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Update on Pest Management
and Crop Development

F R U I T J O U R N A L

July 23, 2012

VOLUME 21, No. 20

Geneva, NY

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S

JULY
KIT?

ORCHARD
RADAR
DIGEST



DON'T GET
DOCKED

(Art Agnello,
Entomology,
Geneva)
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nell.edu)

YOU
CAN'T
AFFORD IT

Roundheaded Appletree Borer

Peak hatch roughly: June 30 to July 19.

Codling Moth

Codling moth development as of July 23: 2nd generation adult emergence at 63% and 2nd generation egg hatch at 24%.

2nd generation 30% CM egg hatch: July 25 = target date where one spray needed to control 2nd generation CM.

White Apple Leafhopper

2nd generation WALH found on apple foliage: July 23.

❖❖ The dock sawfly always creeps in during the waning days of summer. Following is a repeat of our annual write-up on this pest:

Before and during apple harvest in recent years, a number of growers and fieldmen have been unpleasantly surprised by the appearance of neat little (2 mm) holes bored into the side of their fruit, similar in appearance to those caused by a stem puncture. Although graders sometimes attribute this damage to apple maggot or European corn borer, cutting open these apples

continued...



IN THIS ISSUE...

INSECTS

- ❖ Orchard Radar Digest
- ❖ Dock sawfly
- ❖ Spotted wing drosophila

INSECTTRAP CATCHES

UPCOMING PEST EVENTS

reveals a bright green worm with a light brown head, 3 pairs of true legs and 7 pairs of prolegs, not feeding but lying inactive, in the burrow extending in from each hole. These are larvae of the dock sawfly, *Ametastegia glabrata*, a highly sporadic but nonetheless well documented apple pest that has been known to show up in our area since 1908.

Dock sawfly probably confines its feeding almost entirely to plants belonging to the buckwheat family (Polygonaceae), including numerous docks and sorrels, the knotweeds and bindweeds, or else wild buckwheat or alfalfa. In feeding on any of these plants, the larvae devour the leaf tissue and the smaller veins, eating out irregular holes in the leaves. Ordinarily, the midribs and the larger veins are untouched. This insect should not be confused with the related European apple sawfly, *Hoplocampa testudinea*, which has a whitish larva that lives and feeds in young apples, particularly prevalent in the eastern apple regions of N.Y.

Injury to apples by the dock sawfly is known to occur generally in the late summer and early fall, when the fruit is approaching maturity and the sawfly is searching for an overwintering site. The greater hardness of immature apples probably deters the larvae from burrowing into these, so although 4 generations per year have been identified, only the last one or two are of concern to apple growers. The injury to apples consists externally of the small round holes bored by the larvae, which after a few days show a slightly sunken, brownish ring around them and occasionally may be surrounded by a larger discolored halo. These holes may occur anywhere on the surface, but are most numerous around the calyx and stem ends, or at a point where the apple touches a leaf or another apple, since it is easier for the larva to obtain a foothold here. Inside, the injury is usually more serious, since the larva often burrows to the core and usually hollows out a pupal cell somewhat larger than itself. Apples may have three or four, or sometimes even eight, holes in them of varying depths, but contain only one or two worms.

Since the dock sawfly does not feed upon any part of the apple tree, but must live on the above-mentioned succulent weeds, it becomes an apple pest only where these plants are growing in or around the orchard. There is little danger from this insect in orchards where the food plants don't exist. Likewise, the possibility of the larvae coming into the orchard from neighboring meadows, ditch banks, or roadsides is slight, for the larvae are incapable of finding their way over any extent of bare soil. The adults, though active, are not strong fliers, and it is not possible for the insect to travel far in this stage. Now would be a good time to assess the weed situation in your orchard and make plans for such selective herbicide applications as may be appropriate regarding this insect. Even though common wisdom says this sawfly is a pest only every 10-12 years, this is only an average estimation, and it's not a bad idea to anticipate the unexpected when hardly any season is considered to be "average". ❖❖

(Information adapted from Newcomer, E. J. 1916. The dock false-worm: An apple pest. USDA Bull. 265, 40 pp.)

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is published weekly from March to September by Cornell University—NYS Agricultural Experiment Station (Geneva) and Ithaca—with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 3 pm Monday to:

scaffolds FRUIT JOURNAL
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This newsletter available online at:
<http://www.scaffolds.entomology.cornell.edu/index.html>

For more fruit resources, check out the Cornell Fruit Page: <http://www.fruit.cornell.edu/>

**FLIES
SPOTTED**

SPOTTED WING
DROSOPHILA UPDATE
(Deb Breth, CCE-LOFT,
Albion; dib1@cornell.edu)

❖❖ Spotted winged *Drosophila* have been detected in traps in a peach orchard in Orleans County, in Tompkins County (wild host- twinberry) and in a Yates County cherry orchard. Greg Loeb and Juliet Carroll are leading the trap network for SWD, but as they detect the first ones, consultants might want to expand their reach and look in other locations. Delegate (7 oz/A) and Entrust (2.5 oz/A) have labels for suppression but require the high rates on the labels. Imidan is also labeled for control of SWD, but watch the PHI on various crops. These insecticides are registered for use on apples (which are not likely targets), peaches, apricots, and plums and prunes. Delegate (3–6 oz/A) and Entrust are labeled for SWD in bushberries and caneberries. You will need to have a copy of the 2 ee label- online at: <http://128.253.223.36/ppds/525149.pdf>. However, other insecticides including many pyrethroids such as Brigade, Danitol, and Asana will provide excellent control when applied against other pests. If Assail is applied for blueberry maggot, Oregon State has it rated as "fair" for control of SWD. Carbaryl is also effective for control. You will need to look at the PHI for these insecticides. Stay tuned – below is more info posted on the Cornell Fruit Website, <http://www.fruit.cornell.edu/berry/pestalerts/drosophilapestalert.html>

Genus & species: *Drosophila suzukii*

Distribution

Becoming established throughout Northeast; first detected in NY in 2011.

Background

Originally from Asia, spotted wing *Drosophila* (SWD) first showed up in California in about 2005 and has spread north into Oregon, Washington, and western Canada, south into Florida and recently was reported in significant numbers in North Carolina and Michigan. In 2011, SWD was reported

throughout the Northeast. SWD looks superficially like your everyday vinegar fly, *Drosophila melanogaster* of genetics fame, but vinegar flies are generally not a serious economic threat to fruit growers. Female vinegar flies typically lay eggs in damaged and/or overripe fruit and are therefore mostly just a nuisance. On the other hand, female SWD have very robust ovipositors (the rear end portion of the fly used for egg laying) and lay their eggs in ripe, marketable fruit, leading to damage and contamination with maggots. SWD appears to have the capability to survive winter conditions in the Northeast. They are found in similarly cold areas of Japan. However, populations at the start of the growing season tend to be quite low, indicating high mortality over the winter. The optimum development temperature of SWD is 65–70°F and they have a generation time of 12 days.

Crops of Concern

Brambles are of particular concern, especially fall-bearing cultivars. Blueberries with later-maturing varieties appear more vulnerable. June-bearing strawberries may escape injury, although day-neutral varieties, during late summer, are vulnerable. Elderberries are also susceptible.

Potential for Economic Impact

There is potential for significant impact from this pest, especially for midsummer and later-maturing fruit, when populations tend to increase. Risk of marketing fruit contaminated with SWD larvae is high, resulting in rejected shipments and consumer complaints. In areas where SWD has been established longer (e.g., Michigan) some growers have resorted to frequent pesticide applications, thereby increasing economic and environmental costs, as well as potentially disrupting established IPM programs.

continued...

Identification

SWD appear similar to other vinegar flies. Adults are 2–3 mm in length, with red eyes, and a tan-colored body with darker bands on the abdomen. Males have characteristic single spots at the leading edge of the tip of the wing and two dark spots on their front legs. Females lack wing spots and leg spots, but are distinguished by a robust, serrated ovipositor (visible under magnification). Larvae are white, nondescript and legless maggots.

Identifying *Drosophila suzukii* - http://www.oregon.gov/ODA/PLANT/docs/pdf/ippm_d_suzukii_id_guide10.pdf?ga=t - *Oregon Department of Agriculture*

How to Identify the Spotted Wing *Drosophila* Fly - <http://www.youtube.com/watch?v=fxHhMRh9gnI> - *Oregon State University* (video)

Recognizing Fruit Damaged by Spotted Wing *Drosophila* (SWD), *Drosophila suzukii* - http://www.ars.usda.gov/SP2UserFiles/person/41853/PDF/articlesandinfo/Damage%20by%20SWD_2.pdf

Recognize Fruit Damage from Spotted Wing *Drosophila* (SWD) - <http://horticulture.oregonstate.edu/system/files/em9021.pdf> - *Oregon State University*

SWD Monitoring and Management

Monitoring is very important for this pest. Traps baited with vinegar have proven successful in capturing sometimes large numbers of adult SWD. Traps should be checked frequently (e.g., twice/week), adding fresh vinegar each time. Research is ongoing to improve trap efficiency and develop a better early warning system. Fruit should also be inspected for evidence of larval feeding.

Monitoring

Making and Checking a Spotted Wing *Drosophila* Trap - <http://ncsmallfruitsipm.blogspot.com/2011/12/swd-monitoring-videos-from-nc.html> - *North Carolina State University* (2 videos)

Cultural Management

Good sanitation is very important. Try to prevent the buildup of ripe and over-ripe fruit. Fruit crops that mature earlier in the season may likely escape major damage.

Chemical Management

A few insecticides have recently been granted 2ee label exemptions for control of SWD. SWD adults appear to be sensitive to several different chemistries, although their high reproductive rate, short generation time, and mobility may necessitate multiple applications for control. See listings under specific crops in the Cornell Pest Management Guidelines for Commercial Tree Fruit Production, <http://ipmguidelines.org/TreeFruits/> (look in the "Insects and Mites" section in each crop); and in the Cornell Pest Management Guidelines for Berry Crops, <http://ipmguidelines.org/BerryCrops/>.

Additional SWD Resources

There are several web sites now dedicated to SWD biology and management in the west and eastern USA.

- Getting Ready for Spotted Wing *Drosophila*: Understanding Risks for Small Fruit Crops and Current Management Options - <http://breeze.cce.cornell.edu/p65wch1dipm> (*Webcast with Dr. Greg Loeb, Cornell University*)

- Spotted Wing *Drosophila* - <http://www.ipm.msu.edu/swd.htm> - *Michigan State University*

- Spotted Wing *Drosophila*: A New Threat To Tender Fruit And Berry Crops - <http://www.omafra.gov.on.ca/english/crops/facts/pest-alert-swd.htm#id> - *OMAFRA*

- Spotted Wing *Drosophila* - <http://horticulture.oregonstate.edu/group/spotted-wing-drosophila> - *Oregon State University*



INSECT TRAP CATCHES (Number/Trap/Day)						
Geneva, NY				Highland, NY		
	<u>7/12</u>	<u>7/16</u>	<u>7/23</u>		<u>7/16</u>	<u>7/23</u>
Redbanded leafroller	0.3	0.0	0.0	Redbanded leafroller	0.3	0.2
Spotted tentiform leafminer	5.2	4.6	6.1	Spotted tentiform leafminer	35.7	36.9
Oriental fruit moth	0.3	0.0	0.1	Oriental fruit moth	1.0	3.8
American plum borer	0.3	0.0	0.8	Codling moth	1.4*	0.8
Lesser appleworm	0.0	0.0	0.0	Lesser appleworm	5.9	3.2
San Jose scale	1.7	3.5	21.0	Tufted apple budmoth	0.1	0.0
Codling moth	0.0	0.1	0.0	Fruittree leafroller	0.0	0.0
Lesser peachtree borer	0.0	0.0	0.0	Variegated leafroller	0.4	0.6
Peachtree borer	0.0	0.0	0.1	Obliquebanded leafroller	0.0	0.1
Obliquebanded leafroller	0.2	0.1	0.0	San Jose scale	692	79.6
Apple maggot	0.0	0.6	0.8	Sparganothis fruitworm	0.0	0.0
				Apple maggot	0.2	0.2

* first catch

UPCOMING PEST EVENTS		
	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–7/23/12):	2449	1691
(Geneva 1/1–7/23/2011):	2203	1524
(Geneva "Normal"):	2011	1323
(Geneva 1/1–7/30/12 predicted):	2514	1741
(Highland 1/1–7/23/12):	2536	1703
(Highland 1/1–7/23/11):	2269	1549
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Oriental fruit moth 2nd flight subsides	2061–2529	1368–1766
Oriental fruit moth 3rd flight begins	2326–2746	1577–1901
Apple maggot flight peak	2102–2602	1408–1794
Comstock mealybug 2nd gen. crawlers emerge	2234–2624	1505–1781
Comstock mealybug 2nd gen. crawlers peak	2380–2624	1658–1737
Redbanded leafroller 2nd flight subsides	2182–2742	1471–1891
American plum borer 2nd flight peak	1991–2549	1339–1755
San Jose scale 2nd flight peak	2118–2496	1426–1746
Spotted tentiform leafminer 2nd flight subsides	1986–2378	1306–1644
Spotted tentiform leafminer 3rd flight begins	2253–2659	1508–1848
Codling moth 2nd flight peak	1931–2735	1278–1892
Obliquebanded leafroller 2nd flight begins	2255–2655	1516–1838

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.