Pear Entomology Weekly: 5/19 [vol. 1, issue 9]

Pear Entomology Weekly shares scouting data, pear psylla degree-days, and associated integrated pest management (IPM) guidelines. Information comes from a project out of the Pear Insects Lab (Dr. Robert Orpet and Molly Sayles) comparing IPM, conventional, and organic management in the Wenatchee Valley. Tianna DuPont and Ricardo Lima (WSU Extension) contribute a section 'From the Scouting Network.'

Summary

- Lower in the valley (Wenatchee, Cashmere), summerform hardshells are the dominant stage. Summerform adults are active and increasing but still scarce. A particle film spray at 900 PDD will deter summerform adults and egg lay. A spirotetramat application at 900 PDD will reduce future nymph survival.
- In the upper valley, (Peshastin, Leavenworth), summerform nymphs are increasing and summerform adults are few. Prepare to apply a particle film at 900 PDD to deter summerform adults.
- The most common predator we are finding is *Campylomma* (immatures). We are also finding some *Deraeocoris* adults, *Trechnites,* lacewings, and ladybugs.

Figure 1. Natural enemies are present! Last week our caption was wrong, so we are trying again this week.
a) *Trechnites* wasp found in pear orchard
b) Pear psylla nymph
c,d) *Campylomma* nymphs found in pear orchard

News and Announcements

- This is the last week of Spring sampling involving counting whole fruitlet clusters. Next week we will be inspecting leaves from new shoots, corresponding to where new pear psylla adults will lay eggs.
- *For the calendar*: Please join us for the second Pear Pest Management Discussion Group on May 31st at La Tortuga Loca in Cashmere at 3:00 pm. 1 pesticide credit will be offered to attendees.
- If you have not yet seen our web survey on pear psylla phenology model usage, please help us by filling it out; we'd love to hear from everyone on this list. **You will also be entered to win a $50 Ace Hardware gift card!** Questions? Contact molly.sayles@wsu.edu

Pear Psylla Degree Days

Consult the table of sites below for current pear psylla degree-days at your closest weather station. Then, you can compare to IPM guidelines for certain degree-day windows.

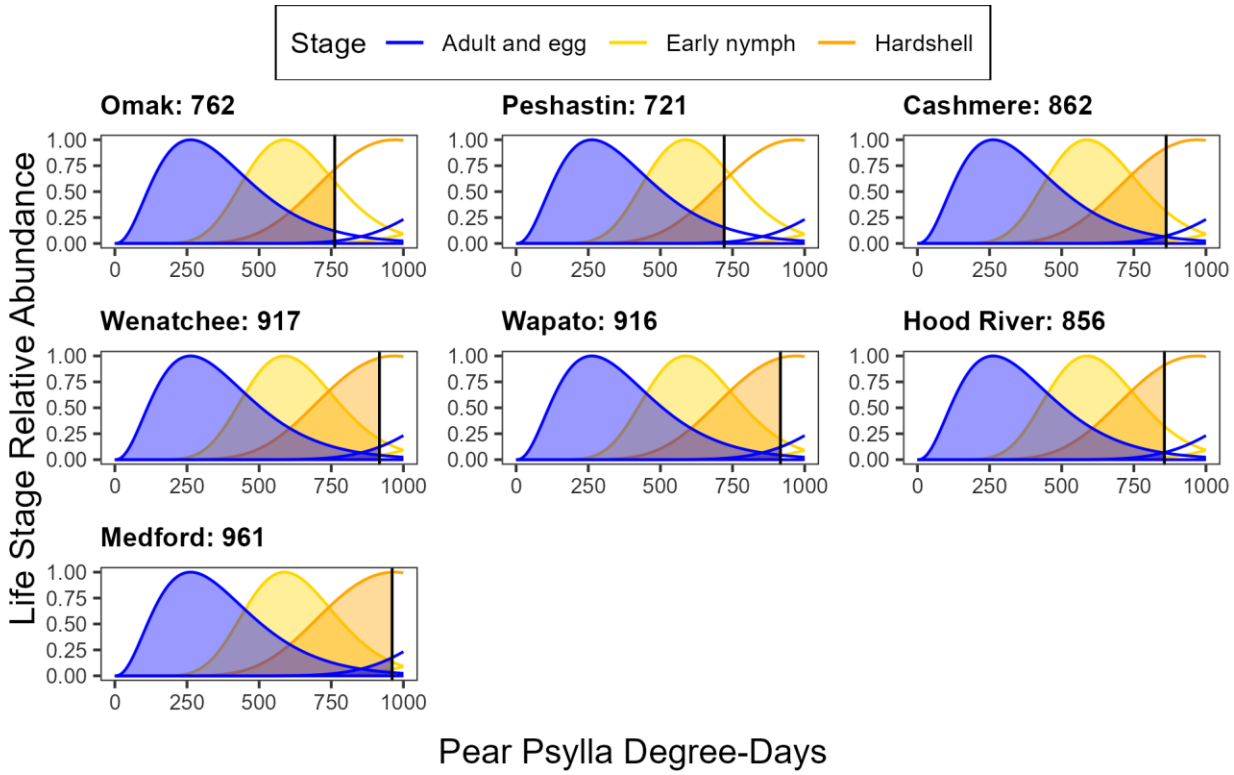

Figure 2. Pear Psylla Degree-Days (PPDD) by region during pear psylla's first generation. Filled in curves extend to current PPDD.

Wenatchee Valley IPM Guidelines

The IPM guidelines work by integrating selective biocontrol-compatible pesticides with cultural tactics. Full season-long degree-day-based IPM guidelines for organic and non-organic pears are stored online.

- **Peshastin (721 PPDD):** Options to prepare for the upcoming pear psylla generation include particle films and spirotetramat at 900 PPDD
- **Wenatchee/Cashmere (862–917 PPDD):** Options for now include applying a particle film at 900 PDD. This will deter the emerging summerform adults from landing on trees and laying eggs. Application of spirotetramat (e.g., Ultor) around 900 PDD will reduce survival of hatching nymphs. This works best when two applications are made, so another one can be done at about 1200 PDD (applications must be at least two weeks apart). Now is not a great time for contact insecticides because summerform adults and egg lay have scarcely begun, and the winterform generation is mostly hardshells, which are hard to kill.

Scouting Data

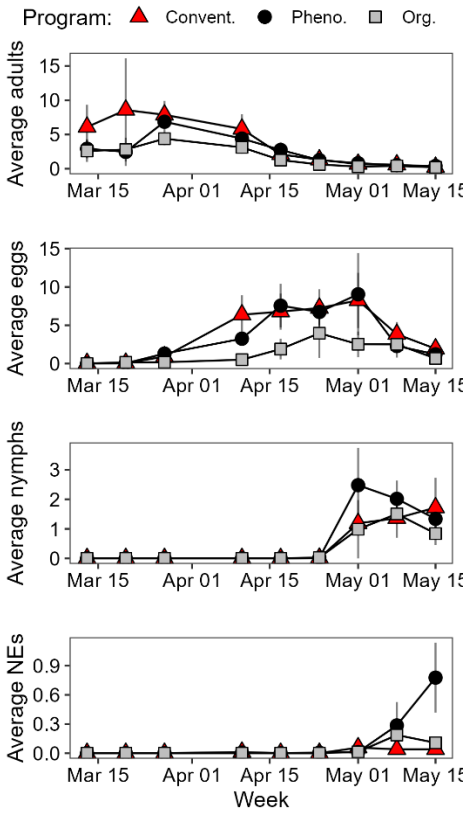

Figure 3. Summary of Wenatchee Valley pear psylla adults per tray, eggs per flower cluster, nymphs per flower cluster, and natural enemies per tray at 7 Conventional, 7 Phenology IPM, and 3 Organic orchards.

Table 1. Pear psylla adults per tray at orchards (C = conventional standard, P = phenology based IPM, O = organic; * = Not sampled). We do 25 tray taps per site.

Site		10-Apr	17-Apr	28-Apr	5-May	12-May	15-May
Rock Island	C	1.3	0.8	0.4	0.0	0.2	0.12
	P	0.5	0.5	0.3	0.1	0.0	0.12
Monitor	C	1.4	1.7	1.3	0.6	0.4	0.04
	P	1.8	1.4	1.0	0.7	0.5	0.16
Cashmere	C	2.8	1.7	0.7	0.4	0.5	0.08
	P	5.0	1.6	0.6	0.5	0.4	0.56
	O	4.7	2.1	0.7	0.4	0.9	0.08
Dryden	C	2.4	0.8	0.5	0.3	0.5	0.04
	P	1.7	1.0	1.3	0.9	0.5	0.32
	O	1.4	1.2	0.4	0.2	0.3	0.24
Peshastin	C	5.2	1.1	0.8	0.2	0.2	0.28
	P	1.2	1.2	0.5	0.3	0.6	0.28
	O	3.2	0.5	0.7	0.4	0.0	0.28
Leavenworth	C	15.7	4.2	3.6	1.7	1.5	1.0
	P	12.0	4.8	2.9	1.8	0.9	0.88

HWY 97	C	11.8	4.4	2.0	1.6	0.9	0.04
	P	8.6	8.7	2.2	1.4	0.6	0.48
Average	C	5.8	2.1	1.3	0.7	0.6	0.2
Average	P	4.4	2.7	1.3	0.8	0.5	0.4
Average	O	3.1	1.3	0.6	0.3	0.4	0.2

Table 2. Pear psylla eggs per bud at orchards (C = conventional standard, P = phenology-based IPM, O = organic; * = Not sampled). We inspect 25 flower clusters and look at 3 leaves, 3 flower stalks, and the bottom green area of each.

Site		10-Apr	17-Apr	28-Apr	5-May	12-May	15-May
Rock Island	C	1.0	3.0	0.3	1.1	1.0	0
	P	0.1	1.4	2.7	0.0	0.0	1.0
Monitor	C	1.9	2.1	2.4	2.2	0.4	0.48
	P	4.4	8.7	6.6	1.4	2.7	1.4
Cashmere	C	4.6	10	6.8	5.1	3.3	0.2
	P	2.5	4.9	5.8	13	2.8	1.08
	O	1.1	4.6	10	5.7	6.0	1.76
Dryden	C	1.1	2.1	4.0	6.8	0.8	0.04
	P	2.8	2.4	2.8	0.5	0.2	0.4
	O	0.3	0.6	1.3	0.1	0.7	0.12
Peshastin	C	6.5	2.3	5.6	3.5	6.3	5.44
	P	0.5	1.6	3.7	0.0	0.3	0.76
	O	0.1	0.4	0.2	1.8	0.9	0.12
Leavenworth	C	20	18	19	28	12	5.4
	P	6.5	22	15	39	6.2	2.68
HWY 97	C	9.6	9.5	13	11	3.0	1.96
	P	5.9	12	11	10	3.7	1.16
Average	C	6.4	6.8	7.3	8.2	3.8	1.9
Average	P	3.2	7.6	6.7	9.0	2.3	1.2
Average	O	0.5	1.9	4.0	2.5	2.5	0.7

Table 3. Pear psylla nymphs per bud at orchards (C = conventional standard, P = phenology-based IPM, O = organic; * = Not sampled). We inspect 25 flower clusters and look at 3 leaves, 3 flower stalks, and the bottom green area of each.

Site		28-Apr	5-May	12-May	15-May
Rock Island	C	0	1.5	0.3	0
	P	0	0.1	0.2	0.4
Monitor	C	0	1.9	0.7	0.12
	P	0.08	2.2	1.4	0.12
Cashmere	C	0	1.7	0.4	0.04
	P	0	8.8	4.0	2.0
	O	0	3.0	1.1	1.6

Dryden	C	0	0.2	0.3	0.04
	P	0	0.5	0.2	0.6
	O	0.08	0.0	1.2	0.56
Peshastin	C	0	0.2	1.1	3.84
	P	0	0.0	1.4	0.24
	O	0	0.0	2.2	0.36
Leavenworth	C	0.04	2.5	5.2	6.88
	P	0.04	5.2	4.0	4.96
HWY 97	C	0.04	0.3	1.6	1.12
	P	0	0.6	2.9	1.04
Average	C	0.01	1.2	1.4	1.72
Average	P	0.02	2.5	2.0	1.3
Average	O	0.03	1.0	1.5	0.84

Table 4. Natural enemies of pear psylla per tray at orchards (C = conventional standard, P = phenology-based IPM, O = organic; * = Not sampled). We do 25 tray taps per site. Natural enemies included here are: *Trechnites, Campylomma, Deraeocoris,* lacewings, ladubugs.

Site		12-May	15-May
Rock Island	C	0.2	0
	P	0.2	0.28
Monitor	C	0.0	0
	P	1.7	2.32
Cashmere	C	0.0	0
	P	0.0	0.52
	O	0.2	0.16
Dryden	C	0.0	0
	P	0.0	0.24
	O	0.4	0.12
Peshastin	C	0.0	0.04
	P	0.0	0
	O	0.0	0.04
Leavenworth	C	0.0	0.2
	P	0.1	1.96
HWY 97	C	0.0	0.04
	P	0.0	0.12
Average	C	0.0	0.04
Average	P	0.3	0.8
Average	O	0.2	0.1

Mites Summary

We have started to see some mites at a few locations in our samples. Peshastin Conventional: 1 spider mite on 5/11; Dryden Pheno-IPM: 4 spider mites on 5/17; Cashmere Organic: 1 spider mite and 1

predatory mite on 5/17. Peshastin Organic: 1 spider mite on 5/18. Counts are the total summed across the 25 flower clusters we count at each site visit.

From the Scouting Network

(Contributed by Tianna DuPont and Ricardo Lima)

Week of May 15, 2023

- Average psylla/tray count from 23 blocks this week was **0.2**.
- Average psylla eggs/leaf from 23 blocks this week was **0.1**.
- Average psylla nymphs/leaf from 23 blocks this week was **0.2**.
- *Campylomma* immature numbers high in IPM and Organic blocks, few *Deraeocoris* immatures and *Trechnites* adults in some blocks. First earwig observed this week.
- Psylla winterform adult numbers low. Young nymphs just past peak for first generation and hardshells starting.
- Spider mite numbers high for some plots.

Additional Information

Pear Psylla Integrated Pest Management Webpage
Pear Psylla Phenology Model
Scouting Data Archive

From:
Molly Sayles (Entomology PhD student)
Robert Orpet (Research Assistant Professor)

Assessing and supporting effective area-wide pear pest management. Thank you to Fresh & Processed Pear Committees, Washington State Department of Agriculture, and USDA Western Sustainable Agriculture Research and Education for project funding. Project led by Dr. Robert Orpet. Your pear entomology sampling team is JB, CA, ES, MS, and RO; there is associated support from RTC.

The Scouting Network is a pilot project providing weekly pest and natural enemy information to participating pear growers and fieldstaff. Currently 32 blocks are scouted weekly. The goal is to develop a model and tools that can be scaled-up to a sustainable state-wide network. Funding provided by a Washington State Specialty Crop B4.0lock Grant. Project led by Tianna DuPont, and Ricardo Lima, WSU Extension.