scaffolds FRUIT JOURNAL

Update on Pest Management and Crop Development

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INSECTS

BARREL-LY THERE YET

CHECK YOUR OIL

(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

❖❖ It's finally gotten difficult to find much residual snow on the ground, and this week's temperatures are expected to resemble what we usually see by mid-April, so it's worth taking the opportunity now to consider the potential value of using horticultural mineral oil as an early season pest management tactic. This used to be a fairly universal practice years ago, when mites were more problematic and the options for dealing with them were less abundant (I was going to include scales in this category, but San Jose scale at least has been attempting a revival, and so remains a good argument for continuing this approach). Those of us familiar with fruit insect and mite trends still believe that it's worthwhile to consider the use of oil applications for early season mite and insect control in both apple and pear plantings, because of its effectiveness, relative affordability, and safety from a biological and pesticide resistance perspective. Taking advantage of the most favorable spraying conditions to maximize tree and block coverage can be a challenge in our climate, but few pest management efforts have such potentially high returns when all factors are taken into account, and if weather trends continue, this year may offer more opportunities than we normally get.

Mite and scale population levels are typically not the same each year, and weather conditions are certainly among the most variable of factors in the pest scenario from one year to the next. Before you decide that it's too much trouble or cost to invest in a prebloom spray of oil, be sure you're aware of how much it could cost you (biologically as well as financially) if a rescue treatment for mites or scales ends up being necessary later in the season. Probably first, chronologically, early oil applications are useful against pear psylla all throughout the swollen bud stage, which is where most of our region's diminishing pear plantings are situated currently.

Not Just a 50s Thing

The following advice developed from Paul Chapman's original decades-old research is essentially unchanged from what I print every spring, which shows the durability of not only the information, but also of a crop protectant that's still as good as it used to be:

A delayed-dormant spray of petroleum oil in apples from green tip through tight cluster can be

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a favored approach for early season mite control, both to conserve the efficacy and help slow the development of resistance to our contact miticides. Our standard advice has been to try for control of overwintered eggs using 2 gal/100 at the green tip through half-inch green stage, or 1 gal/100 at tight cluster; this assumes ideal spraying conditions and thorough coverage. Naturally, this is not always achieved in real life, mainly because of weather and coverage challenges, coupled with the difficulty of getting to a number of blocks during a fairly brief window. It is possible for mites to start hatching when the trees are at solid tight cluster, so the suffocating mode of action tends to be compromised if the nymphs are able to pick their way through the droplets, or else avoid them entirely. Let practicality determine how best to use the following guidelines.

First, to be sure that mites are in the egg stage, start on your blocks as soon as the weather and ground conditions permit, even if this means using a higher rate. Depending on how wet the winter months have been, local conditions will be the prime determinant of how easily you can get through the rows early on. Also, tend toward the high end of the dosage range, especially if there's been no frost during the 48-hour period before your intended spray, and no danger of one for 24–48 hours afterwards. For example, use 1.5 gal/100 if the buds linger somewhere between half-inch green and full tight cluster during your chosen spray period. Naturally, cold snaps and overnight frosts are always a wild card possibility, so be aware of any imminent changes in weather patterns that could result in tissue damage in oil-treated trees.

Obviously, good coverage of the trees is critical if you're to take advantage of oil's potential efficacy; this in turn requires adequate spray volume delivered at an appropriate speed. Experience and research have shown that a 1X concentration (300 gal/A) in large trees is clearly preferable; however, if all other conditions are optimal (weather, speed, calibration), then 3X, or 100 gal/A, is the highest concentration that should be expected to give acceptable control at any given time. Growers like to concentrate more than this to save time and the hauling of extra water, but reducing coverage too much can undermine your efforts if you end up covering only a small fraction of the egg population with the residue.

Don't limit this mite control tactic just to apples and pears. Talks with stone fruit growers have reminded us that many cherry, peach and plum plantings can suffer equally serious European red mite or San Jose scale infestations that weren't given the early season attention they might have needed. We don't have hard and fast threshold guidelines for these crops, but stone fruit plantings with a history of past problems should be examined for presence of red overwintered ERM eggs or characteristic SJS scale infestations on the bark, and if they're numerous enough to see without a hand lens, then a prebloom application of 2% oil would be a prudent tactic to help ward off this damage, particularly if your fungicide program at this time doesn't present any compatibility problems.

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Finally, we do hear of concerns each year that prebloom use of oil might be damaging to the crop or even the trees, so why even consider it? I would note that, as with any crop protectant, it's certainly possible to use oil improperly and come away with poor or even detrimental results, so it's wise to stay away from using oil if any of the following conditions apply:

- occurrence of sub-freezing temperatures less than 48 hr before or after an oil application

- presence of active captan or copper residues when oil is applied. It's generally wise to allow 7–10 days before or after applying oil to use either of these products; both can cause phytotoxicity to the buds and woody tissues when combined with oil's penetrant activity.

- poor drying conditions, which can promote spotting and burning damage to sensitive foliar and bud tissue.❖❖

GENERAL INFO

MACHINE MEMORY

NEWA APPLE DISEASE TOOLS NOW SAVE BIOFIX DATE – AND MORE

(Juliet Carroll, NYS IPM Program, & Kerik Cox, Plant Pathology and Plant-Microbe Biology; jec3@cornell.edu & kdc33@cornell.edu)

❖❖ The apple scab and fire blight models on NEWA will now (1) save your apple biofix dates, (2) allow you to "click out" of biofix dates that are too early, and (3) provide the full model interface from the Station Pages.

(1) Biofix dates for apple scab and fire blight

Tired of entering green tip dates and first blossom open dates over and over again? That's now being saved! The NEWA apple diseases tools will now save the green tip date, first blossom open date, and the orchard blight history selection. The biofix date that you last entered is saved in local storage in the web browser's cache. You may need to clear your browser's cache to enable local storage and see these changes. The dates and orchard characteristics cached are specific to the weather station location and the year used. The information saved is what you last entered when using the tool for that weather station and year.

To get ready for spring disease management, here's what's saved after you enter it:

Apple Scab – green tip date (50% green tip on 'McIntosh' apple or closest equivalent.) For the ascospore maturity model, McIntosh apple phenology was used for the research the model is based upon. Always use this variety for your orchard of interest, unless you aren't growing it; then use the closest equivalent.

Fire Blight – first blossom open date on variety of interest and orchard blight history selection for block of interest. For the Cougar Blight and Epiphytic Infection Potential (EIP) models, use the first blossom open date for the variety of interest in the block of interest to get the results for that variety.

This information is saved locally in your browser's cache. Local storage from your browser is not backed up, so if it is cleared (deleted), it will need to be reentered. Always keep a record of your biofix dates and orchard characteristics. You may need to clear your browser's cache to enable local storage and see these changes. Remember, though, that clearing your browser's cache will delete your saved biofix dates and you may not want to do that if NEWA is already saving them.

(2) Biofix has not occurred yet

Is the NEWA-estimated biofix date too early and you want to eliminate it? Now you can! On the Apple Diseases tools for apple scab (green tip date), fire blight (first blossom open date) and sooty blotch / flyspeck (petal fall) a "Click if <biofix> has not occurred" button returns you to the pre-biofix IPM information for that apple disease tool (Figure 1A, B, C). This is especially important for fire blight, because the pre-biofix IPM message contains fundamental information about scouting for oozing, overwintering fire blight cankers. For apple scab, the pre-biofix message informs you about

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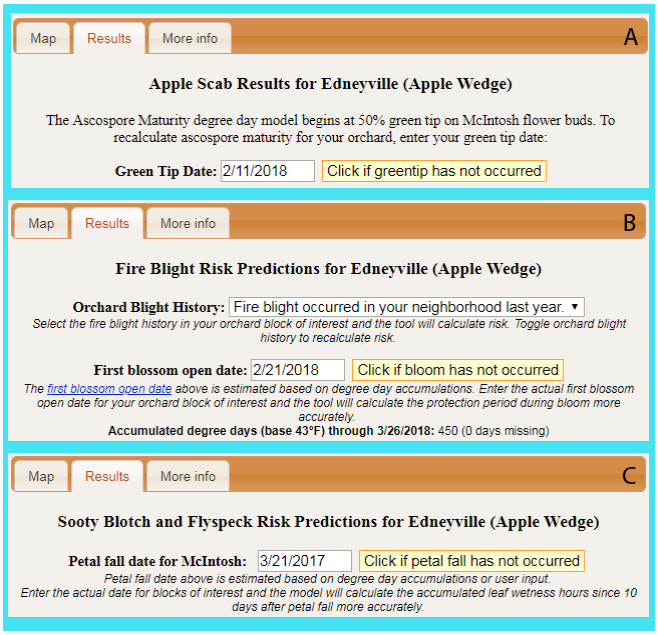

Figure 1. Screen shots of the new button that can be used if biofix has not yet occurred. (A) For apple scab green tip. (B) For fire blight. (C) For sooty blotch/flyspeck.

getting ready for the upcoming primary infection season.

(3) Full interface access from Station Pages

Do you want to see what happened last year or change the biofix date on an apple disease or insect tool when accessing it from a Station Page? Now you can! Previously, the Station Page Pest Forecasts for apple diseases (apple scab, fire blight, sooty blotch/flyspeck) and insects (spotted tentiform leafminer, oriental fruit moth, codling moth, plum curculio, oblique-banded leafroller, apple maggot) provided current day results only.

Now, those links will take you to the current day results in the fully functional interface, including the map, results, and more info tabs (Figure 2). The left-hand part of that interface allows you to select dates in the past to look at what the tool predicted for last year or prior years. You also can select an alternate weather station location and see the map of weather stations. A link below the model results will return you to the Station Page for the weather station of interest.

For more details on this, read more information in the Your NEWA blog, Apple tools made easier to use, http://blogs.cornell.edu/youre-newa/2018/03/27/apple-tools-made-easier-to-use/. While there, subscribe to the Your NEWA blog to get the new posts. ❖❖

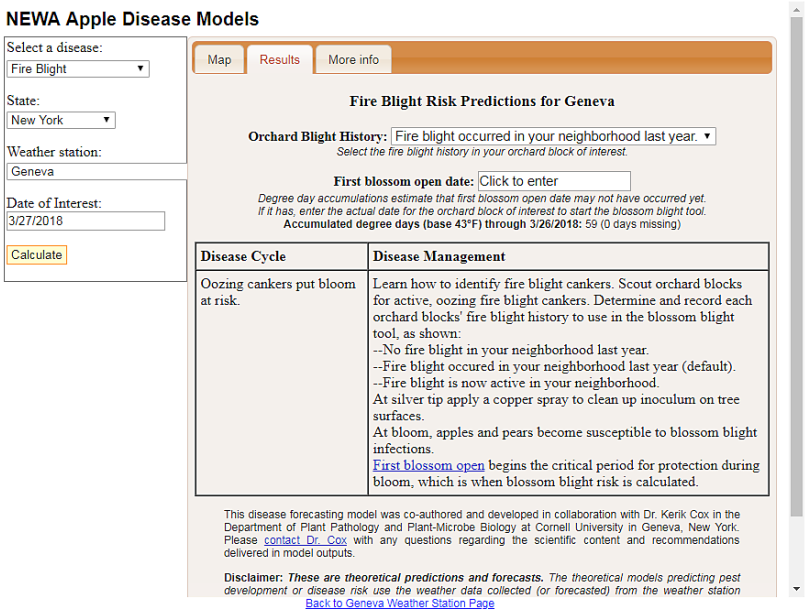

Figure 2. Screen shot of the NEWA fire blight tool accessed from the Geneva Station Page. The full interface has the Map, Results, and More Info tabs and the left-hand selection tools to access different dates and locations. Return to the Station Page using the link at the bottom of the webpage display.

UPCOMING PEST EVENTS

	43°F	50°F
Current DD* accumulations (Geneva 1/1–4/9):	64.7	20.7
(Geneva 1/1–4/9/2017):	109.7	45.1
(Geneva "Normal"):	128.1	48.6
(Geneva 1/1-4/16, predicted):	127.5	54.6
(Highland 1/1–4/9):	116.0	39.0

Coming Events:	Ranges (Normal ±StDev):	
Green fruitworm 1st catch	50-148	12-68
Green apple aphids present	111-265	38-134
Pear psylla adults active	31-99	8-34
Pear psylla 1st oviposition	40-126	11-53
Pear thrips in pear buds	118+214	50-98
Pear psylla 1st oviposition	40-126	11-53
Redbanded leafroller 1st catch	114-177	42-82
Spotted tentiform leafminer 1st catch	118-218	45-102
McIntosh silver tip	63-107	21-42
McIntosh green tip	99-145	38-63

*all DDs Baskerville-Emin, B.E.

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	4/2	4/9
Green fruitworm	0.0	0.0
Redbanded leafroller	0.0	0.0
Spotted tentiform leafminer	0.0	0.0

Highland, NY

	3/28	4/2	4/9
Green fruitworm	0.5*	1.0	0.0
Redbanded leafroller	0.0	2.0*	0.0
Spotted tentiform leafminer	0.0	0.0	0.0

* first catch

PHENOLOGIES

Geneva:	Current	4/16, Predicted
Apple (McIntosh, Empire, Idared):	silver tip	green tip
Apple (Red Delicious):	50% silver tip	silver/green tip
Pear (Bartlett, Bosc):	dormant	swollen bud
Cherry (Sweet, Tart):	dormant	swollen bud
Peach:	swollen bud	swollen bud/bud burst
Plum:	dormant	swollen bud
Apricot:	swollen bud	swollen bud/bud burst

Highland:	
Apple (McIntosh):	50% silver tip/trace green tip
(Empire, Ginger Gold, Red Delicious):	dormant
Pear (Bartlett, Bosc):	dormant

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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