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Update on Pest Management and Crop Development

FRUIT JOURNAL

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INSECTS

ON TARGET

ORCHARD RADAR DIGEST

Oriental Fruit Moth

2nd generation flight begins around: June 28.

San Jose Scale

1st generation crawlers appear: June 16.

Spotted Tentiform Leafminer

2nd flight begins around: June 13.

Geneva Predictions:

Roundheaded Appletree Borer

RAB adult emergence begins: May 27; Peak emergence: June 7.

RAB egglaying begins: June 2. Peak egglaying period roughly: June 22 to July 8.

Codling Moth

Codling moth development as of June 4: 1st generation adult emergence at 54% and 1st generation egg hatch at 4%.

1st generation 3% CM egg hatch: June 3 (= target date for first spray where multiple sprays needed to control 1st generation CM).

1st generation 20% CM egg hatch: June 11 (= target date where one spray needed to control 1st generation codling moth).

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 8.

Where waiting to sample late instar OBLR larvae is not an option (= where OBLR is known to be a problem, and will be managed with insecticide against young larvae):

Early egg hatch and optimum date for initial application of B.t., Intrepid, SpinTor or other insecticide with comparable efficacy against OBLR (with follow-up applications as needed): June 24.

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MODEL BUILDING

Insect model degree day accumulations:

Oriental Fruit Moth (Apples - targeted spray application at 55–60% egg hatch, predicted at 350–375 DD base 45°F after biofix):

Location	Biofix	DD (as of 6/4)
Albion	May 7	489
Knowlesville	May 7	489
Williamson	May 7	450
Waterport	May 9	462
Appleton (S)	May 9	436
Appleton (N)	May 9	375
Sodus	May 10	384

Codling Moth (targeted spray application at newly hatching larvae, predicted at 250–360 DD base 50°F after biofix):

Location	Biofix	DD (as of 6/4)
Clintondale	May 14	333
Geneva	May 17	247
Sodus	May 17	180
Guilderland	May 23	164
Ithaca	May 24	193
Lansing	May 24	215
Albion	May 25	189
Williamson	May 25	173
Waterport	May 28	143

PEST FOCUS

Highland:
Obliquebanded Leafroller 1st catch today, 6/4.

Plum Curculio (spray coverage required until 308 DD base 50°F after biofix; i.e., McIntosh petal fall):

Location	Biofix	DD (as of 6/4)
Clintondale	5/14	333
Guilderland	5/15	217
Geneva	5/21	236
Albion	5/21 (est'd.)	243
Lansing	5/22	241
Sodus	5/24 (est'd.)	201
Ithaca	5/24	193

[NOTE: Consult our mini expert system for arthropod pest management, the Apple Pest Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/appledd.php
Find accumulated degree days between dates with the Degree Day Calculator:
http://www.nysaes.cornell.edu/ipm/specware/newa/
Powered by the NYS IPM Program's NEWA weather data and the Baskerville-Emin formula]

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IN THE WIND

NORTHERN MIGRATION

(Art Agnello, Entomology, Geneva; Dick Straub & Peter Jentsch, Entomology, Highland)

❖❖ Potato leafhopper (PLH) does not overwinter in the northeast but instead migrates on thermals (warm air masses) from the south. It is generally a more serious problem in the Hudson Valley than in western N.Y. or the Champlain Valley; however, weather fronts such as the recent remnants of tropical storm Barry provide ample opportunity for most of the region to share the wealth, so it doesn't hurt to tour observantly through a few orchards now. Because PLH come in constantly during the season, there are no distinct broods or generations and the pest may be present continuously in orchards from June through harvest.

PLH feeds on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then become chlorotic and deformed (cupping upward) and later turn brown or scorched. Damage is caused by a toxin injected by PLH while feeding. PLH also occasionally causes symptoms similar to the effects of growth regulators, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for injury caused by herbicides, nutrient deficiency, or over-fertilization. PLH injury may not be serious on mature trees but can severely stunt the growth of young trees.

Potato leafhopper damage

Potato leafhopper adult and nymph

Nymphs and adults should be counted on 50–100 randomly selected terminal leaves in an orchard. Older trees should be sampled approximately every three weeks during the summer. Young trees should be sampled weekly through July. PLH nymphs are often described as moving sideways like crabs, whereas WALH generally move forward and back. No formal studies have been conducted in N.Y. to determine the economic injury level for PLH on apples, so we suggest a tentative threshold of an average of one PLH (nymph or adult) per leaf. Little is known about the natural enemies of PLH, but it is assumed that they cannot effectively prevent damage by this pest in commercial New York orchards.

Damage by this migratory pest is usually worse when it shows up early. PLH can cause significant damage to newly planted trees that are not yet established. When PLH, white apple leafhopper (WALH), rose leafhopper (RLH) and aphids are

continued...

Performance of Reduced Rates of Provado, HVL - 2000

Rate/100 gal	No. applics. (interval)*	No. nymphs/5 leaves WALH/RLH	PLH	% leaves dam. by PLH	Est'd. cost ($/acre)
1. 2 oz	1 (3rd C)	0.1	13.0	66.0	24
2. 2 oz	2 (3rd C, 4th C)	0.0	1.6	19.0	48
3. 2 oz; 0.5 oz	1 (3rd C); 2 (4th C, 5th C)	0.0	0.2	56.0	36
4. 0.5 oz	3 (3rd C-5th C)	0.0	0.7	37.0	18
5. Untreated	0	5.1	11.0	97.0	0

*3rd Cover, 6/13; 4th Cover, 6/23; 5th Cover, 7/4

present, control measures are often warranted. Field trials were conducted during 2000 in the Hudson Valley to evaluate reduced rates of Provado against all three species of leafhoppers. Provado was applied in combinations at a full rate (2 oz/100 gal) and a quarter rate (0.5 oz/100 gal), at varying intervals (3rd–5th cover). Nymphs of PLH, WALH, and RLH were sampled and leaf damage by PLH was monitored.

Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs (however, reduced rates will not control leafminer). Against PLH nymphs, the number of applications was shown to be more important than rate; i.e., better protection of new foliage. Considering the percentage of leaves with PLH damage, the number of applications again appeared to be more important than application rate.

Although data on aphids were not taken, we know that Provado is an excellent aphicide, and the same principle would hold as for PLH — maintaining coverage of new growth is more important than rate. Moreover, reduced rates are likely to increase the survival of cecidomyiid and syrphid predators that are common and effective biological control agents. ❖❖

GREEN SIDE UP

WHY TREES GROW UPWARD

❖❖ A workshop on "Introduction to Growing Tree Fruit" will be given by Cornell specialists Ian Merwin and Greg Peck, who will discuss topics ranging from site selection and planting, to fertilization and pest control, in an introduction to tree fruit cultivation. The instruction will be geared towards serious home gardeners and people interested in starting a small scale commercial orchard. Emphasis will be on sustainable production practices.

The workshop will be held on June 9, from 9:00 am–12:30 pm at the Cornell Orchards, Rt. 366, Ithaca, NY (across from the Veterinary School), so dress for the weather. A $10 fee includes light refreshments. Pre-registration is required by 4:30 p.m., June 7. For questions, driving directions and to pre-register, call 607-687-4020. ❖❖

GENERAL INFO

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	5/29	5/31	6/4
Redbanded leafroller	2.4	1.0	0.4
Spotted tentiform leafminer	8.1	5.0	1.8
Oriental fruit moth	0.8	0.5	0.1
Codling moth	0.1	0.0	0.0
Lesser appleworm	1.5	0.8	3.9
San Jose scale	127	57.5	3.8
American plum borer	0.3	0.0	0.0
Lesser peachtree borer	0.2*	2.5	1.5

Highland, NY

	5/21	5/29	6/4
Spotted tentiform leafminer	2.9	3.6	2.8
Oriental fruit moth	1.1	0.0	0.0
Codling moth	0.4	0.9	8.3
Lesser appleworm	0.6*	4.6	10.4
Obliquebanded leafroller		-	0.5*

* first catch

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/4/07):	806	485
(Geneva 1/1–6/4/2006):	818	444
(Geneva "Normal"):	758	434
(Geneva 1/1–6/11/2007, Predicted):	960	592
(Highland 3/1-6/4/07):	750	457

Coming Events:	Ranges(Normal±StDev):	
American plum borer 1st flight peak	360–1175	278–514
Lesser appleworm 1st flight peak	372–1125	180–436
Black cherry fruit fly 1st catch	686–985	380–576
Cherry fruit fly 1st catch	650–1500	424–806
Redbanded leafroller 1st flight subsides	417–1104	325–561
Spotted tentiform leafminer 1st flight subsides	489–1051	356–566
Codling moth 1st flight peak	529–1326	325–581
Dogwood borer 1st catch	733–1422	454–800
European red mite summer eggs hatch	773–938	424–572
Obliquebanded leafroller 1st catch	686–1104	480–604
Oriental fruit moth 1st flight subsides	781–1574	489–811
Pandemis leafroller 1st catch	700–955	425–509

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.
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