar
2 tablespoons golden syrup or light corn syrup
1 cup buttermilk (I love the Grace Harbor product, available at PCC)
½ cup heavy cream
¼ teaspoon salt

Instructions

Preheat oven to 375 degrees F.

Tear the apricots in half and place on a baking sheet, discarding the pits. Toss the fruit with the sugar.

Bake for 15- 20 minutes, tossing halfway through the baking time.

Cool to room temperature.

Add with juices to food processor with salt and syrup, process until smooth, and briefly combine with buttermilk and cream.

Chill overnight, then freeze in an ice cream machine. Transfer to a container and freeze until firm.

Alternatively, if you don't have an ice cream machine, spread the mixture into a shallow pan, such as a 9 x 13-inch metal cake pan, and freeze until firm, then when ready to eat, soften briefly at room temperature and scoop from the cake pan.

Contributed by Tracey Bernal

This is an amazing recipe that takes advantage of the brief local apricot season. You can use a mix of firm and over ripe fruit for good results.

STFS: Who Are We and What We Do

In this time of social disruption, we review our commitments of time, energy and money to ensure that our lives are organized in a way that promotes our personal goals in the most effective way. Let us use the opportunity to review the organization and goals of our organization.

Western Cascade Fruit Society, our parent organization, is a 501(c)(3) nonprofit organization. The WCFS was founded in 1980 and is made up of chapters throughout Western Washington whose members are aspiring hobby orchardists and backyard fruit growers. Our primary objective is to bring together new and experienced fruit growers who will promote the science, cultivation and pleasure of growing fruit bearing trees, vines and plants in the home landscape. Local chapters disseminate information through education, fruit shows, orchard tours, meetings, workshops, and publications.

WCFS is the parent organization to nine affiliated chapters. WCFS publishes a quarterly BeeLine newsletter to inform members of events, tours, articles, and reports. Members receive automatic membership in WCFS after joining an affiliated Chapter. WCFS provides other member services, including a member forum, a chapter-wide event calendar, and a home for chapter sites. These can be found at www.wcfs.org.

Seattle Tree Fruit Society (STFS) is a chapter of WCFS, one of nine chapters in Western Washington. STFS brings together amateur growers – beginners to experts – from the Greater Seattle area who share an interest in growing fruit and nut trees, berries, kiwis, grapes, and other fruit. We offer information on adapted varieties, up-to-the-minute growing techniques, and share our own experiences growing fruit.

We meet each month from September to May, usually on a Saturday morning. Programs explore topics tailored to Western Washington growers, such as grafting, pruning, pest control, recommended varieties, nurseries, suppliers, home wine and cider making, and more.

STFS members receive both The Urban Scion Post, our monthly newsletter, and The BeeLine, an on-line quarterly from Western Cascade Fruit Society. Both feature a wide variety of useful articles about fruit, and announce upcoming events. Find us on [Facebook](#) and on our website www.seattletreefruitsociety.com.

The function of our STFS **membership** is to **be** the Seattle Tree Fruit Society. This is your organization. Please let us know what is most important to you. STFS can always do more! If there is a way that any of our members feel that STFS can be better, let us know. How can the board of directors be of further help to you as members? Please let board members know. And, some extent, the question is what can you, as a part of our organization, do to make STFS better, be it for your community, your local chapter, or for WCFS, our parent organization. Get involved. Remember, STFS is **you**.

SEATTLE TREE FRUIT SOCIETY

Email: seattletreefruitsociety@gmail.com

STFS OFFICERS:

PRESIDENT: Mike Ewanciw (2021)
(206) 683-9665 seattletreefruitsociety@gmail.com

VICE-PRES. Tracey Bernal (2021)
(206) 913-3778

SECRETARY Sue Williams (2021)

TREASURER Trent Elwing (2021)
(206) 517-3118

MEMBERSHIP: Trent Elwing (206) 517-3118

HOSPITALITY: Judy Scheinuk (206) 363-5038

TECHNOLOGY: Mark Lee (206) 434-1693

STFS DIRECTORS:

#1 - Rick Shultz (2020) (206) 327-4730

#2 - Laure Jansen (2019) (206) 743-2348

#3 - Linda Sartnurak (2021) (425) 271-6264

#4 - Vacant

#5 - Gudrun Utz (2021) (206) 491-2133

#6 - Trent Elwing (2021) (206) 517-3118

#7 - Vacant (2019)

USP EDITORS:

Laure Jansen seattleorchardist@gmail.com

Tracey Bernal tmjbernal0216@gmail.com

STANDING COMMITTEES & CHAIRS

Orchard Committee - please volunteer

Events Committee - please volunteer

Programs Committee please volunteer