

SCAFFOLDS Fruit Journal, Geneva, NY

Volume 20, No. 4

Update on Pest Management and Crop Development

April 11, 2011

COMING EVENTS

	43°F	50°F
Current DD accumulations		
(Geneva 1/1-4/11):	74	21
(Geneva 1/1-4/11/2010):	230	124
(Geneva "Normal"):	112	44
(Geneva 1/1-4/18 Predicted):	116	38
(Highland 1/1-4/11):	95	28
Coming Events – Ranges (Normal +/- Std Dev):		
Green fruitworm peak catch	102-216	39-101
Pear psylla adults active	31-99	8-34
Pear psylla 1st oviposition	40-126	11-53
Redbanded leafroller 1st catch	108-174	39-79
Spotted tentiform leafminer 1st catch	113-199	41-93
McIntosh green tip	95-147	36-62

Phenologies

Geneva: McIntosh and Empire at silver tip

Highland: McIntosh and Ginger Gold at 1/2-inch green;
Red/Golden Delicious at early green tip

PEST FOCUS

Geneva: Green Fruitworm 1st trap catch today, 4/11

Highland: Redbanded Leafroller 1st trap catch today,
4/11

[Section: DISEASES]

PLAYING CATCH-UP ON SCAB CONTROL BETWEEN GREEN TIP AND TIGHT CLUSTER

(Dave Rosenberger and Kerik Cox, Plant Pathology,
Highland and Geneva)

[Box Text: NOW BATTING CLEANUP]

Apple scab is best controlled by using preventive sprays to deposit a protectant fungicide onto leaf surfaces before scab spores arrive. Strategies for using protectant fungicides were outlined in last week's issue of *Scaffolds*.

Despite the best intentions, situations may arise where green tissue is NOT protected prior to an apple scab infection period. When this occurs, fungicide programs must be modified so as to arrest fungal development within the young leaves before infections can produce sporulating lesions. Copper fungicides,

sulfur, mancozeb, and captan are purely protectants and will not penetrate plant tissue to stop fungal growth inside leaves.

When DMI fungicides were universally effective against scab (i.e., before many scab populations developed DMI resistance), a DMI fungicide applied at the tight cluster and pink bud stages would usually suppress development of any scab infections that occurred prior to tight cluster. Unfortunately, in orchards where DMI fungicides are no longer dependable, the remaining options for post-infection scab control all have significant limitations.

Early-season scab fungicides that are not members of the DMI class and that provide post-infection activity include Scala, Vangard, Syllit, and, for organic apple producers, liquid lime-sulfur. Flint and Sovran can also provide up to 48 hr of post-infection activity, but they are not recommended for sprays before tight cluster because this fungicide class can be used only four times per season and those sprays are too valuable to be used at the green tip and half-inch green bud stages. Strategies for using liquid lime-sulfur for post-infection scab control will not be addressed in this article.

In the absence of dodine resistance, dodine (now sold as Syllit) would be the clear choice for early season post-infection sprays because it is extremely effective on scab, it redistributes well, and it is also resistant to weathering during rains. In many greenhouse tests with potted trees, Dr. Mike Szkolnik at the Geneva Experiment Station showed that dodine (which in his tests was Cyprex 65W used at 6 oz/100 gal) provided residual activity equal to Dithane applied at 1.5 lb/100 gal. However, dodine also provided about 90% control of scab when applied 24 hours after the start of infection periods, whereas Dithane did not. Dodine may provide up to 48 hr of true post-infection activity at cooler temperatures.

Scala and Vangard can provide 48 to 72 hr of post-infection activity. However, Scala and Vangard do not appear to redistribute well, and these fungicides have no impact on scab development if they are applied more than 72 hr after the start of infection periods. Dodine, on the other hand, penetrates leaf tissue and will prevent developing lesions from producing spores if the dodine application is made too late to prevent appearance of the lesions themselves. The antispore effect of dodine has tremendous value for slowing or arresting a scab epidemic.

The major risk in choosing dodine for a post-infection spray is that it will not work well in orchards that have dodine-resistant scab populations. It is almost impossible to know where dodine resistance is lurking unless one has had a resistance screen performed using leaves from the specific orchard in question. Kerik Cox reported on the prevalence of dodine resistance and implications for disease control in the last issue of *New York Fruit Quarterly*. Kerik's data from the test orchard at Geneva showed that using dodine alone throughout the primary scab season in an orchard with dodine resistance can result in significant levels of fruit scab at harvest. Risks would be much lower where dodine and mancozeb are used in tank mixes, but the fact remains that dodine will have virtually no value in orchards with high levels of dodine-resistant scab.

Given all of the uncertainties created by fungicide resistance, we suggest the following strategies where a post-infection scab spray is needed between green tip and tight cluster:

1. Regardless of which product (Scala, Vangard, or Syllit) is selected for post-infection activity, use that

product in a tank mix with a mancozeb fungicide applied at 3 1b/A.

2. For orchards with a known history of dodine resistance, or where recent tests have reported dodine resistance, use either Scala or Vanguard rather than Syllit. Tests in the Hudson Valley showed that the tank-mix rates listed on the product labels (i.e., the lower labeled rates) of Scala and Vanguard were just as effective in post-infection sprays as were the maximum labeled rates. Thus, the lower rates on the respective labels will suffice when either of these products is mixed with a mancozeb fungicide.

3. Where there is no reason to expect dodine resistance, use Syllit in combination with mancozeb. Where this option is selected, the dodine-mancozeb combination should be applied in back-to-back sprays (i.e., make a second application 7–10 days after the post-infection application) so as to maximize its effectiveness as an antisporeulant. Or, one might opt to apply Vanguard or Scala tank mixed with mancozeb within 72 hr of the missed infection period and then following that with a Syllit-plus-mancozeb spray 7–10 days later so as to minimize resistance-related risks in

the first spray while capitalizing on the antisporeulant effects of dodine in the second spray.

4. In all cases where post-infection sprays are required for missed infection periods between green tip and tight cluster, extra diligence is warranted for maintaining fungicide coverage between bloom and first cover, the time when any escaped scab lesions would begin producing conidia. Using Inspire Super at tight cluster and pink, or at pink and bloom, might help to suppress any lesions that escaped the early season sprays. However, even though Inspire Super has more potency than other DMIs against scab that is shifted toward DMI resistance, it will not stop DMI-resistant scab in susceptible cultivars such as McIntosh.

This article has focused on how to select post-infection sprays to compensate for situations where someone knows that they had unprotected leaf tissue during an early season infection period. A more common situation involves orchards that were presumed to have adequate coverage ahead of rains, but where coverage was actually incomplete due to windy conditions, poor sprayer calibration, or expansion of green tissue since the last spray. Except where dodine-resistant scab is present, scab risks in

these unrecognized situations could theoretically be addressed by routinely using a dodine-mancozeb tank mix for one or two sprays early in the season, even when these sprays are being applied on a protectant spray timing. Work at Geneva has shown that using dodine in only a few sprays each season does not cause a rapid shift back toward higher levels of dodine resistance. Including dodine in two early sprays should greatly reduce the probabilities that a little scab will survive early season sprays and begin sporulating at petal fall when fruit and leaves are at peak susceptibility. However, the value of this strategy will need more widespread field evaluation before we can conclude that it is consistently reliable and cost-effective.

[Section: INSECTS]

COMING ATTRACTIONS

(Art Agnello, Entomology, Geneva)

[Box text: SPRING'S 'A' SPRUNG]

As the saying goes, the rain falls on the just and the unjust, and by extension, this applies also to whatever else happens to be going on outside. I've already had people bringing in specimens of box elder bugs, newly

awakened and discovered in the home, so we can be sure that pear psylla have been out laying eggs already, and it won't be long before the rest of the prebloom parade follows. 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 early season 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, 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. 62 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 Beleaf, Lorsban or Supracide can provide effective prevention through tight cluster, and the latter two choices 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, Centaur and Esteem are insect growth regulators with

good activity on scale. The label calls for Esteem 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 limited to one application per season.

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 efficient tactic against both species, which can be a particular problem in dwarf plantings. Only one application of any Lorsban product is 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. 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 3 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, Centaur, Delegate, and Esteem, in addition to the more traditional pyrethroid products (e.g., Ambush, 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. Centaur is limited to two applications per season in pears.

Oriental Fruit Moth: The first adults will be on the wing before you know it, 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.

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 serve as alternate hosts.

All the Trappings: This is a good time to decide which insects you are going to put out traps for this season, and to take stock of your supplies so as to avoid missing

any significant biofix dates. There are many trap models to choose from, but we tend to favor the large plastic delta-style traps (e.g., Pherocon VI) for nearly all the moth species; they're more expensive than some of the other types, but they are much easier to read (slide-out sticky liners) and therefore maintain, plus they can be re-used for years. Also, it isn't necessary to trap every single species out there. The most useful pests to keep track of are oriental fruit moth (put traps out by pink), codling moth (by king bloom), and obliquebanded leafroller (not needed until June 1). Most lures last 4-6 weeks; for CM, it's worth using the extended-life ("L2") lures, which last 8-10 weeks. Supplies can be purchased from several vendors, such as Great Lakes IPM, Trécé, Scentry, Alpha Scents, Gemplers, and Pherotech/Contech.

[Section: GENERAL INFO]

NYS IPM ITEMS

(Julie Carroll, NYS IPM Program, Geneva)

[Box text: BACK TO THE FUTURE]

The New York State IPM Program Thanks You!

The IPM Program received funding in the NY State budget! I would personally like to take this opportunity

to thank all of the apple growers who wrote letters, spoke to legislators, and wrote articles and editorials in support of apple IPM and the NY State IPM Program. It is truly a privilege to serve the NY apple industry as your Fruit IPM Coordinator.

Don Rutz, Curt Petzoldt, and Jennifer Grant, Director and Assistant Directors of the NYS IPM Program, have written a letter with details on our funding and our heartfelt appreciation. The letter is posted on our NYSIPM website at

http://nysipm.cornell.edu/IPM_Update_4-2011.pdf.

Some excerpts are included below:

"...the existence of the New York State IPM Program was threatened during the most recent state budget process. However, during budget negotiations, some funding for the NYS IPM Program was restored. **We are absolutely certain this would not have occurred without the tremendous support expressed by you, our stakeholders!!**

In the 2011-2012 state budget, \$500,000 was appropriated for Agricultural IPM...approximately half of the state funding (for Ag IPM) received during the time the Program was fully staffed. We lost key individuals to retirement and layoffs, and some staff left for other positions during the past year. This year's

funding is unlikely to allow for hiring to replace them... There will need to be some redistribution of programming to accommodate the coming years' funding changes. As is our mandate, we will deliver IPM programming throughout the state and across agricultural commodities—Vegetables, Livestock and Field Crops, Fruit, and Ornamentals.

We want to reiterate that during these very difficult budget times for New York, that you – our stakeholders – are responsible for allowing us to continue to make advances in all areas of IPM. We are most grateful for all of your efforts. Thank you again. It is a pleasure to work with you all!"

Predicting Apple Scab Using NEWA Weather Data

Available on NEWA, the Network for Environment and Weather Applications, are two models – one for ascospore maturity and one for scab infection events. There are two ways to get to this information **from the NEWA Home Page newa.cornell.edu**, either...

1) Scroll over Pest Forecasts and choose Apple Diseases. On the Apple Diseases page, in the left-hand box, select Apple Scab, select the weather station location, and select the date of interest (NEWA defaults to today's date), and click on Calculate. Adjust the

green tip date for your location and read the results in the Apple Scab Summary Table.

...*OR*...

2) Click on Station Pages. Select the station location of interest from the table and on the Station Page, click on Apple Scab. Enter your green tip date on the Apple Scab page and read the results in the Apple Scab Summary Table.

A link to Ascospore Maturity Graphs is in the last row of the Apple Scab Summary Table. Apple scab infection events are listed, below the summary table, from March 1 through October of each year.

The screenshot shows a web browser window with the Cornell University logo at the top left. Below the logo, the text reads "New York State Integrated Pest Management Program" and "NEWA Network for Environment and Weather Applications". A navigation bar contains three tabs: "Weather Data", "Pest Forecasts", and "Station Pages". The "Pest Forecasts" tab is active, displaying a dropdown menu with the following items: "Apple Diseases", "Apple Insects", "Apple Leaf Wetness Events", "Grape Forecast Models", and "Crucifer Disease Forecast". To the left of the dropdown is a search box with the text "Enter 'City, ST'" and "City, ST". To the right is a "Welcome to" section and a "Choose a NE" dropdown menu.

NEWA links: newa.cornell.edu

Apple Diseases:

<http://newa.cornell.edu/index.php?page=apple-diseases>

Apple Insects:

<http://newa.cornell.edu/index.php?page=apple-insects>

Eye-catching IPM Poster For Farm Markets

Ever need to answer questions from your farm market customers about whether your fruit has been sprayed? As you dust off and clean out your farm

markets for the up-coming season, consider placing our Apple IPM poster on the wall to inform customers about IPM practices. Tubes of 10 posters available free from the NYS IPM Program while supplies last. Email nysipm@cornell.edu and put "Apple IPM Poster, tube of 10" in the subject line. Wishing you a bountiful growing season!

[Section: CHEM NEWS]

ERRATA – STINKIN' DETAILS

(Art Agnello, Entomology)

[Box text: BUGS]

It was a good try, but I managed to get a few of the options wrong in last week's table of insecticides labeled against Brown Marmorated Stink Bug. For one thing, Actara is registered, but in stone fruits only. Carzol similarly has stink bugs on its peach label, and Asana has a stink bug use on its pome fruits label, listed under "Plant Bugs". All the corrections have been incorporated into the revised table, below; please discard last week's version. Notices of any additional errors will be appreciated.

Brown Marmorated Stink Bug Options for New York

Product/a.i.	Pome Fruits	Stone Fruits	Lethality Index*
Actara/thiamethoxam <i>Comments: stink bugs on label, stone fruits only</i>	no	yes	56.3
Asana/esfenvalerate <i>Comments: stink bugs on label</i>	yes	peaches only	43.3
Baythroid/cyfluthrin <i>Comments: stink bugs on label</i>	yes	yes	54.8
Brigade/bifenthrin <i>Comments: stink bugs on label</i>	pears only	no	91.5
Carzol/formetanate HCL <i>Comments: not later than petal fall; apples: 2(ee)</i>	apples only	peaches only	63.5
Cobalt/chlorpyrifos + lambda-cyhalothrin <i>Comments: 2(ee), postbloom: trunk only</i>	apples only	yes	89.0/ 52.9
Danitol/fenpropathrin <i>Comments: 2(ee), 2-4 appls max, PHI 14 d</i>	yes	yes	66.7
Endigo/lambda-cyhalothrin +thiamethoxam <i>Comments: BMSB on label</i>	yes	yes	52.9/ 56.3

Lannate SP, LV/methomyl <i>Comments: 2(ee)</i>	yes	peaches only	90.1
Leverage 360/beta-cyfluthrin + imidacloprid <i>Comments: stink bugs on label</i>	yes	yes	54.8/ 40.0
Lorsban Advanced/ chlorpyrifos <i>Comments: 2(ee), postbloom: trunk only</i>	apples only	yes	89.0
Proaxis/gamma-cyhalothrin <i>Comments: stink bugs on label</i>	yes	yes	53.8
Surround/kaolin <i>Comments: stink bugs on label</i>	yes	no	23.1
Voliam Xpress/lambda-cyhalothrin + chlorantraniliprole <i>Comments: stink bugs on label</i>	yes	yes	52.9/ NA
Vydate L/oxamyl <i>Comments: 2(ee), 4 appls max, PHI 14 d</i>	yes	no	34.2
Warrior/lambda-cyhalothrin <i>Comments: stink bugs on label</i>	yes	yes	52.9

*BMSB Lethality Index, as reported by T. Leskey (USDA-ARS, AFRS, Kearneysville, WV). Values based on BMSB exposure to residues on glass dishes for 4.5 hr, and

recorded mortality for 7 d. Highest possible L.I. value (toxicity) is 100.

Stink Bugs Not on Label (and not legal for this use in NY)

Ambush, Pounce/permethrin	77.1
Guthion/azinphosmethyl	71.3
Mustang Max/zeta-cypermethrin	52.1
Provado/imidacloprid	40.0
Thionex/endosulfan	90.4

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