

# 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.

July 2, 2013

Week 27

## Table of Contents

- [SWD grower warning](#)
- [Regional crop information](#)
- [Grower resources](#)
- [Pest management activities](#)
- [Ongoing pest information](#)
- [Industry news](#)
- [Event calendar](#)
- [Crop work](#)

## Hepatitis A outbreak update

- [FDA to block pomegranate seeds from Turkey; Townsend recall expands](#) (7/1, Food Safety News)
- [Hepatitis threat forces another frozen fruit recall](#) (6/28, New York Times)
- [Scenic Fruit Company recalls product because of hepatitis A outbreak](#) (6/27, The Packer)

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

## Spotted Wing Drosophila update for 7-2-13 Week 27

**---Grower Warning---**

**Continued high risk of economic crop damage  
on the west side of Oregon, Washington and  
British Columbia**

The risk of economic damage from this insect is higher and earlier than in any of the previous three seasons we have dealt with it.

### **Alert for Oregon and SW Washington**

Larvae have been recovered from some commercial raspberry and blackberry fields in the Willamette Valley. It is strongly recommended that all caneberry and blueberry growers with ripe or ripening fruit immediately implement and maintain a regular 7 day insecticide application regime for SWD management.

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

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

National

[North American Blueberry Council](#)

## WSU Extension Alert for NW Washington

[Click here](#) for the alert

“SWD larvae have been recovered in red raspberries in Whatcom County and growers should make sure their berries are protected through harvest with 6-7 day applications of effective insecticides. Depending on target markets and stage of ripeness, growers should select among the list of insecticides registered for caneberries in Washington. [Click here](#) for the list. For further information, contact [Lynell Tanigoshi](#), WSU Small Fruit Entomologist. “

### BC Blueberry IPM Newsletter for 6/28/13:

“The risk of SWD damage to early season blueberry varieties is high. SWD populations are larger than in previous years for this time of year. Larvae have already been found in Abbotsford raspberries.”

“Duke, Reka and other ripening varieties should be protected with insecticide sprays before the first pick.”

### SWD information websites

[Peerbolt Crop Management](#)

[Oregon State Univ.](#)

[B.C. Ministry of Ag.](#)

[WSU Westside](#)

[WSU Eastside](#)

[WSU Extension SWD degree day model for Whatcom and Skagit Counties](#)

### SWD management material resources

#### Oregon and Washington

- **Blueberries:** [SWD pesticide options and information](#) updated 4/15/13
- **Raspberries and blackberries:** [SWD pesticide options and information](#) updated 4/15/13
- **Strawberries:** [SWD pesticide options and information](#) updated 4/15/13

#### British Columbia

- [Spotted Wing Drosophila \(SWD\) management in B.C. berry crops](#) updated 7/3/12

### Monitoring berries for SWD larvae

**For scouts/field checking** ([We have created a video of this larvae-checking method.](#)):

1. Collect a sample of fruit to be tested (Caneberries/blueberries: 50 per sample)
2. Put fruit in a gallon size sealable plastic bag.
3. Pour in enough of the salt water solution to allow the fruit to float (solution is: 1 cup of salt per gallon of water).
4. Mark bag with field code/date.
5. 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.
6. 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.

**For processors or fruit handling stations:**

1. Collect a two pound sample of fruit to be tested.
2. Put the sample into a shallow tray and cover with the salt water solution (1 cup of salt per gallon of water).
3. After a designated period of time (at least 15 minutes), use a piece of wire mesh screen to hold the fruit down to make it easier to separate the larvae from the fruit.

# Regional crop information

## Regional reports

*These reports are from individuals within the region and are their particular observations. They are included to give an impression of the present 'state of the industry' and regional activities.*

### British Columbia, Fraser Valley (Monday, 7/1)

*From one extreme to the other...hit 33.3 C here yesterday (92 F), fortunately a little under what was forecast.*

- **Blueberries:** From B.C. Berry Specialist, Mark Sweeney: "A couple of things of note showed up last week, wonder if others are seeing them":
- The first photo is from a field of Draper which had received 4 fungicide applications through bloom including Pristine, Switch and Elevate. I have never seen such severe Botrytis, even in non-sprayed fields. The grower has probably lost over 50% of the crop, with possible more loss yet to come. Thankfully, this severity is not widespread in other fields. Is this an indication of fungicide resistance? We will be pulling samples next week to pursue this as part of a collaborative study.
- The second photo is from another Draper field. This symptom is showing up in several fields for the third straight year. Fruit initially seems to set well, but drops at the mature green stage. Fruit appear to be sound, but when sectioned, it shows severe internal browning. No pathogens can be detected. At first we thought it was related to pollination – late aborting fruit. However, pollination in these fields has been excellent. Will be investigating possible nutritional causes – Calcium deficiency?

*Appreciate any thoughts. [Mark Sweeney](#), BC Ministry of Agriculture*



*Left-Botrytis in Draper; Right-Internal browning in Draper. Photos by Mark Sweeney*

### British Columbia, Fraser Valley (Tuesday, 7/2)

- **Blueberries:** There is some Duke harvesting fresh in early fields. I was in a couple yesterday and observed some heat damaged fruit (soft) due to Sunday's very high temps. Some early Bluecrop fields had surprising amounts of blue fruit and softening was occurring there as well.
- **Raspberries:** A tough last 5-6 days. Raspberry harvest started mid-week with a ton of mould issues. That is being picked out and now with 33-34C heat we're dealing with some heat damaged fruit but the pick is proceeding albeit with lower volumes than at the beginning of harvest. Cooler weather this week should help us. Still picking up some SWD larva after a couple of sprays.
- **Draper issues:** In regards to the Draper issue with internal browning and green fruit drop that Mark presents - I see this in virtually every Draper field. If it's a calcium issue then it must be a varietal trait as it occurs on a variety of soils and situations and often right beside varieties that don't exhibit any such problems. As Mark says this is an occurrence noticed for a few years now. I haven't seen this in any other variety.

## Northern Washington, Skagit County

Things are moving fast with this warm weather, although not as warm as some places. We hit the low 80s on Saturday, with a similar forecast today, then gradual cooling through the week. Hopefully, good weather to harvest the raspberries and remaining strawberries.

- **Blueberries:** (Monday, 7/1) Lots of blue fruit in Duke and some in Reka, probably start harvesting in two weeks.
- **Raspberries:** (Sunday, 6/30) Raspberry fields have either pre-harvest cleanup sprays applied, or are already being picked. The showers and muggy weather we had early in the week meant that fruit rot really picked up this week, in both strawberries and raspberries.
- **Raspberries:** (Monday, 7/1) 80 degree weather following the rain has fresh market growers stripping raspberries with the sprayers close behind. I haven't seen anyone trying for IQF quality yet, all going into drums so far. SWD are active and showing up in numbers in traps. Most growers are spraying for SWD along with their fungicides. Aphid coming on with the heat too.
- **Strawberries:** (Sunday, 6/30) Mid-season strawberries in Skagit look past the peak; late varieties like Puget Summer are just really getting going.
- **Strawberries:** (Monday, 7/1) Strawberries pretty tough now, this is likely the last week except for the Albion and other ever-bearing varieties. 70-80% of the fruit came off in the first pick which was the largest first round I have seen. A lot of soft fruit and great flavor.
- **Blackberries:** (Monday, 7/1) Blackberry bloom looks outstanding, hope the labor is available to harvest a big crop!

## Willamette Valley, Oregon and SW Washington

- **Blueberries** (Monday, 7/1) Sunday was 97 degrees but now we're on the downside with it hitting 91 today and maybe high 80's tomorrow. High humidity with this heat also. Not our usual pattern. Dukes are coming in with good quality although some heat related issues are cropping up—softness and some spotty scalding. If we can get down to normal temps now it should be business as usual. Whatever that is. Good crop. We've still got a lot of varieties ripening closer together than normal. Have to see how that plays out.

## Blueberry development—Western Willamette Valley

**Changes:** I've dropped Duke since its now being harvested. I'm adding Bluejay.

**Note:** What I've been doing each week is taking four examples from each field and then using what seemed to be the most representative of overall development for illustrating below. [Click here](#) for MSU's growth stage table. Tom Peerbolt

6-21-13—Week 25 (Bottom)

6-28-13—Week 26 (Top)

**Patriot**  
30% blue

**Bluejay**  
15% blue

**Draper**  
15% blue

**Liberty**  
Late green fruit

**Elliott**  
Late green fruit



10% blue



Fruit coloring



Fruit coloring



Late green fruit



Late green fruit



- Blackberries** (Monday, 7/1) We started Marions June 30, just enough to test out the tunnels. Last year we started on July 12. Most other guys will be started by Tuesday night with a couple guys in cooler locations starting by Friday. Picks are not huge at this point, too warm at night for the fruit to come off. I expect as it does cool, we will see fruit pouring off. Size has been decent, a little above average for a first pick. So far, very little sunburn. Black Diamonds have finished their second pick, quality above average. No mold in any of the blacks. Should get some Boysens and Kotatas on Wednesday.



Marionberry



Black Diamond (after second pick)



**Boysenberry**



**Evergreen blackberry**

*All blackberry photos by Bill Dinger (7-1-13)*

## Grower resources

### Faulty blueberry field establishment as major cause of problems

*From The [June 24<sup>th</sup> New Jersey Blueberry Bulletin](#) by Gary Pavlis: “Visits to numerous farms over the last couple of weeks have inspired me to address the subject of blueberry field establishment. Most of the problems I have encountered are not due to disease or insect but due to faulty establishment practices that occurred years before the problems arose.” (I couldn’t agree with Gary more. T.P.)*

**Weed control at strawberry renovation** [Click here](#) Originally posted by MSU extension on 6/26/12.

### 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** [click here.](#)

### Maximum Residue Levels (MRL’s) for exported berries

*The following lists cover MRLs for the US, Canada, Japan, Korea and Taiwan.*

- [Blueberries](#) (Updated March 11,2013)
- [Caneberries](#) (Updated March 11,2013)
- [Strawberries](#) (Updated February 15, 2013)
- **Recent change**
  - Taiwan now has a Delegate (Spinetoram) tolerance in blueberries of 0.2 ppm. The table has no tolerance listed.

## Blackberry Processing Cultivar Comparison

**Notes:** Fruit all comes from the USDA/ARS selection trial planted at the North Willamette Research & Extension Station.

- *Black Diamond had been harvested once, so some of the first fruit weren't available, Marionberry was still a few days away from first harvest, Columbia Star was about ready for first harvest.*
- *Caution should be taken from generalizing too much from this single comparison.*
- *Flavor profiles, processing characteristics and many other variables are still being evaluated for Columbia Star.*
- *Columbia Star was just recently released. The first commercial sized plantings have just gone in this year.*
- *The lack of a track record for this cultivar under a wide range of field conditions also indicates a need for caution. While very promising, we'll have a much better idea of its commercial value in a couple of years.*

**Picked on 6/28, refrigerated, photos taken on 6/29**

**Marionberry**

**Black Diamond**

**Columbia Star**



**Marionberry**

**Black Diamond**

**Columbia Star**



[Click here](#) to go back to the top of this newsletter.

## Pest management activities

**As fruit colors, implement bird damage management activities:** [Birds](#), blueberries.

- [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.

**Time to scout for and treat if 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.

**Time to scout for and treat if needed: [Orange Tortrix Leafrollers](#), raspberries & blackberries (SW Washington & Oregon).**

- The larval hatch that, before SWD, caused our major crop contaminant problems has started in area caneberry fields with very small leafroller larvae being found in some fields.
- Fields that have been recording high adult pheromone trap counts are at high risk of having larval contaminant problems at harvest.
- Control materials, containing active ingredients specifically targeted at leafroller larvae such as Bacillus thuringiensis and Spinosad, are much more effective on these larvae when they're small and could be used at this time.

**Time to treat if needed: [Strawberry Crown Moth](#), southern strawberries.**

- We've had some fields recording high SCM adult flight numbers this week.
- SCM adult flight is now in progress in SW Washington and Oregon.
- Treat fields right after harvest for SCM, SWD and Weevils. Correct insecticide timing is essential for SCM. The first application needs to be made 10 to 14 days after two or more adults are caught two days in a row, a second about 14 days later and, if adult flight continues, a third 14 days later.

**Scout for: Green Berry Botrytis Fruit Rot, blueberries.**

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

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

- Infected fruit is now becoming easy to distinguish from healthy fruit in some Oregon fields.
- The infected fruit colors earlier, shrivels, whitens and drops from the bushes easily when disturbed.
- Right now this fruit could be mistaken for green berry botrytis infected fruit.
- The inside of an infected berry will be filled with white fungal mycelium.

**Time for preventative fungicide applications: [Alternaria Fruit Rot](#), blueberries.**

- Alternaria can infect the fruit beginning at the end of bloom and throughout the fruit development stage, up until harvest. ([Click here for expanded view of this disease.](#))

**Time for preventative fungicide applications: [Anthracnose Ripe Rot](#), blueberries.**

- After harvest, spore masses form rapidly on infected fruit when in cellophane-covered baskets or in plastic clamshell packs. ([Click here for expanded view of this disease.](#))

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

[Click here](#) to go back to the top of this newsletter.

## **Additional, ongoing pest information**

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### **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](#).

## Industry news/resources

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### Newsletters/ Berry reports

- [BC Blueberry IPM Newsletter](#) (6/28) *Weekly by Carolyn Teasdale, [ES Cropconsult](#). Sponsored by the BC Blueberry Council.*
- [New Jersey Blueberry Bulletin](#) (6/24) *Weekly newsletter by Gary Pavlis, Rutgers blueberry agent.*
- [The Source](#) (7/1) *Marketing report from The Produce News.*
- [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.*

### Magazine compilations

- The Packer: [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#). *Recent stories and fresh market pricing for the various berries from The Packer.*
- Growing Produce: [recent berry articles](#).

### Berry research blogs

- [Strawberries and Caneberries](#) by Mark Bolda, UC Davis Berry Extension Agent. **Recent entry: 6/30—Thimbleberries on the Central Coast.** *Reports on recent insect and disease research and observations in California.*
- [Team Rubus](#) by Gina Fernandez, North Carolina State Small Fruit Specialist. **Recent entry: 6/23—Black and Red Raspberry Taste Test.** *Reports on issues in blackberries and raspberries from the Southeast.*

### Research/Technology

- [Robot strawberry picker may be on the way](#) (7/1, Growing Produce)
- [MSU grows raspberries in retractable greenhouse](#) (7/1, Fresh Plaza)
- [Trials examine water cutbacks' effects on berry flavor](#) (6/19, The Grower)
- [California blueberry industry looks toward mechanization & improved breeding](#) (6/5, Western Farm Press)

### Ag Business

- Company Profile: [Bushes bursting with blueberries at Curry & Co.](#) (7/1, The Produce News)

### Marketing

- [California Giant scores with Wimbledon berry promotion](#) (6/27, The Packer)
- [US Highbush Blueberry Council hosts 'Blueberry Boot Camp' at Culinary Institute of America](#) (6/28, Fresh Plaza)

### Hepatitis A Outbreak

- [Hepatitis cases spotlight overdue food-safety rule](#) (7/2, Wall Street Journal)
- [Hepatitis A vaccination process causes stress, fear for many](#) (7/2, Food Safety News)

### Farm Bill

- [House Republicans may split farm bill in two](#) (6/27, Politico)

### Pesticides

- [Bumblebee deaths prompt Oregon to restrict pesticide](#) (7/1, Ag Professional)

### North America

- North Carolina: [Blueberry season in full swing in Asheville](#) (6/27, Citizen-Times)

### The West

- [Raspberry harvest season arrives early in Whatcom County](#) (6/27, Bellingham Journal)

### International

- [Chilean growers battle exchange rate, high inputs](#) (6/27, The Packer)
- [Hortifrut will invest \\$84 million dollars](#) (6/25, Fresh Plaza)

[Click here](#) to go back to the top of this newsletter.

## Event calendar

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For a more comprehensive event calendar, [click here](#).

- **July 10 — OSU Caneberry open house** ~ 1-5 pm, [North Willamette Research & Extension Station](#), Aurora. [Click here](#) for details.
- **July 11 — WSU Raspberry Selection Trials Machine Harvest Field Day** ~ 1-3 pm - Honcoop Farm, Lynden WA. Contact [Pat Moore](#) 253-445-4524 for more information.
- **July 11 — WSU Mt Vernon NW Washington Research & Extension Center Field Day** ~ 3:30-6 pm - [Click here](#) for directions.
- **July 12-13 — Oregon Berry Festival** ~ Portland, Sponsored by the Oregon berry commissions as well as many Oregon berry farms and berry related businesses. [Click here](#) for the website with a schedule of events and more details.
- **July 17 — OSU Blueberry field day** ~ 1-5 pm, [North Willamette Research & Extension Station](#), Aurora. [Click here](#) for details.
- **July 19 - 20 — Northwest Raspberry Festival** ~ Lynden, Sponsored by the Lynden Chamber of Commerce. [Click here](#) for the website with a schedule of events and more details.

## Crop Work Week 27

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### All crops

- ***As fruit starts coloring, begin sampling fruit for SWD infestation, continue sampling throughout harvest and treat as needed.***
- Weed management
- Fertility management
- Water management

### Blueberries

- ***As fruit starts coloring, begin sampling fruit for SWD infestation, continue sampling throughout harvest and treat as needed.***
- ***Harvest has begun in south.***
- 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 & 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.
- Can apply clean up insecticide just before harvest for crop contaminant management.
- After petal fall, can treat for alternaria and anthracnose prevention if needed.

## Blackberries

- ***As fruit starts coloring, begin sampling fruit for SWD infestation, continue sampling throughout harvest and treat as needed.***
- ***Harvest ongoing in Oregon & Eastern Washington.***
- Can have pheromone traps out to monitor for leafrollers.
- 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.
- Scout for Cane and Leaf Rust.
- Watch for fruit molds and treat as needed.
- Can apply SWD management insecticides.
- Can apply clean up insecticide just before harvest for crop contaminant management.

## Evergreen blackberries

- Scout for blackberry rust and treat as needed.

## Raspberries

- ***Sample fruit for SWD infestation, continue sampling throughout harvest and treat as needed.***
- ***Harvest ongoing in south.***
- 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 and send in samples for testing as needed.
- Can have pheromone traps out to monitor for leafrollers.
- Scout for Cane Blight and Cane Botrytis symptoms.
- Watch for fruit molds and treat as needed.

## Strawberries

- ***Processed harvest finished in south/ongoing in north.***
- *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 and put out pheromone traps for adults.
- Scout for fruit damage symptoms like cat facing, slug damage, anthracnose, etc.
- Monitor ripe and ripening fruit for SWD larvae.
- Scout for weevil adults and notching and treat as needed.
- 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.
- Scout for fruit quality issues such as mold.

## Archived Small Fruit Updates

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

[SFU06-25-13](#)   [SFU06-18-13](#)   [SFU06-11-13](#)

This document is a guide and not intended as a recommendation or endorsement.  
Consult with your supplier, field representative, or pest consultant.

[Click here](#) to go back to the top of this newsletter.