



Apple Pest Report: Friday, August 14, 2009

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Scab

Scab levels remain blissfully low in blocks monitored by the Apple IPM Scouting Co-op. Fungicide protection against flyspeck should be sufficient to prevent any scab flare ups as apple leaves lose natural resistance to secondary scab infection as they age. Stay tuned for future nagging about the value of doing a fall scab index in September.

Dr. David Rosenberger posted the following ominous comments in a recent edition of the Cornell Scaffolds newsletter:

“The future of the strobilurin fungicides for scab control has become questionable because strobilurin resistant strains of apple scab have now been detected in numerous Michigan orchards and in several western NY orchards as well. These resistant strains contain a single-site mutation that makes them totally resistant to the strobilurin fungicides, just as Benlate-resistant strains of scab were totally uncontrollable with benzimidazoles after resistance occurred. The stability of resistance to the strobilurin fungicides from year to year requires more research, but it seems quite likely that orchards with strobilurin-resistant scab will no longer get any scab control from applications of Flint, Sovran or Pristine.”

There is no field or lab indication of strobilurin resistant scab in Maine so far. It would be good to keep it that way. We only have resistance test results from two blocks in Maine, and while both showed some progress towards loss of sensitivity, the scab in those two samples was still susceptible to control by strobilurin fungicides. Additional samples were submitted to Cornell this year and I hope to have results from those this winter.

With good stewardship, strobilurin fungicides can remain effective tools for scab control in Maine for many years, perhaps indefinitely. The detection of strobilurin resistant scab in other states provides extra incentive to take care to avoid selecting for strobilurin resistant scab strains. This means relying on protectant fungicides like captan and mancozeb as the foundation for primary scab control; reducing the use of strobilurins on active scab lesions by getting good preventive control through proper dose, timing, and coverage when using those protectant fungicides; switching off from strobilurins to a different chemistry after two sequential applications; and combining with a half or full rate protectant fungicide when using strobilurins for scab control.

Fire Blight

Fire blight continues to show up in more Maine orchards, and I'm told that the same is true in southern NH. I don't want to overstate this or give the wrong impression. The vast majority of trees are not affected, and apple foliage is lush from all the rain in June and July. This is not a fire blight epidemic. But it is very noteworthy for Maine to have detectable fire blight in so many orchards. Fire blight used to be a disease only very sporadically seen in Maine; it was something "from away".

We are now in a different realm. Fire blight is now up there with apple scab and flyspeck as a disease that requires attention. Except for a couple of growers who were hit hard, I guess we should be grateful to get the wake up call that fire blight potential is so widespread in a year when infection conditions were not that severe. It could have been a lot worse.

My only explanation for this situation is that the severe infection conditions we had two years ago, and which did not lead to noticeable outbreaks even in unprotected orchards, never the less led to an elevated region-wide inoculum level. That presumed elevated fire blight inoculum level persisted through 2008 but remained largely unseen due to lack of suitable infection conditions, and then with this year's moderate infection conditions became visible as widely distributed, (though still not intense in most cases) visible outbreaks..

If that scenario is accurate, then a repeat of the 2007 conditions this year could have led to severe damage. Fortunately that did not happen, and the marginal infection conditions we did have were just enough to show us the potential. And with low level fire blight visibly present in many Maine orchards this year, the inoculum level for next year will be even higher.

Forewarned is forearmed, at least I hope so. We've been given notice that given suitable weather, apple trees in Maine can get hit by this disease. My presumption is that if given severe weather, Maine apple orchards could be suffer serious damage if preventive measures are not taken.

In the previous newsletter I wrote about not doing summer pruning in an orchard with widespread fire blight strikes. Some folks I've talked to since then interpreted that as meaning that if fire blight strikes appeared they should not be removed. That's not what I meant. I was referring to the horticultural practice of "summer pruning" to thin out canopies of every tree to allow better sunlight and air penetration. My concern was that if there is active fire blight in an orchard, the wounds and physical disturbance of summer pruning could help spread fire blight. My concern about summer pruning may not be warranted as I've since found out that the wounds created by breaking off water sprouts and by cuts made to thin out vegetative growth to more branches will heal enough to resist infection in just a few hours. The same is true for breaking off root suckers.

However, summer pruning and sanitation pruning to remove fire blight strikes should not be combined into a single operation. Sanitation pruning is recommended as soon as shoot blight strikes appear and should be before and separate from summer pruning to thin canopies.

Fire blight infected tissue must be handled carefully to prevent spreading the disease by rubbing it against other branches as it is being removed from the tree. This applies primarily to contact with branches that have tender new growth. With most branches now at terminal bud set, this concern is lessened but care should still be taken to minimize contact with other branches in removing fire blight infected tissue. And the infected tissue should be removed from the orchard. If left on the ground, that tissue can continue to spread fire blight bacteria at least until the tissue is completely dead and dry which could take several days even with dry weather, and longer with wet weather.

Removing fire blight from the orchard reduces the chance for continued spread of shoot blight. In addition to preventing more damage this year, that helps reduce thus the number of new infection sites to produce inoculum for next spring if not removed during dormant pruning. Sanitation pruning also reduces the potential for trauma blight if there are hail wounds in an orchard with active fire blight.

Flyspeck and Sooty Blotch

I am worried about the potential for flyspeck this September. The last two weeks of sunny weather has helped reduce that worry, but the historically wet conditions during June and July were ideal for flyspeck growth.

Here are some comparisons of June and July 2009 weather in the Monmouth – Turner area with the climatic averages

Total rain: June 1–July 31, 2009 = 16.4 inches. Climatic average is 7.2 inches.

Average relative humidity: June-July 2009 = 83%. Climatic average is 70%. (= 17% below saturation vs. normal 30%).

Average temperature: June-July 2009 was 2.2 degrees F cooler than normal.

Solar radiation: 15% below normal.

Average wind speed: 5.3 mph versus 10.4 mph climatic average.

The drying capacity of air is a function of temperature and relative humidity and gives a measure of how soggy June and July 2009 were. With higher humidity and cooler temps in June – July 2009, the average drying capacity of air was only 53% of normal. And that figure does not account for reduced sunshine and wind speed.

And despite it all, the apple crop looks great! Fortunately the wet summer was preceded by a dry spring which helped with primary scab control. It would be a shame to have such beautiful fruit downgraded because of flyspeck just as harvest approaches.

I have revised the Orchard Radar flyspeck models to account for the effect of temperature on flyspeck growth. The relationship between temperature and flyspeck growth is based on laboratory research, but applying that relationship into forecasting flyspeck development in the field has not been validated. On the other hand, if you don't account for it, the assumption is that temperature has no effect on flyspeck growth which we know is not true.

I've also bracketed the "best guess" midpoint estimate for the date when flyspeck could appear with a "worst case" and "best case" scenario on either side. The intent is to provide a sense of the range of flyspeck risk with different final fungicide application dates. All three scenarios use observed and forecast rain accumulation and day count from the time of application to estimate the fungicide depletion date. From the estimated fungicide depletion date onward, temperature and leaf wetness hours are used to estimate development of flyspeck from initial infection to becoming visible as black specks on the fruit.

For dates beyond the 7-day forecast range, the "best guess" estimate uses the climatic average values for each day. The "worst case" scenario uses elevated leaf wet hour accumulation based on the amount of rainfall that occurs in one year out of five. And it uses higher temperatures that occur one year out of five. Now the statistically astute will surmise that $1/5 * 1/5 =$ a one year in 25 probability. But the actual likelihood for the "worst case" scenario is closer to one year in ten for reasons I won't go into here.

The best case scenario uses the same weather data as the "best guess" scenario but assumes that flyspeck growth in the canopy of open-pruned, small-tree, low-risk trees takes 50% more leaf wet hours than in "normal" trees (whatever that is). This is based on research by Dr. Dan Cooley and others at the University of Massachusetts that documented a 30% increase in fungicide coverage, and a 63% reduction the number of hours with relative humidity over 95% which flyspeck requires for growth.

As long as we all remember that a model is not "The Truth" but just educated guesswork, I think the new flyspeck estimates provide growers with a useful tool to help decide if the final fungicide application date is late enough to provide protection late enough to prevent flyspeck before anticipated harvest date. The model becomes particularly useful if unusual weather conditions prevail and thus disturb the normal relationship between final fungicide application date and flyspeck appearance timing.

The flyspeck models are available at <http://pronewengland.org/AllModels/MEmodel/RADARME-Sanford.htm#FLYSPECK> for Sanford, and <http://pronewengland.org/AllModels/MEmodel/RADARME-Monmouth.htm#FLYSPECK> for Monmouth.

There are separate flyspeck models for Group B (full-dose captan or ziram), and for Group A fungicides (strobilurins and Topsin M which are expected to provide longer residual control than captan). While Pristine, Flint, Sovran, and Topsin M are

lumped together, note that Pristine is a step better than Flint or Sovran, and those two are probably a bit better than Topsin M. You can augment the efficacy of any final fungicide application by adding a phosphite fungicide to the mix as described in the previous newsletter. In addition to the phosphite fungicides listed there, Rampart is another phosphite registered for use in Maine.

What the Monmouth models show at present is that if you don't want to risk flyspeck appearing before Columbus Day (October 12), then the final application of a Group A fungicide should be made no earlier than August 5, or a Group B fungicide by no earlier than August 12. And that applying a Group A fungicide on or after August 17 should protect against flyspeck showing before October 12 even if we have a warm wet September, with the equivalent safe final fungicide application for a Group B fungicide being August 24.

The final application dates for Sanford dates are a few days earlier, in part because of higher rainfall on August 11, and in part because warmer climatic average temperatures in Sanford allow flyspeck growth to proceed at full rate later into September.

Insects and Mites

Apple maggot

Apple maggot trap captures in monitored blocks remain low. Maybe they did drown, or maybe there is a late emergence about to happen. I simply don't know what's going on with apple maggot fly this year. Even adjusting for the cool weather in June and July, apple maggot emergence should be well under way by now. This is the heart of apple maggot activity and every orchard should have protection in place. This could be a year when a single insecticide application will be sufficient in many orchards. It is impossible to make state-wide pronouncements about apple maggot because their populations vary so much between orchards. Despite the low counts in 20 monitored blocks this year, there is one block that is doubling the threshold every week. The only way to assess the apple maggot situation in your orchard is to use traps and not to rely on what is being seen in other orchards, even those close by.

Mites

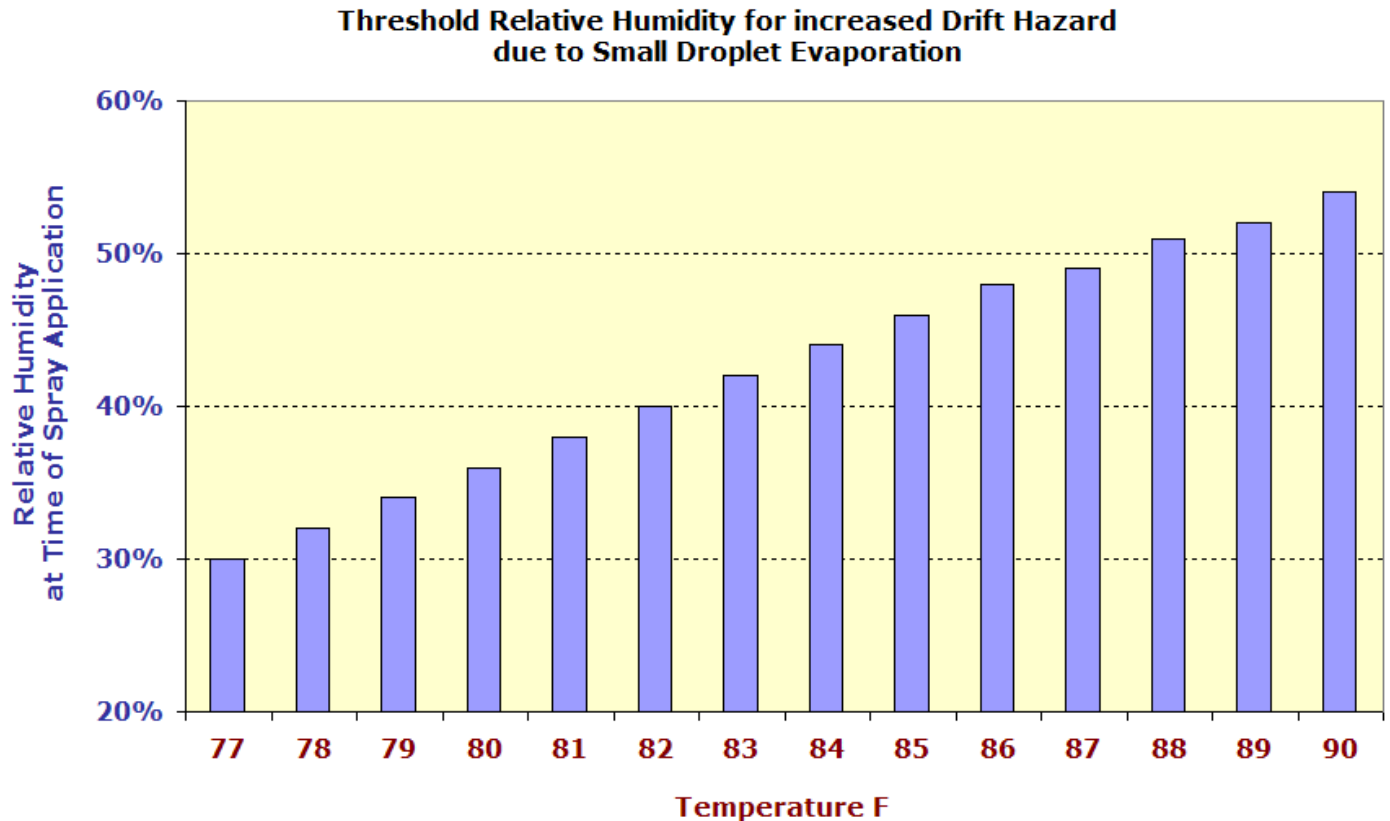
Mite populations remain low in almost all monitored blocks. See last week's newsletter for thresholds.

Codling moth

1st generation egg hatch is complete and 2nd generation hatch is getting underway in the Sanford area, and will begin soon in Monmouth. Codling moth captures in monitored blocks have been generally low.

Spray Drift

This is a repeat from last week, but I mislabeled it the first time, so here it is again. Here are estimated relative humidity values below which rapid drying potential of small droplets could lead to increased drift potential.



Upcoming events, Odd and ends

The **100th anniversary of Highmoor Farm** will be celebrated with farm tours and glorious proclamations on **Wednesday, August 19, 2009**.

YouTube apple picking video by the New England Apple Growers Association
<http://www.youtube.com/watch?v=k-NbCpbZW0c>

NEAGA website
<http://www.newenglandapples.org/>

An interesting quote from an article about pesticide residues on fruit in the Chicago Tribune Watchdog, Aug. 12, 2009:

“Rayne Pegg of the USDA's agriculture marketing service confirmed that fludioxonil is not an approved compound for organic farming but added, ‘as long as the concentrations don't exceed 5 percent of EPA tolerances, it can be sold as organic.’ In fact, the USDA allows such levels of any legal pesticide to be present on organic produce.”

Closing words

"There are some people who, if they don't already know, you can't tell 'em."

"In theory there is no difference between theory and practice. In practice there is."

"I never said most of the things I said."

-- all attributed to Yogi Berra

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