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Update on Pest Management
and Crop Development

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GETTIN' PSYLLY

STRATEGIES FOR
PEAR PSYLLA
MANAGEMENT
DURING THE
PRE-BLOOM
PERIOD

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The traditional pre-bloom oil application can be made as the first egg is observed in a 3-minute observation of pear buds. In the Hudson Valley, we observed oviposition on 25 March (1/100 buds from 5 Bartlett trees) with steadily increasing egg numbers on 8 April (6/100 buds), 15 April (40/100 buds), and today (14/100 buds).

[Editor's note: We are re-running this updated article from 2011 to refresh your perspective on recommended psylla management approaches.]

❖❖ Pear psylla, *Cacopsylla pyricola* Foerster, is the primary insect pest driving pear management during the pre-bloom period in the Northeast. These insects have 3–4 generations per season, with nymphs undergoing 5 instars prior to becoming adults. Pear psylla adults overwinter along the woodland edge and within the orchard. Adults remain well hidden among the scales of trunk bark and branch canopy during cooler temperatures, visibly increasing in number on trees as temperatures rise, and migrating into blocks throughout the early part of the season. Adults will oviposit onto branches along the basal plates of buds throughout the month of April, allowing nymphs access to newly developing foliage.

Three traditional strategies have been used during the pre-bloom period. These include oil application(s) to delay egg laying that acts to synchronize the hatch of the nymph population and allow for migratory adults to enter the orchard. The second strategy is to target adults with insecticide(s) followed by a targeted application specifically for emerging nymphs.

A pre-bloom oil application to delay and reduce adult oviposition forces the female adults to synchronize egg deposition, delaying nymph hatch and allowing for a more effective application of insecticides to target a more uniform and susceptible developmental stage.

A dormant application of 3% oil should be made if only one oil application is planned. This rate will also reduce overwintering populations of San Jose scale, European red mite, pear leaf blister mite, and Comstock mealybug. A second approach would be the use of 2% oil at 7- to 14-day applications, allowing for somewhat longer inhibition of egg laying.

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A diversity of insecticides with different modes of action are available in NYS, allowing for further pre-bloom options. One such option for ovipositional deterrence is through the use of Surround WP, a kaolin clay product, at 50 lb/A, made at first egg observation. In recent trials conducted at Cornell's Hudson Valley lab and in a regional grower orchard, Surround WP gave significantly better control of pear psylla adult egg laying than 2% oil at the same timing in a single spring application, even with considerable rainfall. Multiple applications of Surround WP used at the 50 lb/A rate, beginning at delayed dormant followed by a white bud and a petal fall application, gave us excellent control of 1st generation psylla, the Lepidoptera complex, European apple sawfly, and plum curculio in field trials. It is somewhat weak on San Jose scale and the plant bug complex. I would recommend a <2.5 mph tractor speed and >100 GPA to obtain the highest degree of efficacy with this product.

The second approach is the use of an insect growth regulator such as Esteem 35WP at 4–5 oz/acre or Centaur 0.7WDG at 34.5–46.0 oz/A, used during the pre-bloom period to decrease egg hatch and reduce the viability of eggs laid by treated adults. It should be applied with 0.25% v/v horticultural spray oil prior to sustained egg-laying (mid-April in the Hudson Valley). Esteem may be applied once at pre-bloom or once pre-bloom and once at petal fall as a tactic for both psylla reduction and as a resistance management strategy to alternate yearly with Agri-Mek. Remember, its mode of action is as an ovicide and to control early instar nymph development, so it will not directly reduce the adult or nymph population.

Using oil is a pre-requisite to at least two follow-up strategies. One option after oil is the use of an adulticide, to kill the adults after they have completed migration into pear orchards, and before significant eggs have been laid. In the Hudson Valley, oil is generally applied during the first week of April and migration is completed in late April. If the 2013 season, just starting, continues

in a similar manner, the cooler temperatures may prolong migration.

Adulticides would be employed in mid- to late April to reduce the adult population. The choices for managing adult psylla include Thionex 3EC (2.67 qts/A) – note that EPA has mandated a stop-use date of July 31, 2013 for endosulfan in pears; the neonicotinoids Actara 25WDG (5.5 oz/acre), Assail 30SG (4.0–8.0 oz/acre), and Calypso 4F at 4–8 oz/A. The use of 1 quart of oil per 100 gal of finish spray solution (0.25% v/v) has been found to increase the neonicotinoids' effectiveness, but is not required by the label. The NY label allows a total of 11.0 oz/A (0.172 lb a.i./A) of Actara (or 0.172 lb a.i. of thiamethoxam-containing products such as Endigo ZC per acre) per growing season. Multiple applications of Actara require the applicator to have the most recent Special Local Need (SLN) label.

Pyrethroid adulticides control options include Ambush 25WP (pre-bloom only) at 12.8–25.6 oz/acre, Asana (9.6–19.12 fl oz/A), Pounce 25WP (pre-bloom only) at 12.8–25.6 oz/A, Proaxis 0.5CS at 2.6–5.1 fl oz/A, Warrior II at 1.28–2.56 fl oz/A, and Danitol 2.4EC at 16–21.3 fl oz/A. In gen-

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eral, researchers have found the pyrethroids to be less effective at higher temperatures on many different insect species and, as such, pyrethroid use should be considered primarily during the cooler pre-bloom periods. There is also evidence that pyrethroids can cause a resurgence in Comstock mealybug populations in pome fruit.

Delegate 25WG used at 4.5–7.0 oz/A is another good alternative for use against the 1st generation pear psylla nymph population during the pre-bloom period. However, an ideal timing for this product would be during the early hatch of obliquebanded leafroller, which usually coincides with the end of the 2nd generation and onset of the 3rd generation psylla (mid-June).

To add to the discussion of early pest management for psylla, we would be remiss not to mention that the use of postbloom Agri-Mek has been the standard method of psylla management in New York since 1996. Although we have not seen an outright failure or loss of efficacy with Agri-Mek in NYS, it appears to be losing control when applied 7–10 days post-petal fall at the high rate, in two applications 21 days apart. To maintain effectiveness, a rotational program

of Agri-Mek with other effective materials should be considered for resistance management purposes.

Agri-Mek SC is the currently available product as a more concentrated formulation with 8% active as a suspension concentrate. It can be used from 10 days to about 4 weeks post-PF, but its efficacy decreases as the foliage hardens off. It requires the use of a minimum of 0.25% v/v horticultural spray oil to penetrate the foliar waxy cuticle and achieve translocation within the leaf for optimum nymph feeding uptake. Agri-Mek SC can be used in multiple applications of 2.25–4.25 oz/A beginning at 7 to 14 days after petal fall, with a follow-up application 21 days post-PF as per label requirements, totaling no more than 2 applications or 8.5 oz/season, and no later than 28 days prior to harvest. The 2nd application targets newly developed foliage preferred by psylla nymph populations.

An alternative to Agri-Mek is the use of Actara 25WDG at 5.5 oz/A. Actara is in the neonicotinoid class of insecticides, and is effective against both nymph and adult populations. We have found it has slightly better efficacy when used with a 0.25% v/v horticultural spray oil. It will also effectively control plum curculio and Comstock mealybug when applied at petal fall (not registered for use in Nassau or Suffolk Counties). ❖❖

PHENOLOGIES

Geneva:

Apple (McIntosh, Empire): half-inch green
 Apple (Red Delicious): quarter-inch green
 Pear (Bartlett): bud burst
 Sweet cherry: bud burst
 Peach: swollen bud

4/29, predicted
 half-inch green
 half-inch green
 bud burst
 bud burst
 bud burst

Highland:

Apple(McIntosh, Red Delicious , Ginger Gold): early tight cluster
 Apple (Empire): tight cluster
 Pear (Bartlett, Bosc): bud burst
 Plum (Stanley): bud burst
 Apricot (early, late): full bloom
 Sweet cherry-early/late (Danube/ Regina): bud burst
 Peach-early: first bloom
 Peach-late: pink

INSECT TRAP CATCHES						
(Number/Trap/Day)						
Geneva, NY				Highland, NY		
	<u>4/15</u>	<u>4/18</u>	<u>4/22</u>		<u>4/15</u>	<u>4/22</u>
Green fruitworm	0.4	0	0.3	Green fruitworm	1.2	1.4
Redbanded leafroller	0	0	0	Redbanded leafroller	2.3	4.1
Spotted tentiform leafminer	0	0	0	Spotted tentiform leafminer	0.0	0.6
Oriental fruit moth	–	–	0	Oriental fruit moth	0.1*	0.4
* first catch						

UPCOMING PEST EVENTS		
	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–4/22/13):	136	58
(Geneva 1/1–4/22/2012):	396	208
(Geneva "Normal"):	202	93
(Geneva 1/1–4/29 predicted):	178	75
(Highland 1/1–4/15/13):	204	82
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Green fruitworm flight peak	102–216	39–101
Redbanded leafroller 1st catch	110–178	40–82
Spotted tentiform leafminer 1st catch	113–213	41–101
Green apple aphid present	111–265	38–134
Pear thrips in pear buds	118–214	50–98
Rosy apple aphid nymphs present	134–244	56–116
Obliquebanded leafroller larvae active	158–314	64–160
McIntosh tight cluster	211–259	91–127

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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