

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.

August 26, 2015

Week 35

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- [Wendy's Needs 2 million Pounds of Blackberries](#) (8/29, The Packer) This is a more detailed story than last week's link on the same subject.
- [Organic Transition Time Hinders Growers](#) (8/20, The Packer)

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



Photo by Jason Meyer

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](#)

Regional reports

British Columbia, Fraser Valley

[Go here](#) for the B.C. Blueberry Council's Blueberry IPM Report for 8/21.

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British Columbia, Fraser Valley (Sunday 8/23)

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

Please, please look after the harvested fields, they need TLC if we are to have a decent crop in 2016

- **Comments:** Very quiet. SWD catches high. Dry as a bone, any time it is supposed to rain it is a dribble at best and not even worth more than settling the dust. Water ways outside of irrigation districts low, tough to get water. Some ditches overgrown and some of those not touchable unless one has all the permits in place. We will have to examine a strategy for coming years. Nice low temps at night, easier to sleep if it wasn't for all the smoke from the wild fires.
- **Fresh strawberries:** Dayneutral strawberries looking exceptional for quality. Cool enough during the day so no gaps in production in near future.
- **Fresh raspberries:** Fall bearing raspberries with great quality and volume.
- **Fresh blackberries:** Blackberries pretty much done, lots of SWD visits there because of the wild blackberries nearby.
- **Blueberries:** Elliott and Aurora being harvested at good quality.
- **Misc crops:** Tree fruit harvest strong as well with apples ripe, even later varieties.

British Columbia, Fraser Valley (Monday 8/24)

- **Blueberries:** Still picking Elliotts and Aurora but the light at the end of the tunnel is getting larger for the harvest period. I've got a farm on Vancouver Island that is still picking Liberty and haven't started Aurora yet. Probably the latest pick we will have this year in BC. Lots of post harvest activity going on with weed cleanup and some early disease cover sprays. Some fall fertilizer starting to go out as well as lime and gypsum. A few fellows are starting to prune out the old fruiting canes in raspberries. Day time temps are still pretty warm but the days are getting shorter and the nights and mornings quite cool. So you know the fall is coming. But still incredibly dry with little precipitation in the offing.

Washington State (Sunday, 8/23)

From [Alan Schreiber](#), Executive Director of the Washington Blueberry Commission:

- **Blueberries:** Eastern Washington blueberry harvest is essentially over. Western Washington is finishing up the later picks of the later varieties. Overall blueberry production is expected to be greater than in 2014 but less than what was originally projected for 2015 right after harvest. Prolonged extremely hot weather in eastern Washington and prolonged hot temperatures and lack of rainfall contributed to a state wide reduction in production over what was expected based earlier projections.



Pacific tree frog in Oregon raspberry field – Photo by T. Peerbolt 8/25/14

Research Update

From the **Soil fumigation and soilborne disease field day** held last Thursday (8/20) in Lynden:

- **Lisa DeVetter** (WSU Horticulturist) presented data from the first year of a project evaluating the effects of raspberry root and crown inoculum removal ("root removal") as a pre-plant strategy to improve management of soilborne diseases.
Three potential root removal devices were tested.
 - Percent of plant material removed was 91%, 96%, and 98% a beach cleaner, potato harvester, and plant lifter, respectively.
 - Fastest was the potato harvester at 1 mph. The plant lifter was the slowest at 0.25 mph.

- Soilborne diseases (specifically, *Fusarium* spp. and *Pythium* spp.) and root-lesion nematode populations were initially the lowest in the fumigation plus root removal treatment, but were not different by February and July of 2015.
- Data will continue to be collected until 2018 and will include an economic analysis.
- **Collaborators:** Inga Zasada (USDA-ARS), Jerry Weiland (USDA-ARS), and Tom Walters (Walters Ag Research).
- **Funding source:** Northwest Center for Small Fruits Research for funding.
- **Rachel Rudolph**, a PhD graduate student in Lisa DeVetter's program, introduced her PhD research:
 - One experiment entails studying the effects of alleyway cover crops on soil quality and host suitability for root-lesion nematode.
 - Rachel will also be comparing metam sodium (Vapam) to Brassica seed meal and root removal for managing soilborne diseases and root-lesion nematodes.
 - She'll also be looking at soil microbial ecology changes as a function of different soilborne disease management strategies.
 - **Funding sources:** The Washington Red Raspberry Commission and Northwest Ag Research Foundation.
- **Inga Zasada** (USDA-ARS) presentation highlights (*Information from the work of her grad student, Duncan Kroese*):
 - Root-lesion nematodes can reside in old raspberry root material for up to 10 months after removing a raspberry planting.
 - Decline of nematodes in roots is more rapid if canes are treated with a herbicide.
 - Collection of soil cores down to 3 ft in raspberry fields before and after fumigation showed that root-lesion nematodes can survive fumigation with Telone C-35. At what depth depends on soil type.
- **Jerry Weiland** (USDA-ARS) presentation highlights:
 - *Fusarium* and *Alternaria* species isolated from cane lesions on red raspberry did not cause disease when inoculated onto healthy 'Meeker' plants.
 - Comparing Telone C35 without tarping (as used in the raspberry industry) to the soil fumigants used in forest nurseries (methyl bromide/chloropicrin, metam sodium/chloropicrin, and other fumigants under (virtually impermeable film) VIF tarps).
 - Fumigation is much more effective in forest nurseries in reducing populations of *Fusarium* and *Pythium* by at least 96%.
 - In contrast, soil populations of these pathogens are only reduced 10-42% in raspberry fields.
 - **Conclusions:** Telone C35 may not be the optimal fumigant for controlling soilborne fungal pathogens and tarping should help increase fumigant efficacy.
- **Tom Walters** (Walters Ag Research) presentation highlights:
 - Data from a fumigation trial in a heavily nematode infested field.
 - Shallow-applied Dominus and Vapam controlled *P. penetrans* better than deep-shanked C-35 and also promoted better initial growth.
 - On the other hand, in a field with very little nematode infestation, a one year rotation with white mustard controlled *P. penetrans* well.



We finished up with the first-ever **oospore piñata**, handmade by Jerry Weiland. Candy for all!

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 34](#) (8/24)

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

Magazine/website compilations

- **The Packer:** [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).
- **Growing Produce:** [recent berry articles](#).
- **Andnowyouknow.com:** [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).
- **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: (8/10) Nifty plastic mulch removal machine can save a lot of money.** *Reports on recent insect and disease research and observations in California.*
- [Team Rubus](#) by Gina Fernandez, North Carolina State Small Fruit Specialist. **Recent Entry: (8/10) Topics for NARBA Grower meetings in 2016.** *Reports on issues in blackberries and raspberries from the Southeast.*

Labor

- [Washington apple grower must pay \\$16,000 to DOL before he can sell his apples](#) (8/24, Capital Press)

Pollinators

- [Tiny trackers could help solve global bee death mystery](#) (8/25, BBC News)

Marketing/Promotions

- [Blueberry council promotes fruit through retail, foodservice](#) (8/25, The Packer)

Business

- [Monsanto ups Syngenta bid, values at \\$47 billion](#) (8/25, CNBC)

North America

- Maritime Provinces: [Blueberry growers struggle to break even](#) (8/24, CBC News)
- Canada: [Cultivated and wild Canadian-grown blueberries hitting the market now](#) (8/22, CTV Vancouver)

International

- Peru: [Camposol banking on blueberries to boost bottom line](#) (8/25, The Packer)
- Europe: ["Demand for blueberries bounces back"](#) (8/24, Fresh Plaza)
- Australia: [Costa Group exceeds prospectus forecast for FY 2015](#) (8/24, Fresh Fruit Portal)
- Brazil: [Hortifrut's Brazilian arm enjoying 30% berry sales growth](#) (8/24, Fresh Fruit Portal)



Grower Resources ---- Week 35

Leaf/tissue analysis and soil testing

Post harvest is the best time to do most soil and leaf testing for nutrient management planning. Nutrient levels are at their lowest and you can get the best information on what nutrients the recent crop might have had too much of, or too little.

- **Blueberries:** [OSU's Blueberry Nutrient \(and testing\) Guidelines](#) (2006)
- **Blackberries and Raspberries:** [OSU's Caneberry Nutrient \(and testing\) Guidelines](#) (2006)

- **Supplement to the guidelines linked above:** [Nutrient Management of Berry Crops in Oregon](#) (2013) from OSU Extension Berry Crops Specialist, Dr. Bernadine Strik
- **Video:** [Caneberry Nutrient Management](#) (37 minutes)
Dr. Bernadine Strik, 3/20/14, Raspberry & Blackberry Production Workshop, Woodburn, OR.

Resources for identifying diseases and insects

- **British Columbia:** [Instructions on how to submit blueberry tissue to the BC Ministry of Agriculture Plant Diagnostic lab for insect or disease testing.](#)
- **For submitting samples to the Oregon State Plant Clinic** [go here.](#)

Pest Management Activities

Monitor & apply preventative insecticides as needed:

Spotted wing drosophila

SWD Resources

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

British Columbia

- [BC SWD Management](#) (Updated June 19, 2015) *It has 2015 spray options.*
- [Weekly Monitoring Reports](#) (Updated every Monday)
- [SWD information brochure in English](#) (Published June, 2015)
- [SWD information brochure in Punjabi](#) (Published June, 2015)
- [Online SWD Resources list from AAFC's 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](#)

Monitoring berries for SWD larvae in the field

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

- Put a sample of fruit to be tested 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.

Scout for and treat as needed: [Yellow rust](#), raspberries.

Scout for: [Aphids](#), blueberries.

- The action threshold for aphids in blueberries is very low in any area where [Scorch virus](#) is a concern.
- Aphids spread Scorch Virus and killing the aphids is the most effective way to prevent new infections.
- In areas where Scorch Virus is not a concern, the potential economic damage from aphids is much less and larger populations can be tolerated before management actions are taken.

- With Scorch Virus, infected bushes **do not** return to productivity and should be removed ASAP to limit the disease spread.

Scout for and evaluate if management action is needed: [Twospotted mites](#), raspberries.

Scout for and determine if management actions are needed: Root Weevil adults, all crops [Black Vine](#), [Rough Strawberry](#), [Strawberry Root Weevils](#).

Scout for: [Mummyberry](#), blueberries. [Mummyberry primer from MSU](#).

- *During harvest evaluate the level of mummyberry infections and the areas of the field that are infected.*
- Infected fruit is now easy to distinguish from healthy fruit.
- The infected fruit colors earlier, shrivels, whitens and drops from the bushes easily when disturbed.
- The inside of an infected berry will be filled with white fungal mycelium.
- Sort out and remove from field as much of the infected fruit as possible.
- Use this yearly mummyberry information to assess and plan next year's Mummyberry prevention program.



Additional, ongoing pest information

Diseases

- [Phytophthora Root Rot](#), raspberries.
- [Shock virus](#), blueberries.
- [Blackberry Rust](#), (Phragmidium Rust) Evergreen blackberries.

Insects/Mites

- [Azalea Bark Scale](#), blueberries.
- [Raspberry Beetle](#), northern raspberries.
- **Root Weevils**, strawberries and blueberries. [Black Vine](#), [Rough Strawberry](#), [Strawberry Root Weevils](#) .
- [Blueberry Gall Midge](#), blueberries.
- **Mites in raspberries:** [Twospotted mites](#) and [Yellow mites](#).
- [Strawberry Crown Moth](#) southern strawberries

Crop Work Week 35

All crops

- Maintain SWD fruit sampling, monitoring and management plan in any fields still harvesting.
- Weed management.
- Post-harvest—soil and leaf test for evaluation of nutrients.
 - o [OSU's Blueberry Nutrient \(and testing\) Guidelines](#)
 - o [OSU's Caneberry Nutrient \(and testing\) Guidelines](#).
- Post harvest—can treat for SWD management if field is adjacent to vulnerable fruit crop.
- Scout for Root Weevil adults [Black Vine](#), [Rough Strawberry](#), [Strawberry Root Weevils](#).
- Water management.

Blueberries

Harvest ongoing in a few fields.

- [Bird management](#).
- Scout for [mummyberry](#) infected fruit.
- Stay on top of [aphid management](#) where scorch virus transmission is an issue.
- Scout for [leafroller larvae](#) and treat as needed.
- Scout for virus symptoms and 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 on leaves and for adult weevils.
- Scout for [azalea bark scale](#) in southern fields.
- Scout for [blueberry gall midge](#) damage.
- Can use pheromone traps to monitor for leafrollers.
- Scout for berry symptoms like green fruit botrytis, hail damage, mummyberry, etc.

Raspberries

Processed harvest finished.

- Scout for cane collapse symptoms & determine cause ([Phytophthora Root Rot](#), Verticillium, crown borers, overwatering, etc.)
- Scout for [yellow rust](#) and assess treatment options.
- Scout for [twospotted mites](#) and [yellow mites](#).
- Scout for virus symptoms and send in samples for testing as needed.
- Scout for [cane blight](#) and [cane botrytis](#) symptoms.
- (North) Scout for [raspberry beetle](#) feeding symptoms.
- Scout for [aphids](#) and treat as needed.

For late season, fresh market

- Scout for weevils and treat as needed ([Black Vine](#), [Rough Strawberry](#), [Strawberry Root Weevils](#)).
- (North) Scout for [Raspberry Fruitworm](#) feeding symptoms.
- Scout for virus symptoms and send in samples for testing as needed ([RBDV](#), [TRsV](#))
- Scout for [fruit mold](#) and treat as needed.
- Scout for [Yellow Rust](#) and assess treatment options.
- Scout for [Two-spotted Mites](#), [Yellow mites](#) and treat as needed.
- Scout for [aphids](#) and treat as needed.
- Scout for [leafroller larvae](#).

Blackberries

Late season variety harvest ongoing

- Scout for cane collapse symptoms & determine cause ([Phytophthora root rot](#), verticillium, crown borers, overwatering, etc.)
- Scout for leafroller larvae and treat as needed to prevent fruit contaminant problems. ([orange tortrix](#) and [oblique Banded](#))
- Can apply fungicides for [fruit/blossom rot](#) .
- Scout for virus symptoms and send in samples for testing as needed.
- Scout for [cane and leaf rust](#).
- Watch for fruit molds and treat as needed.
- Scout for and treat as needed [blackberry rust](#) in Evergreen blackberries.
- Scout for two spotted spider mites and treat as needed in susceptible cultivars.
- Can apply horticultural oil for Redberry mite management at green fruit stage in susceptible cultivars.

Strawberries

Processed harvest (June bearers) finished throughout region. Fresh market harvest ongoing.

All strawberries

- Evaluate weak growing areas and check plants for weevil larvae, root rot and/or cold damage.
- (South) Can scout for [Strawberry Crown Moth Larvae](#) ..
- Scout for weevil adults and notching.

Processed market-June bearers—finished harvesting

- [Weed Control at strawberry renovation](#) (6/26/12, Michigan State Extension)
- Mow and treat immediately for [SCM/SWD](#) if needed.
- Mow and renovate 2-4 weeks after harvest unless pest pressure require mowing and treating sooner.
- Apply main fertilizer application as needed.

Fresh market-still harvesting

- Scout for [Lygus Bugs](#).
- Scout for thrips.
- Scout for fruit quality symptoms like mold ([Botrytis](#)), cat facing, [slug damage](#), anthracnose, etc.
- Can apply slug bait as needed.
- Scout for [Powdery Mildew](#) and treat as needed.
- Scout for [Twospotted Spider Mites](#) and predatory, beneficial mites.
- Scout for [aphids](#), lady beetles, aphid mummies (parasitized aphids), and other beneficial insects that feed on aphids.

Events [Go here for Full Event Calendar](#)

Regional Commission/Council meeting schedules

I'll update the commission/council meeting schedules, agendas and locations as the information becomes available. It's a little spotty right now. You can also contact the individual commission/council office for further information. Their website links are in the sponsor box at the top of this newsletter.

Washington Red Raspberry Commission Email Contact: henry@red-raspberry.org

- **September 16** — Lynden, WA.
- **October 28** — Lynden, WA.
- **December 2**— at the [Washington Small Fruit Conference](#), Lynden, WA.

Oregon Blueberry Commission Email Contact: jenny@ostlund.com

(all meetings are scheduled for noon at the Chemeketa Events at Winema, Building 48, Room 210, Salem)

- **September 22**
- **November 10**
- **January 12** (research updates 7:30-11:30 am; committee mtngs 11:30am-12:30pm; Commission mtng 12:30pm)
- **March 15**
- **April 26**

New addition - Oregon Blueberry Conference

- **January 25**, 8am-7pm, Red Lion on the River, Jantzen Beach, Portland. Email Contact: jenny@ostlund.com

Oregon Raspberry and Blackberry Commission Email Contact: berries@oregon-berries.com

- **September 16**

Oregon Strawberry Commission Email Contact: berries@oregon-berries.com

- **September 23**

Regional Berry Events

- **December 2-4** — **Washington Small Fruit Conference** ~ at the NW Washington Fairgrounds, Lynden, WA. [Go here](#) for more information and to register.

National & International Berry Events

- **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 7-9 — [North American Blueberry Council](#) & [US Highbush Blueberry Council](#) Fall Meetings** ~ Las Vegas, Nevada. Details [Go here](#) for details
 - **October 13-15 — 6th Biennial Berry Health Benefits Symposium** ~ Madison, Wisconsin. [Go here](#) for all the details.
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Archived Small Fruit Updates

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

[34-SFU08-20-15](#)

[33-SFU08-12-15](#)

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