

scaffolds

Update on Pest Management
and Crop Development

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

April 5, 2010

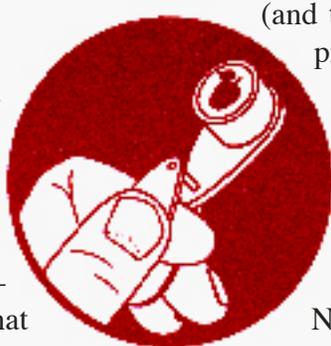
VOLUME 19, No. 3

Geneva, NY

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JUMP START

SPRANG
AHEAD
(Art Agnello,
Entomology,
Geneva)



❖❖ The rule of weather conservation holds that, no matter what odd weather events we might have at any given moment, in the end everything comes out about even. Thus, for those of us who might have felt cheated out of a proper summer last season, we're apparently making up for it by getting an early start on it this year. This week's forecast promises a few more days in the 70s before we're due to settle back down to seasonal temperatures by the weekend, but no amount of cool weather will push the buds back in. Naturally, this will be followed all too soon by the sound of tiny wings and legs, so even though all of the following events won't be happening immediately, a glance through the checklist below will serve as a reminder of some prebloom points of interest to keep in mind before we suddenly find ourselves surrounded by creatures of the earth.

Mites: Oil applications should go on before we reach pink in apples or white bud in pears, and as there's not much freezing weather in the extended forecast, any calm period of sufficient duration would be a suitable spray window. Start with 1.5–2.0% through half-inch green (already passed in the Hudson Valley), and reduce to 1.0–1.5% as the trees reach tight/green cluster. Also, don't forget the value of this tactic in stone fruit plantings (cherry, peach and plum) with a history of ERM. Alternatively, in apples, ovicides like Apollo, Onager and Savey

(and the IGR Zeal) can be delayed until pink or petal fall, and if the early season closes in on you and a miticide application before bloom is impossible, consider these products or Agri-Mek at petal fall in problem blocks. Other choices are available, such as Acramite, Kanemite, Nexter or Portal, but these may be more valuable when addressing building numbers of motile stages later. Keep in mind that choosing materials with different IRAC numbers (see Table 7.1.1, p. 66 in the Recommends) ensures a sound rotation program for purposes of resistance management.

Rosy Apple Aphid: In particularly susceptible varieties like Cortland, Ida Red, Golden Delicious, or R.I. Greening, a material such as

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PEST FOCUS

UPCOMING PEST EVENTS

Lorsban or Supracide can provide effective prevention through tight cluster, and will also help against San Jose scale at the same time [NOTE: only 1 application per season is allowed for both Lorsban and Supracide]. Actara, Assail and Calypso are other options for rosy apple aphid and other pests besides, including leafminers and early plum curculio. You'll also get some side rosy control if you're using Esteem for scale at this time. Beleaf is a newer product that is labeled against aphids, including rosy apple aphid.

San Jose Scale: In addition to the Lorsban and Supracide noted above, delayed dormant oil applications will do a good job of reducing scale populations. If you're not treating for rosies but are concerned that SJS might be increasing in some blocks, Esteem is an insect growth regulator with good activity on scale. The label calls for it to be mixed with oil, so if you're applying oil for mites anyway, this might be a tactic to try in severe cases. Centaur is another new IGR labeled for use against scales.

Dogwood Borer/American Plum Borer: A coarse spray of Lorsban directed at trunk burr knots between half-inch green and petal fall is the most effective tactic against both species, which can be a particular problem in dwarf plantings. Only one application of any Lorsban product is now allowed per season, but you get a lot of mileage if you reserve it for this particular use.

Pear Midge: The first adults generally appear when Bartletts and Clapps are in the swollen bud to tight cluster bud stage, but no successful egg-laying occurs until the flower buds are a little more developed, closer to white bud. It may be too late in some spots, but in pear blocks with a history of midge infestations, concentrate on those portions of the orchard most protected from the wind by trees, high ground, or buildings, as the midges tend to be most numerous in these spots. Guthion is about the only effective material still registered for this use; 1-2 sprays are recommended between swollen bud and first separation of the sepals (or at white bud, whichever comes first). Keep in mind the 4 lb (formulated product) per acre seasonal limit.

Pear Psylla: If you're just starting on your oil sprays, one application at 2% or two at 1% until white bud should provide adequate protection against egg deposition until an insecticide spray might be elected. A number of newer materials have shown good activity in suppressing psylla numbers at white bud or after petal fall, including Actara, Assail, Calypso, Delegate, and Esteem, in addition to the more traditional pyrethroid products (e.g., Asana, Danitol, Proaxis/Warrior). Agri-Mek used shortly after petal fall has given good control if applied correctly (well-timed, adequate coverage, combined with an oil adjuvant), and an application of Nexter, Portal or Provado, also soon after petal fall, will help keep nymph numbers down through the early summer. Ceataur, newly labeled this year, can also be used against psylla nymphs.

Oriental Fruit Moth: The first adults will probably be on the wing this week in western NY, depending on how much of a warming trend we get, and pheromone disruption starting against this brood in peaches or apples is an option, although bear in mind that your plum curculio sprays will serve double duty against OFM as well. However, be prepared to start these sprays at petal fall even in peaches, as shuck split will be too late to get the first hatching eggs.

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scaffolds

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Black Cherry Aphid: In (especially) sweet cherry plantings having a history of infestation by this pest, which curls and stunts the leaves, a prebloom inspection for these shiny black metallic insects can warrant an application of Thionex, Assail, Beleaf, or a pyrethroid (e.g., Asana, Baythroid, Proaxis, Warrior).

Tarnished Plant Bug: Early season feeding by overwintered adults in peaches and apricots can damage flower buds and cause bleeding of sap from twigs and shoots. If you note several bleeding sites per tree, a pink application of a pyrethroid, or Assail or Beleaf can offer some control. The full range of pyrethroids is also available in apples, as well as Avaunt and Beleaf. This is an appropriate time to keep in mind that satisfactory control of TPB is more likely with appropriate management of orchard weeds that attract this pest and act as alternate hosts. ❖❖

ERRATA

Get out your red pen; label changes, registrant changes, and plain old human error are responsible for the following corrections needed in the Tree Fruit Guidelines:

- Section 5.1.1, Fruit Crop Protectants (p. 36): thiophanate-methyl (T-Methyl) is now Arysta LifeScience, not Micro Flo.
- Altacor: PHI for apples and pears has been reduced from 14 to 5 days.
- Vintage: Contrary to what was in the Product Registration Update in Scaffolds issue No. 1 (Mar. 22), Vintage is not labeled in cherries -- only apples and pears.
- Movento: Delete prebloom use recommendations given in pears (pear psylla, p. 150) and cherries (black cherry aphid, p. 163). Naturally, until the registration issue is resolved, this applies to product already in growers' hands.
- Table 18.1.1 (p. 217): dodine (Syllit), PHI for pears is 7 days.
- Table 18.2.2 (p. 226): Adament, REI is 120 hrs (5 days).

ERRATA



Obliquebanded leafroller feeding on Bartlett clusters

PEST FOCUS

Geneva: 1st **green fruitworm** and **red-banded leafroller** caught today, 4/5.

Highland:

Spotted tentiform leafminer 1st catch today (4/5). **Pear thrips** observed on pear fruit clusters. **Plant bug** feeding observed on pear fruit clusters. **Obliquebanded leafroller** larval feeding observed on pear fruit clusters.

HUDSON VALLEY

HUDSON VALLEY
INSECT PEST
MANAGEMENT: THE
LOGISTICS OF
TARNISHED PLANT
BUG MANAGEMENT
(Peter Jentsch,
Entomology, Highland)

❖❖ Southern winds are coasting into the Hudson Valley with unusually high temperatures in tow, coercing pome and stone fruit into early development. We are seeing bloom in most peach and apricot varieties, with tight cluster of fruit buds in early apple. We will be nearing pink if not bloom by week's end if forecast temperatures into the low 80s hold true.

Insects of primary concern this week include San Jose Scale, rosy apple aphid, obliquebanded leafroller, mullein plant bug and tarnished plant bug. Plum curculio may be a problem if high temperatures drive them out of hibernation sites and into the orchard during the latter part of the week. As overwintering success appears to be high in most insect groups this season given our moderate winter temperatures and reasonable snow cover, it's very likely that we will have strong pest populations this spring.

Tarnished plant bug (TPB) *Lygus lineolaris* (Palisot de Beauvois), a prebloom pest of apple, is a true bug in the order Hemiptera, with piercing-sucking mouthparts such as those found in cicadas, aphids, leafhoppers and mullein plant bug. Tarnished plant bug feeding was observed in a number of orchard blocks last week, especially in pears, and bleeding sites are now evident (Fig. 1).

The adult TPB ranges from dull brown to black in color. The rear half of the forewings are membranous and are bent downward, and there is a distinct yellow triangle behind the head (Fig. 2). The adult bugs hibernate under



Fig 1. Tarnished plant bug feeding sites on Bartlett clusters

leaf litter, clover, alfalfa, mullein and in protected places in stone walls and tree bark. They become active at relatively low temperatures (>46°F), with feeding becoming pronounced at temperatures at or above 70°F, between the tight cluster and bloom period of apple.

Tarnished plant bugs feed on a wide range of hosts, including apple, apricot, cherry, pear, peach, plum and quince, small fruits such as strawberry and raspberry, as well as flowers, vegetables and field crops. They have multiple generations per year. They can migrate into apple or stone fruit from another crop or weed host and should



Fig 2. Tarnished plant bug adult

be assessed during the prebloom and early post-bloom period to determine levels of activity. Orchards with a high density of weed hosts are more prone to damage. Control of such weeds, such as common mustard, has been shown to reduce fruit injury.

The tarnished plant bug causes injury to fruit during feeding and oviposition on developing fruit. Bleeding of sap occurs on flowers and fruit stems, with twig and shoot injury as TPB feed. On apple, most eggs are laid in the developing fruit, starting at bloom. The insect feeds first on buds and later

continued...



Fig. 3. Tarnished plant bug fruit damage to Gala

on developing fruit, resulting in small droplets of exudate on the surface of injured buds. Within 1 or 2 weeks, the flower clusters may appear dried and the leaves distorted, with a distinct hole where the insect has fed. In general, later damage to developing fruit is more important than earlier feeding on flower buds. On apple, TPB feeding can cause punctures or deep dimples to form as the fruit develops, downgrading fruit quality. (Fig 3.)

TPB management

To effectively monitor TPB, use unbaited, non-reflective, white sticky boards hung low in the tree canopy. Economic injury levels between trap captures and fruit injury show that 2% fruit injury will occur if 3.0–4.4 adult TPB are captured in white sticky traps (Prokopy et al. 1982). Most moderate density orchards can suffer up to 1% damage before economic injury occurs, given the cost of management. Orchards growing 500–1000 bu/A can attain higher profitability margins with more conservative economic injury levels, especially for higher valued varieties.

Economics 101: Prior to making specific applications for TPB, some background into profitability should be understood. Much depends on the actual price you receive for your fruit (known as the “Return To Grower” or RTG: Profit paid to a grower after growing costs, storage fees, pack-out fees and marketing fees). If a single prebloom neonicotinoid, priced at >\$20 per acre is used, and the RTG is less than the cost of the material, the result would be a net loss of profit.

For example: If you grow 500 bu/A and your RTG is \$2 per bushel, your loss per acre from TPB is 1% or (5 bu) and you would lose \$10 per acre if you did nothing. But if you made an application to manage TPB and reduced the damage from TPB by 1% by making a \$20 per acre neonicotinoid application, you would gain \$10 per acre in reduced damage to fruit, but the cost of the \$20 per acre application would lose \$10 in net profitability. The likelihood of effective insect pest management in reducing damage and attaining greater profitability should be based on the underlying profit margins for each orchard block. In highly valued varieties grown in high-density planting systems, in which lower damage levels produce higher economic losses, conservative management strategies should be followed. In low-producing, low-valued blocks, higher damage levels can be absorbed.

Unfortunately, we have no “soft” insecticides available that are highly effective against the adult TPB. The pyrethroids (Asana, Ambush, Baythroid, Danitol, Pounce, Warrior) are most effective, followed by the neonicotinoid group that includes Actara, Calypso, and Assail, plus Avaunt, which are moderately effective. Pyrethroids and neonicotinoids will also impact many of the other early season insect pests such as RAA, STLM and early immigrating PC. The overwintering OBLR may be reduced by the pyrethroids; however, San Jose scale will mostly require a designated 1% oil application and/or Esteem, Centaur or Lorsban.❖❖

Reference

Prokopy, Ronald J., Geoffrey L. Hubbell, Roger G. Adams, and Karen I. Hauschild. 1982. Visual monitoring trap for tarnished plant bug adults on apple. *Environ. Entomol.* 11(1): 200-203.

PHENOLOGIES

Geneva:		
	<u>4/5</u>	<u>4/12 (Predicted)</u>
Apple(McIntosh):	1/4 inch green	tight cluster
Apple(Red Delicious):	1/4 inch green	tight cluster
Apple(Empire):	1/2 inch green	tight cluster
Pear:	bud burst	green cluster
Sweet cherry:	bud burst	white bud
Plum:	bud burst	white bud
Peach:	bud burst	pink
Highland:		
Apple (McIntosh/Ginger Gold, Red Delicious):	early tight cluster	
Apple (Golden Delicious):	1/2 inch green	
Pear (Bartlett/Bosc):	bud burst	
Peach (early):	bloom	
Peach (late):	pink	
Plum (Italian/Stanley):	green cluster	
Apricot:	full bloom	

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–4/5/10):	149	73
(Geneva 1/1–4/5/2009):	92	29
(Geneva "Normal"):	78	53
(Geneva 1/1–4/12 predicted):	235	122
(Highland 3/1–4/5/10):	176	77
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Green fruitworm flight peak	100–210	38–96
Redbanded leafroller 1st flight peak	231–367	104–188
Spotted tentiform leafminer 1st catch	111–197	41–91
Oriental fruit moth 1st catch	221–325	94–164
McIntosh at tight cluster	211–253	90–122

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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