

Small Fruit Update



Providing Northwest berry growers with the information they need when they need it.

The Small Fruit Update is sent out weekly during the growing season by [Peerbolt Crop Management](#) and is funded entirely by the Northwest berry growers and industry through their commissions and councils.

June 17, 2015

Week 25

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Monitoring berries for SWD larvae in the field

[We have created a video of this larvae-checking method.](#) It's from 2010 but still pretty good.

- Put a sample of fruit to be tested (Caneberries/blueberries ~50 per sample) in a gallon size sealable plastic bag.
- Pour in enough salt water solution to allow the fruit to float (solution is: 1 cup of salt per gallon of water). Mark bag with field code/date. Gently crush/break open fruit.
- For a quick check in the field after a designated period of time (at least 15 minutes) hold the baggie up to light. This helps to see the larvae in the solution.
- For a more thorough examination, after a designated period of time (at least 15 minutes), pour the fruit and salt solution out into a shallow tray and use a piece of wire mesh screen to hold the fruit down making it easier to separate the larvae from the fruit.

[The Weather Cafe](#) by Rufus La Lone [Small Fruit Cold Storage report](#)

Spotted Wing Drosophila Threat Update

From Tom Peerbolt, Peerbolt Crop Management (6/16):

- So far this season we've recovered SWD larvae (maggots...) in blackberries, raspberries, strawberries, field border cherries, blackcaps (the first time ever), and even some early ripening blueberries.
- In past years we haven't seen this level of SWD pressure until mid-July at the earliest...and this pest's dynamic is to get much worse as the season progresses.
- Economic losses for our growers/fields have been minimal since numbers are in low enough amounts and we've instigated an immediate intensive application schedule in affected fields to clean them up.
- There are scattered reports of first picks in blackberries and raspberries being rejected at the docks because of SWD infestations.
- It's not the year to take chances with this pest. Unless we have a major heat wave, this is very likely to be a season long struggle that will intensify each week.

Disseminating information for:

Washington

[Washington Red Raspberry Commission](#)
[Washington Blueberry Commission](#)
[Washington Strawberry Commission](#)

Oregon

[Oregon Raspberry and Blackberry Commission](#)
[Oregon Blueberry Commission](#)
[Oregon Strawberry Commission](#)

British Columbia

[B.C. Strawberry Growers Association](#)
[Raspberry Industry Development Council](#)
[B.C. Blueberry Council](#)

National

[North American Blueberry Council](#)

For the SWD report and other crop management information go to the [Grower Resources](#) section.

Regional Berry Field Day Events

- **July 1 — OSU Caneberry Open House 1-5:00** [Go here](#) for details
- **July 7 — B.C. Berry Field Day at the Clearbrook Station, Abbotsford, B.C. 1-3, Details TBA**
- **July 8 — Washington Raspberry Machine Harvesting Field Day, 2-4, Lynden, WA at Randy Honcoop's Farm.** [Go here](#) for details.
- **July 8 — OSU Blueberry Open House 1-5:00** [Go here](#) for details
- **August 18 — Oregon Strawberry Commission Fresh Strawberry Plasticulture Workshop and Demonstration 9:30-5:00** [Go here for the agenda.](#)



Blueberry harvest--Willamette Valley

Regional reports

British Columbia, Fraser Valley (Sunday, 6/14)

- **Blueberries:** We started picking fresh Dukes on Saturday 13th on Sumas prairie (about a month ahead of the norm, whatever that is anymore!) and will see more fresh picking starts in Abbotsford as this week progresses. Very early starts, but it's here and there is no stopping it. Quality is very good and it looks to be a considerable crop in front of us. We had a big windstorm at the end of this last week and saw some fruit and clusters drop. But loses appears to be minimal. Saw some colour developing on Draper mid-week and leader berries on Bluecrop starting to blue. Not necessarily what I would like to see yet. But environmental conditions are so good now and have been all season, leading to development at an unprecedented pace. July will be an incredible month by all indications.
- **Raspberries:** We should see raspberries start to machine on the Rudi's this week with Meekers looking like the beginning of the following week. Raspberries look down to me especially on Meeker. Laterals stopped growing early and fruit looks under-sized. Looks as well like a concentrated pick which may not be long. In any event, it will be should be interesting with raspberries and Dukes coming in together.

British Columbia, Fraser Valley (Monday, 6/15)

SWD spraying began a week ago or so in the earlier fields. Growers recognizing the need to be really on top of their schedule this year with pre-season trap counts much higher than usual.

Weather has been optimal for quality and looks to be continuing that pattern.

- **Blueberries:** Dukes and Reka ripening quickly. I have heard of some growers beginning to harvest Monday (today) with volumes picking up through the week. By June 25 Duke harvest should have begun in all areas. Growers need to wait to let the blue fruit finish sizing and getting weight before picking. We generally begin Reka harvest by machine a good week to 10 days after first Duke harvest but it's looking like we will finish Dukes and within a day or 2 be rolling into the Reka. Surprised to see the amount of blue fruit in Bluecrop in some fields as well. Elliot sizing up nicely.

British Columbia, Fraser Valley (Sunday, 6/14)

From [Tom Baumann](#), Director of the Pacific Berry Resource Centre & UFV's Ag Dept. Coordinator:

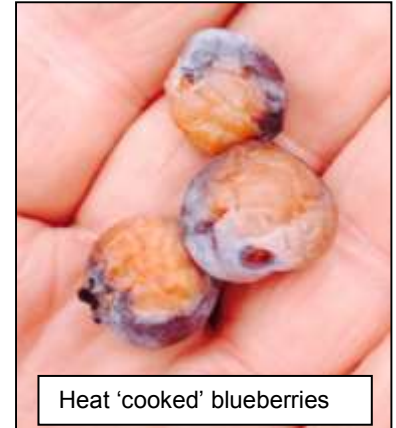
- **All crops:** First Blackberries ripening in test plots, they are in good shape and are plumping up nicely, good pollination it looks like. Irrigation is a must, some grass and corn fields losing steam already. Wind

storm this past week was strongest in the Western regions and weaker in the Eastern reaches of the Fraser Valley. The one overcast day with 19C temps helped slow things down just a tad, but the weekend is again quite hot and so is Monday. So far no major sunscald in raspberry or blueberry. Everyone is ready to go, machines revved up.

Northern Washington, Whatcom County

- **Blueberries:** (Monday, 6/15) Ripening time of blueberries here in Whatcom looked to be spread out, but after the hot weather it now looks to be bunched together. Even later varieties (Draper, Liberty, and a little Legacy) are losing their picking gaps. Labor and market price look to be biggest challenges, with SWD closing in the turn to the finish line! It's a race to see which will bring the most opportunities for creative solutions.

Eastern Washington (Monday, 6/15) 106F (41C) on June 8 cooked some fruit on the bush and singed leaves too. Mechanical harvest started on Dukes late last week. Quality pretty good with a bit of heat-shriveled fruit to sort out. No sightings of SWD, yet



Western Oregon, Willamette Valley

- **Blueberries:** (Monday, 6/15) Dukes are coming in as we speak. Earliest field that I know of started last Tuesday (6/9). Quality is good although the heat might have reduced fruit size a little. Big issue is labor. Crews are smaller than anticipated but supposedly that's because they're still working in California and will be arriving very soon. Let's hope so. Lots of berries to get in! No reported SWD infestation issues in the commercial fields that I know of although there are reports of some in smaller u pick fields.
- **Raspberries:** (Monday, 6/15) Many fields have started machine harvesting. Fruit quality looks good. Some SWD problems early although larvae numbers were small enough to be able to clean up the fields. The heat helped with suppressing them also.
- **Blackberries:** (Tuesday, 6/16) We'll be getting the first major picks of Black Diamond and Columbia Star Wednesday (6/17) night. Around next Tuesday (6/23) should be the first Marions. They're early but not nearly as early as it looked like we'd be earlier. Some sunburn in Black Diamonds. Still looks like Black Diamond harvest could stretch out to six weeks. The late breaking secondary buds look like they're producing good looking berries. Lots of SWD applications going on out there. And the evidence so far is that they're well justified to prevent early infestations. It's going to be tough to clean up a blackberry or raspberry field that has a bad infestation this early.



Photos by Bill Dinger

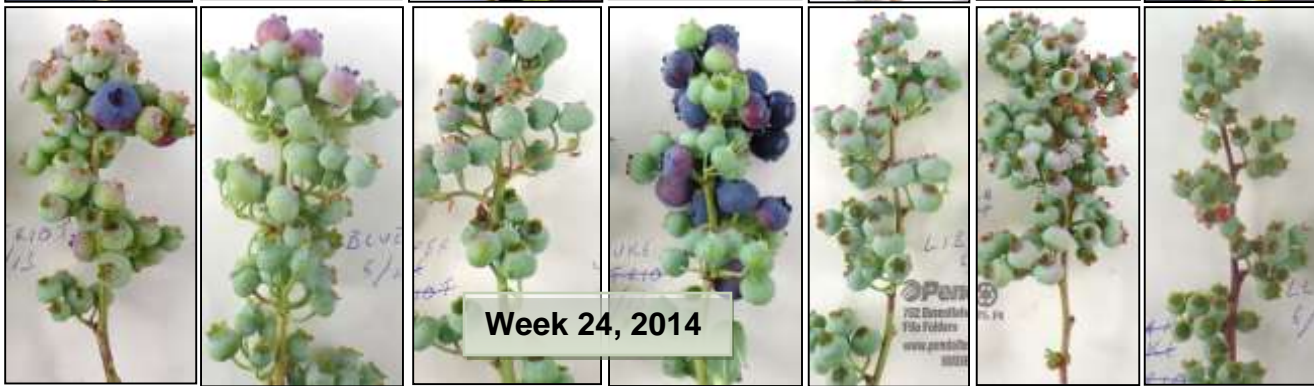
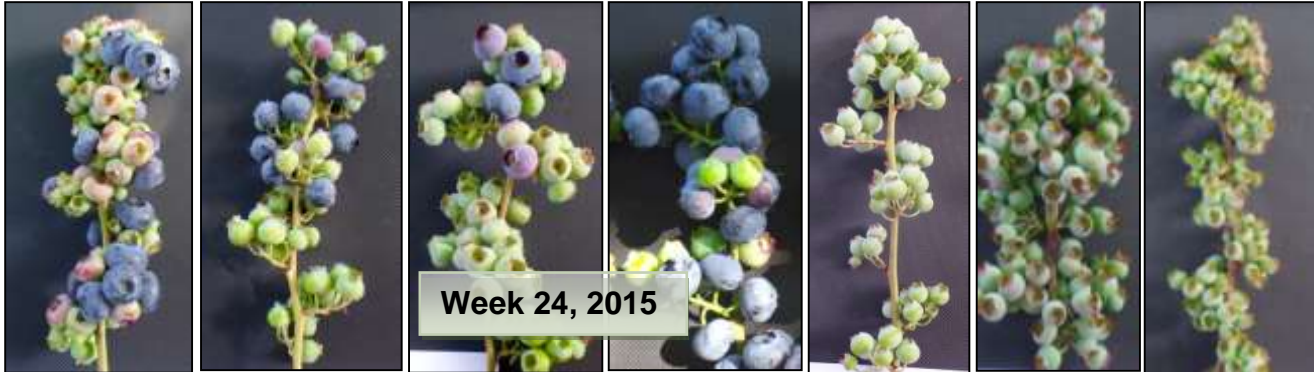
AY Marions June 16, 2015, near Dayton. About a week from harvest.

Blueberry Bud Development Comparison for the Western Willamette Valley

Protocols for these photos: 1) Each Friday I take 5-7 cuttings from the same fields in the NW Willamette Valley. 2) Later in the day I look over the cuttings and choose what seems the most 'representative' (not the most advanced or the least advanced). I'm aiming for the development stage that best represents the fruit that would be the first harvested. **We continue ahead in development over the last two years. The four days of heat we had accelerated ripening/coloring this past week. The Duke field represented below was scheduled for first harvest on 6/13/15. As near as I can figure that's 8-10 days ahead of 2014.**

Northwestern Willamette Valley **Top – 6/12/15** **Middle – 6/13/14** **Bottom – 6/14/13**

Patriot **Bluejay** **Draper** **Duke** **Liberty** **Aurora** **Elliott**



Patriot **Bluejay** **Draper** **Duke** **Liberty** **Aurora** **Elliott**

Industry news/resources

Newsletters/ berry reports

- [Whatcom Ag Monthly](#) Produced by WSU Whatcom County Extension. Includes excellent berry crop information.
- [National Berry Report](#) Daily fresh market berry reports. Hosted by the California Strawberry Commission, this report is generated from data from the USDA Agricultural Marketing Service and is updated daily.
- [Market Report from General Produce for Week 23](#) (6/8)
- [The Source](#) from Pro*Act (6/4)

- [USDA Market News \(Fruits & Vegetables\)](#)

Magazine/website compilations

- The Packer: [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).
- **Growing Produce:** [recent berry articles](#).
- **Fruitnet-Eurofruit:** [recent berry articles](#).
- **Fresh Fruit Portal:** [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).

Berry research blogs

- [Strawberries and Caneberries](#) by Mark Bolda, UC Davis Berry Extension Agent. **Recent entry: (6/15) New app helps strawberry growers manage pests** *Reports on recent insect and disease research and observations in California.*
- [Team Rubus](#) by Gina Fernandez, North Carolina State Small Fruit Specialist. . **Recent entry: (6/15) World's blackberry, raspberry, currant and gooseberry experts coming to North Carolina** *Reports on issues in blackberries and raspberries from the Southeast.*

Climate/Water

- [El Nino likely to last through Northern Hemisphere winter](#) (6/15, Fresh Fruit Portal)
- [Oregon faces summer with little water to spare](#) (6/8, Capital Press)
- [Washington climatologist already foresees warm, dry winter](#) (6/8, Capital Press)

Plant Breeding

- [Audit faults UC-Davis over strawberry breeding program](#) (6/10, The Packer)

Labor

- [Michigan growers entering H-2A program for 2015 season](#) (June 9, The Packer)

North America

- Michigan: [Fruit drop hits some Michigan blueberries](#) (6/10, The Packer)
- Michigan: [Blueberry growers looking for the bright side](#) (6/9, The Packer)
- Florida: [Record blueberry crop—Growing conditions were ideal, though other factors hurt prices](#) (News Chief)
- [Record year for Florida's blueberry crop](#) (6/15, Fresh Plaza)
- New Jersey: [Blueberries expected to arrive the week of June 15](#) (6/1, The Produce News)

International

- [Mississippi blueberries shipped to India, UAE](#) (6/12, The Clarion Ledger)
- Europe: [First challenge: year-round organic blueberries](#) (6/15, Fresh Plaza)

Week 25 Grower Resources

- [Bird Management](#): A PCM resources list including companies providing falconry services.
- [Bye bye birdie – Bird management strategies for small fruit](#) (Cornell) 13 page PDF reviewing options and a nice bird species specific guide to feeding and flying habits.

Pest Alerts

SWD report for week 25, 2015

From 2010-214 we did regional SWD monitoring and reporting funded by USDA and ODA grants. We no longer have that funding, but given the severity of the risk SWD poses to northwest berry crops in 2015—it's higher than any previous year—I figured I'd better continue that practice of weekly reports. I just won't have the public monitoring information to include.

Willamette Valley SWD monitoring

This information is based on PCM's client scouting and monitoring services. For proprietary reasons, some regional specifics, trap locations, crop type, etc. are not included.

Comments

- **2015 SWD development so far:** We came out of a very mild winter with more SWD adults able to survive than ever before. We've followed that with mild late winter/spring weather that has been ideal for SWD adults to survive until new fruit hosts were available.
- 2015 has a much greater risk potential than previous years. First picks of blackberries, raspberries and blueberries are likely to see infestations. This will vary by region and field risk factors.

Take home messages

- **SWD Population Status:** The SWD breeding population right now is, for this point in the season, **at highest levels we've ever recorded in the Willamette Valley.**
- **Environmental Factors:** Moderate temperatures (in the 70s F/20-26 C) favor SWD breeding.
- **Damage Risk Assessment: Very high.**
- Immediate risk to harvesting and ripening berry crops. Each week the risk increases.
- All precautions should be taken to protect berry crops. In particular early picks of machine harvested blackberries and raspberries. These picks haven't been threatened to this extent in previous years,
- Go here for a [PCM factsheet on SWD risk factors](#). Minimize these risks as much as possible.



Spotted wing drosophila resources

- [SWD I.D. Card](#) (UC Extension)
- [Spottedwing.org](#) Information from the 5 year SCRI regional project that just concluded. Cooperating organizations: OSU, WSU, Agri-Foods Canada, UC Davis, UC Berkeley, Peerbolt Crop Management & the USDA.
- [Spottedwing.org/SWD external links resources](#)

British Columbia

- [Spotted Wing Drosophila \(SWD\) Management in B.C. Berry Crops](#) last updated 6/24/14.
- [Canada—Spotted-wing Drosophila Technical Working Group](#)

Oregon and Washington (last updated 2/24/14)

- [USpest.org SWD Extension Documents](#) Many of Amy Dreves' generated SWD materials on managing and monitoring SWD.
- Blueberries: [SWD pesticide options and information](#)
- Raspberries and blackberries: [SWD pesticide options and information](#)
- Strawberries: [SWD pesticide options and information](#)

([See above for information how to monitor berries for SWD larvae in the field.](#))



Scout taking fruit sample in blueberry field for a larvae test.

Pest Alert

Scout for: [Silver leaf disease](#) symptoms in blueberries.

- This is a recently identified disease that has so far been confirmed only in a few Draper variety fields in western Oregon. It's unknown how economic this disease will be.



Silver Leaf disease symptoms—Draper blueberry field, Willamette valley 5/22/15. Photos by Tom Peerbolt

Time to scout for and treat if needed: [Yellow Rust](#), raspberries

Scout for: [Green Berry Botrytis Fruit Rot](#), blueberries



- The weather warming and drying will help reduce the incidence of green berry botrytis.

Time now to prevent: Ripe Fruit Rots, Blueberries

Preventative fungicide applications: [Alternaria Fruit Rot](#)

As blueberry bloom starts to finish, it's time to consider whether you need to prevent Alternaria and Anthracnose problems from showing up in the fruit. Alternaria can infect the fruit beginning at the end of bloom and throughout the fruit development stage, up until harvest. Infections remain latent until the fruit ripens. Infected fruits exhibit a shriveling or caving-in of the side of the berry and become watery in storage.



Alternaria fruit rot photo by Caroline Teasdale

Preventative fungicide applications: [Anthracnose Ripe Rot](#)

If you've had problems with Anthracnose, prevention of a reoccurrence begins at petal fall. Symptoms: First, blighting of shoot tips; then, a few flowers turn brown or black. Leaf spots, when they occur, are large or small and roughly circular. As infected berries ripen, the flower end may soften and pucker. Under warm and rainy conditions, salmon-colored spore masses form on infected berries. After harvest, spore masses form rapidly on infected fruit when in cellophane-covered baskets or in plastic clamshell packs.



*Anthracnose fruit rot
photos by Caroline
Teasdale*

Time to scout for (and take immediate action if found and verified): [Scorch virus](#), blueberries

- Symptoms are visible in infected fields.
- This disease is vectored aphids.
- Infected bushes **do not** return to productivity and should be removed ASAP to limit the disease spread.
- [Instructions on how to submit blueberry tissue to the BC Ministry of Agriculture Plant Diagnostic lab for insect or disease testing.](#)

Time to scout for (and not do a darn thing about if verified): [Shock virus](#), blueberries

- Symptoms are visible in many fields.
- This disease is vectored by pollinators.
- There is no treatment or cure.
- Infected bushes generally display symptoms for one year and then *return to productivity*.

Time to scout for and evaluate if management action is needed: [Powdery Mildew](#), strawberries

- Dry, warm, humid conditions favor powdery mildew in strawberries.

Additional, Ongoing Pest Information

Diseases

- **Scout for:** [Phytophthora Root Rot](#) raspberries *Look for primocane collapse.*
- **Scout for:** [Purple Blotch](#) blackberries.

Insects/Mites

- **Scout for:** [Azalea Bark Scale](#), blueberries. This scale's telltale bright white egg sacs on the lower branches of infested plants are now apparent in some southern blueberry fields.
- **Scout for:** [Raspberry Beetle](#), northern raspberries. This small beetle can cause fruit damage and be a major contaminant in northern raspberry fields. Leaf feeding pattern is very distinctive.
- **Scout for:** **Root Weevils, strawberries & blueberries.** Larvae & adults of [Black Vine](#), [Rough Strawberry](#), and [Strawberry Root Weevils](#) are now being recovered from some fields.
- **Scout for:** [Blueberry Gall Midge](#), blueberries. Tip damage from this midge is showing up in blueberries. Damage is usually deemed to not be economic except in specific situations like new vigorous fields where gall midge can occasionally cause too much stunting of new growth.
- **Scout for:** **Mites in raspberries (northern growing areas):** [Twospotted mites](#) [Yellow mites](#)
- **Scout for:** [Strawberry Crown Moth](#) southern strawberries: Infested plants will have a weakened crown and will often break off with a pull on the top growth.

Crop Work

All crops

- **Sample for & treat as needed for SWD fruit infestation as soon as fruit begins to color.**
- Vole management.
- Weed management.
- Fertilizer program.
- Water management.

All crops

- Vole management.
- Weed management.
- Fertilizer program.
- Water management.
- Can put out monitoring traps for Spotted Wing Drosophila.

Blueberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- After petal fall, can treat for [alternaria](#) and [anthracnose](#) prevention if needed.
- Scout for [mummyberry](#) infected fruit.
- Stay on top of aphid management where Scorch virus transmission is an issue.
- Scout for [leafroller larvae](#) & treat as needed.
- Scout for virus symptoms & send in samples for testing as needed ([Shock virus](#); [Scorch virus](#)).
- Scout for [winter moth/Bruce spanworm](#) larvae.
- Scout for scale insects.
- Scout for weevil notching.
- Scout for [azalea Bark Scale](#) in southern blueberries
- Scout for blueberry [gall midge](#) damage.
- Can apply fungicides for fruit/blossom rot from 10% bloom through the end of bloom.
- Can put out pheromone traps to monitor for leafrollers. ([Orange Tortrix](#) and [Oblique Banded](#))
- Scout for berry symptoms like green fruit botrytis, hail damage, mummyberry, etc.

Blackberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- Can put out pheromone trap to monitor for leafrollers. ([Orange Tortrix](#) and [Oblique Banded](#))
- Can apply fungicides for [fruit/blossom rot](#) from 10% bloom through the end of bloom.
- Scout for virus symptoms and send in samples for testing as needed.

Evergreen Blackberries

- Scout for [blackberry rust](#) and treat as needed.

Raspberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- Scout for [raspberry beetle](#) feeding symptoms
- Scout for [yellow rust](#) and assess treatment options.
- Scout for yellow mites and [twospotted mites](#).
- Scout for virus symptoms & send in samples for testing as needed.
- Can apply fungicides for [fruit/blossom rot](#) from 10% bloom through the end of bloom.
- Can put out pheromone traps to monitor for leafrollers. ([Orange Tortrix](#) and [Oblique Banded](#))
- Scout for [cane blight](#) and [cane botrytis](#) symptoms.

Strawberries

- *After harvest, can treat for SWD control if field is adjacent to other susceptible, ripening, crops.*

- (Southern strawberries) Can scout for [strawberry crown moth](#) larvae.
- Scout for fruit damage symptoms like cat facing, slug damage, anthracnose, etc.
- Monitor ripe and ripening fruit for [SWD larvae](#).
- Scout for weevil adults & notching.
- Can apply fungicides for [fruit/blossom rot](#) from 10% bloom through the end of bloom.
- Can apply slug bait.
- Scout for [powdery mildew](#) and treat as needed.
- Scout for [two spotted spider mites](#) and predatory, beneficial mites.
- Scout for [aphids](#).
- In day neutral varieties scout for [lygus bug](#) and assess need for treatment.

Degree Day Updates

- [WSU Extension—Whatcom County](#)
- [Regional sites—Updated by Len Coop, OSU-IPPC](#) *click on the link, go to right hand column & click on the Degree day icon.*

Events

Upcoming Regional Events & Commission Meetings

[Go here for Full Event Calendar](#)

Upcoming National & International Berry Events

- **June 18-24 — Eleventh International Rubus and Ribes Symposium** ~ Charlotte & Asheville, North Carolina. [Go here](#) for their website with all the details.
- **September 7-9 — 5th Annual International Blueberry Organization Summit** ~ Coffs Harbor, Australia. [Go here](#) for meeting information.
- **September 13-16 — International Symposium on Mechanical Harvesting & Handling of Fruits and Nuts** ~ Richland, Washington. [Go here](#) for meeting information.
- **October 13-15 — 6th Biennial Berry Health Benefits Symposium** ~Madison, Wisconsin. [Go here](#) for all the details.

Archived Small Fruit Updates

(For older Updates [go here](#).)

[23-SFU06-03-15](#)

[22-SFU05-27-15](#)

[21-SFU05-20-15](#)