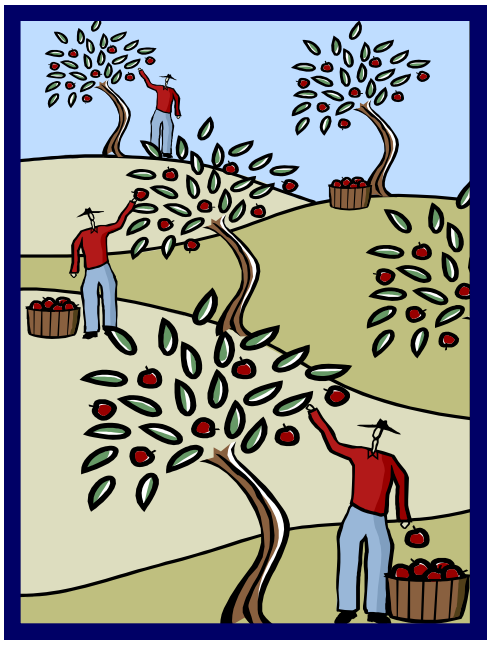
May 2021
The Thinning Month
by Marilyn Tilbury

It might not seem like it but last month was one of the driest Aprils on record. Normally we average a bit over an inch of rain a week in April, but less than one inch fell over the whole month. Do check on any new plantings for adequate soil moisture. Did you plant new day neutral strawberries? Their little roots want water now to get off to a good start.

Every decade NOAA publishes new weather norms, and the latest edition comes on May 4. This means that daily weather statistics will be compared with these new numbers averaged over the prior 30 years from 1991 to 2020. Broadly speaking, data show that the eastern half of the US is getting wetter while the western half is getting drier, but our little maritime climate in WWA (and BC and OR) is getting just a tad wetter and warmer. With these new "normal" statistics we will probably hear about fewer record numbers from our TV weather folks for the next few years.



Remember the fun the national media had last year with the very local (just a corner of Whatcom county) Asian giant hornets? Now they're gearing up for the emergence sometime this month of Brood X of 17 year cicadas. Expect videos of these red eyed insects calling from trees in their multitudes. Around 15 eastern states host these intriguing insects, but did you know that we also have cicadas?

According to WSU, the orchard cicada, *Platypodia areolata*, is present in our state but its call is only a series of clicks, not the 85 db call of the periodical cicadas. It's a curiosity here but some folks in CA find that significant damage is done to young shoots, especially on new apple trees. The females drill slots in pencil-sized twigs near the tips to insert their eggs. When the nymphs emerge the weakened twigs fall to the ground, essentially tip pruning the trees.

The orchard cicada emerges every 4 years. According to Sir David Attenborough, the 17 year cicada's emergence is the largest mass insect emergence in the world. A fun cicada website is www.cicadamania.com. Click on the species tab to see distribution maps of each species. We hope Brood X of the 17 year cicada finds a welcoming environment when they next emerge in 2038.

Now is the time to apply the last fungicide at petal fall on those stone fruit which had brown rot last year. Codling moths will fly soon to infest apples. A quick spray of Surround, a kaolin clay spray, will keep them at bay for a week or so while you quickly thin and footie the fruitlets.

A good strategy is to figure out how many fruit that you want each tree to produce, then start at the top of the tree to apply footies. When that number is protected, remove the remaining small fruit so that you don't inadvertently invite codling moths and apple maggots to your orchard.

Did you find powdery mildewed leaves at the tips of your trees? An easy fix while thinning is to have a plastic grocery bag on an arm and just remove these leaves now, then send out in the garbage or bury deeply. If left on trees, conidia spores from these leaves will be released into the air after every rain, spreading the fungus.

Pear trellis rust, spread by infected junipers, will soon infect our pear leaves. We're putting sleeves of Remay on a few pear limbs to see if it can filter out the fungal spores. Perhaps applying sprays of Surround a couple times a week would also offer protection until the pear leaves develop their natural wax coating. The infection period is brief, the orange fruiting bodies (telia) on juniper appear seemingly overnite after rain, then quickly collapse after few days until next spring.

Have you bought Aplets and Cotlets, or perhaps toured the Liberty Orchard factory in Cashmere? This commercial product based on Turkish delight (google for easy recipe) is sadly going out of business on June 1. The writer purchased a last box at a local Bartells. The company, founded by Armenian immigrants over 100 years ago, employs 55 people.

The rhodies are out, lilacs are perfuming the air, can setting out tomato plants be far behind? Let's keep our Covid-19 guard up—hopefully the "two variant" strain ravishing India doesn't itself become pandemic.

Spring crop load management task:

Let us thin

Commercial fruit growers as well as backyard orchardists can management crop load by actions taken throughout the year. Pruning to evenly space fruit buds, and hand or chemical thinning blossoms are done before now. By mid-May in western Washington, manual green fruitlet thinning is the last tool left in the crop load management box. Labor-intensive, often on-ladder or otherwise elevated, all types of manual thinning are detested by the efficient grower. However unwelcomed the task, don't delay: Earlier green fruitlet thinning should result in a larger crop this fall and stronger bloom next spring.
http://treefruit.wsu.edu/orchard-management/crop-load-management/

Springtime manual fruit thinning: last ditch duty now for this fall's and future harvests.

Though seemingly counter-intuitive the "more through less" mentality of manual fruitlet thinning is the reality home orchardists must embrace for: 1) More quality fruit of increased size this fall, 2) more consistent quality crop loads from year to year instead of biennial behavior, and 3) less chance of heavy fruit loads snapping off tree scaffold created through thoughtful, time-consuming pruning over the past years.

While cherry and nut trees typically aren't, most deciduous pome and stone fruit trees are fruitlet-thinned including apples, pears, Asian apple/pears, plums (prunes) and peaches.

Fruit trees gain energy through leaf surface exposure to sunlight. Open fruit tree structure from past pruning and total leaf surface area oriented to intercept sunlight determine how much sunlight is captured. Fruit tree processes compete for the energy converted

At right: Gnarly, "healed" wound after a neglected, over-cropped, underthinned leader broke off from a dwarfing akane apple tree planted at STFS demonstration orchard.

from sunlight exposure. Too many fruitlets left on a tree this spring suck energy away from the process of fruit bud development. Crop production next year depends on fruit bud development this year. Too many fruitlets left on a tree this spring may also strain availability of limiting nutrients and ultimately limit individual fruit size and quality.

How much thinning is enough depends on a number of factors. Documenting then reviewing past thinning practices and production results over the years should help backyard orchardists develop rules of thumb for thinning each fruit tree.

Another variable: Fruit trees on dwarfing rootstock can exhibit precocity meaning a propensity at an earlier age to bloom and set heavier crop loads. For the first few years, more aggressive thinning techniques than prescribed below may be necessary to protect young branches of dwarfing fruit trees from snapping under too heavy fruit load.

Earwigs: *Good, Bad & Ugly All-in-One.*

Earwigs are reddish-brown insects about 3/4" or less in length equipped with rear-end pincers. They seem to be everywhere (though hopefully not in ears or wigs, anymore. Ick!) including springtime fruitlet clusters and sometimes inside individual fruit barriers later in the season. *Why are they loitering there?*

WSU Extension Services Apple_Earwigs_Factsheets_.pdf reports in part "... Earwigs are largely beneficial, feeding on many pests such as aphids (including apple aphids), mites, and nematodes, as well as on algae, fungi, and decaying plant material. However, earwigs can also damage plants. They sometimes feed on flowers, shoot tips, leaves, or fruit. Damaged shoot tips may fail to develop properly, sometimes stunting growth. Damaged leaves exhibit small to large holes. Fruit damage consists of shallow, irregular areas chewed into the surface."

During a recent STFS meeting featuring the Sauk Farms Operations Manager, a discussion about bird damage to uncovered growing apple fruits seemed to suggest that the birds were damaging apple fruits as they foraged for earwigs. Apparently, the uncovered apples had been thinned to 3 fruitlets per cluster where earwigs sought shelter between the fruitlets attracting hungry birds. Thinning to 2 fruitlets per cluster successfully addressed the issue.

More on earwigs from WSU Ext.: "Management Options *Non-Chemical Management:* Rolled newspapers or flat boards placed beneath trees can serve both as monitoring devices and as traps for earwigs, which prefer narrow, enclosed hiding places. Remove tree wraps, which may provide shelter for earwigs. Select non-chemical management options as your first choice! *Chemical Management:* None recommended." Source URLs:

hortsense.cahnrs.wsu.edu/Search/MainMenuWithFactSheet.aspx?CategoryId=3&PlantDefId=59&ProblemId=19

http://pubs.cahnrs.wsu.edu/publications/wp-content/uploads/sites/2/publications/em067e.pdf

Starting out, try these generally accepted good manual thinning principles:

For apples, pears and Asian apple/pears:

1) Manually thin ASAP; each of the many excess green fruitlets to be removed represents energy no longer available for fruit production this fall or next year. **Remove all excess green fruitlets that won't be nurtured to fall harvestable fruit: These excess green fruitlets waste energy and serve as pest/disease reservoirs.** More energy is saved by removing excess fruitlets when they are smaller, preferably when the diameter of fruitlet is no larger than that of a US dime coin (5/8 inch or 1.5 cm). Before 20 days after petal fall, manual thinning should occur.

2) When manually thinning, don't damage fruit tree parts needed to produce the coming years' crops. Fruitlets are attached to a woody spur, and the spur, if not damaged during thinning, will produce fruit for a number of years.

3) Manual thinning takes time but isn't difficult and can be achieved several ways such as a) snipping excess fruitlets' stems with scissors/pruners, b) pinching excess fruitlets' stems between two fingers or c) gripping the excess fruitlets and their stems with separate hands then pulling apart. Leaving behind partial stems still attached to the cluster is fine. **Just don't damage the spur.**

4) **5,4,3…,2…?, Just one? Really? … just 1 per cluster? Yes:** Manually thin to 1 remaining fruitlet per cluster or spur. Apples tend to over set fruit. The 1 remaining green fruitlet should be the largest, plump fruitlet without visible imperfections of the cluster. It can be very challenging to not disobey this rule especially for apples which may start with 5 viable green fruitlets per cluster. **Once again: leave 1 remaining green fruitlet per cluster.**

5) Another rule difficult not to disobey: to prevent branches from breaking later this fall, remove additional fruitlets so all remaining fruitlets on a branch are separated from each other by at least 6 inches along the branch.

For plums and peaches:

Plums, peaches, and other stone fruits mostly bear on one-year wood without a woody spur. Plum fruitlets also will set on small spur-like structures.

1) Follow same 5 rules above for pome fruit except when in conflict with the following rules.

2) When thinning excess fruitlets from these stone fruit trees, separate remaining fruitlets along the branches as single fruitlets with at least 6 inches between fruitlets.

3) Excess fruitlets should be manually thinned within 30 days after bloom end.

FYI: plums, peaches, and other stone fruits experience June drop when the tree naturally lightens its crop load. Anticipating June drop, sometimes growers leave extra remaining fruitlets on the tree then manually thin a second time following June drop.

Still resisting rules of thumb for manual fruitlet thinning?

If fruit overcropping is practiced, as fruit matures, branches will begin to bend. Option 1: Take more fruit off the bending branch before breakage. Option 2: Prop up overloaded branch with ground-mounted poles.

Source URL: https://extension.oregonstate.edu/gardening/berries-fruit/fruit-thinning

2 Pests in PNW requiring more than just thinning 2 produce good tree fruit

Destroyers of PNW tree fruits: Larvae of codling moth & apple maggot fly

Adult codling moth

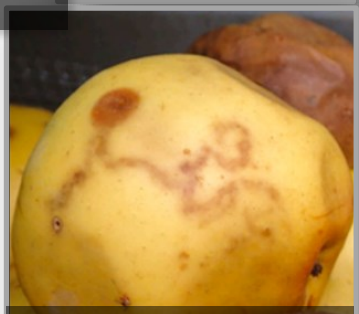
Codling moth & apple maggot fly infestations are widespread throughout the PNW. Each year, the first generation of adult codling moth emerges before adult apple maggot fly. The immature larvae of both these pests damage developing tree fruit.

Native to Europe, codling moth has a long history of damaging PNW apples as well as pears, plums and walnuts. Codling moth now reproduces up to three times during one growing season meaning continual protection is necessary from fruit set to harvest. Commercial growers rely on IPM programs rotating agents with different modes of action including mating disruption and insecticides coupled with pheromone traps for monitoring emergence. Backyard orchardists can avoid a complex IPM program by placing barrier protection over fruit pieces or sections of the fruit tree immediately after fruit thinning. The adult codling moth is unremarkable, approximately ½ inch long and has dark brown bands near the wing tips. Overwintering as larvae cocooned in the host tree's bark or adjacent ground then pupating in the spring, the first generation of adult codling moths begin to emerge as early as late April. Mated female codling moths lay eggs on fruit tree leaves and developing fruit. Hatched-out larvae chew into developing fruit where they eat the core and seeds. Fruit damage may be localized to the core and entry path with significant portions of the receptacle salvageable.

Adult apple maggot fly lay eggs under skin of maturing fruit

Codling moth lay eggs …

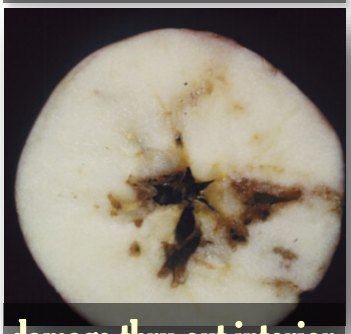
… on surfaces including apple tree leaf



Trails visible from apple exterior warning of …

Apple maggot is a common pest in western WA. Transport of homegrown apples from apple maggot infestations areas to unaffected areas is prohibited in Washington.

…apple maggot larvae



damage thru out interior

Codling moth larva's …

…path to apple's core

From early summer to early fall, adult apple maggot flies emerge from the ground beneath previous host trees then fly short distances to adjacent home fruit trees, neglected trees or commercial orchards. The female apple maggot fly is small (less than ½ inch in length) having a black body with a white mark on the back of the thorax and distinct black markings on otherwise clear wings. A week or so after emergence, mated female apple maggot flies start laying eggs under the skin of developing fruit. Newly hatched apple maggot larvae feed randomly throughout the apple receptacle ruining the fruit. Apple maggot larvae may also feed on the fruit of crabapple, pear, hawthorn, plum, apricot, and cherry trees. Mature apple maggots shelter underground where they overwinter as pupae. There is only one generation of apple maggot per year.

Codling moth larva …

…wallowing in its excrement at apple's core

Like codling moth, for apple maggot, backyard orchardists can avoid a complex IPM program by placing barrier protection over fruit pieces or sections of the fruit tree immediately after fruit thinning. Removing barrier protection several weeks before harvest may allow for additional natural color development with minimal chance of damage due to pests.

If uncovered fruit is left on trees, backyard orchardists need to frequently inspect for fruit infested by apple maggot and codling moth larvae from late May to fruit harvest. Infested fruit needs to be removed immediately. Don't compost with other orchard waste because this allows larvae to escape to the ground and to mature into next year's adults. Kill larvae in infested fruit by crushing or heating in a plastic bag placed in the hot sun for a week. For many reasons including pest management, fruit tree height should be limited to around 10 feet or lower.

Source URLs: **WSU Hortsense** http://hortsense.cahnrs.wsu.edu/Home/HortsenseHome.aspx https://extension.wsu.edu/ Publication store search "FS120E", "EM066E", "EM101E"

❍Individual Fruitlet Barrier Protection❍

Buy maggot barriers June 5th 10 AM @ STFS demo orchard.

Check out STFS website for maggot barrier installation instructions

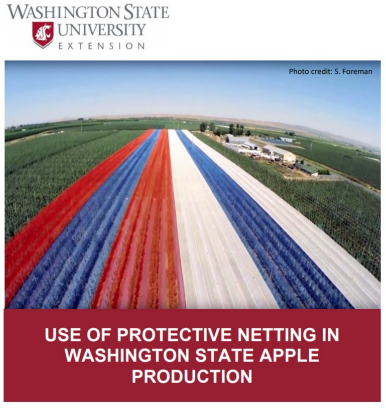
(https://www.seattletreefruitsociety.com/maggot-barriers**)**

With all barrier protection, timing and complete coverage are essential. Individual fruitlet barriers offer protection against codling moth larvae and apple maggot larvae, but green fruitlets need to be covered shortly after springtime thinning and remain intact over the developing fruit until two weeks or so prior to harvest. Effective fruit barriers have come from off-label application of consumer goods. Repurposed products include wax paper bags, lunch bags, nylon mesh footies originally for trying on shoes at a retail store (who does that anymore?), clear plastic Ziploc sandwich bags with vents added (though sunburn and moisture may be problems) and even drawstring organza bags (online search "Wuli Organza Bag"). Design built products include double-layer Japanese fruit bags and spraying of Surround R Kaolin. Closures to hold barriers at fruilets' stems are driven by whatever works and doesn't cost much.

❍Whole Tree Fruitlet Barrier Protection❍

Protective Netting in WA Apple Orchards

Petroleum-based polymer netting is commonly employed in commercial orchards of eastern Washington though primarily to reduce sunburning of fruit pieces. Added benefits include protection of fruit from hail, wind, birds, and insect pests as well as conservation of applied water. Depending how the netting is installed, it may also present a continuous barrier excluding foraging deer and elk. Protective netting may also scatter sunlight allowing improved light penetration into the tree canopy. Most netting continues to be black or white, but more recently colored (yellow, red, blue) netting is being marketed for its ability to modify the spectral distribution of solar radiation passing through to the tree canopy. Reportedly, plant processes like photosynthesis and stomatal conductance are positively affected.



WSU Ext. Doc TB60E

WSU PEER REVIEWED TB60E

STFS members: Get protective netting June 5th 10 AM @ STFS demo orchard. Pre-order ASAP from Trent (206.517.3118 or Trelwing@gmail.com)

Use City Fruit sizing guide below

STFS has previously purchased rolls of anti-bee netting from a vendor supplying eastern Washington orchards. This is the same netting described in the City Fruit "How to Net Your Tree" guide. One roll holds one piece of netting when unfolded measuring 17 feet wide and 300 feet long before cutting into manageable pieces. This netting was originally developed to exclude pollinators from seedless citrus groves, but also effectively protects covered pome trees from egg-laying apple maggot fly and codling moth. To protect against these pests, it is important to minimize openings in the netting surrounding the protected tree. The netting should be wrapped tightly against the tree's trunk to discourage pests crawling up the trunk.

Netting closure possibilities: binder clips...

CITY fruit

How to Net Your Tree

1. Get the Net

Measure the height and spread (width) of your tree. Calculate what size net you need.

((Height) + (Spread)) x 2 = length of the side of a square net

For a 10' tall tree with 8' spread:

((10 + 8) x 2) = (16 x 2) = 32' x 32' square net

Using the 17' wide net on a roll, we typically use these sizes:

- 17' square
- 34' square (two 17' x 34' panels) – close enough!

https://www.cityfruit.org/sites/default/files/blogger/file-uploads/how_to_net_your_tree_vendor_list.pdf

City Fruit (www.cityfruit.org) is a Seattle-based nonprofit offering great services including nominally priced fruit tree care as well as educational outreach geared towards PNW backyard orchardists. City Fruit's concise, user-friendly guidelines are available at: https://www.cityfruit.org/fruit-tree-care/resources and can be easily downloaded for quick reference in the future. City Fruit, among other activities, is currently partnering with Friends of Pipers Orchard to maintain this historic Seattle public orchard in NW Seattle's Carkeek Park. Also, City Fruit recently planted fruit trees at a S Seattle housing project. From City Fruit website: "City Fruit is excited to introduce the newest member of our team, Julian Garcia (email julian@cityfruit.org), who joins us as our resident Fruit Tree Specialist. Starting this January, Julian will be connecting with fruit tree owners and area orchardists who have requested help with fruit tree assessments and year-round tree care, from transplanting to pruning to integrated pest management." Check out Julian's blog posts for what backyard orchard tasks need to be done now. Contact Julian and other City Fruit reps to say "thanks" and see how you can help.
https://www.cityfruit.org/blog/meet-city-fruit%E2%80%99s-new-fruit-tree-specialist-julian-garcia

Manual green fruitlet thinning/covering sequence:

Thin first, drape netting second? Definitely, Yes!

Thin first, bag second? It may depend on whether you're all

Fruitlet barrier protection ranges from various repurposed items (sandwich bags, nylon footies) covering individual fruitlets to fine mesh netting/fabric enclosing fruitlet-adorned branches or even the entire fruit tree preferably on dwarfing rootstock or pruned to a uniform scaffold (Belgian fence, 3-tier espalier).

When draping netting/fabric, common sense points to sequence: 1st) thin excess fruitlets to one fruitlet per cluster then 2nd) wrap the branch or fruit tree with netting/fabric.

When relying on individual fruitlet coverings, bagging before thinning may be prudent. Imagine a cluster with 5 healthy green fruitlets first thinned down to 1 then while bagging, the remaining fruitlet breaks off because you're a klutz. Instead, consider bagging one fruitlet per cluster before removing the remaining uncovered fruitlets.

Reiterating Marilyn's advice: bag from top of tree down for several reasons: Fruit at tree's top most likely will be better quality because of better sun exposure to adjacent leaves. If you bag bottom fruitlets first, you might break them off later as you reach for overhead fruitlets.