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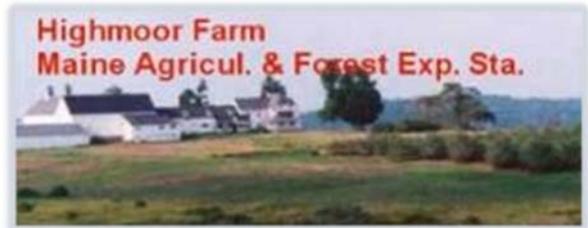
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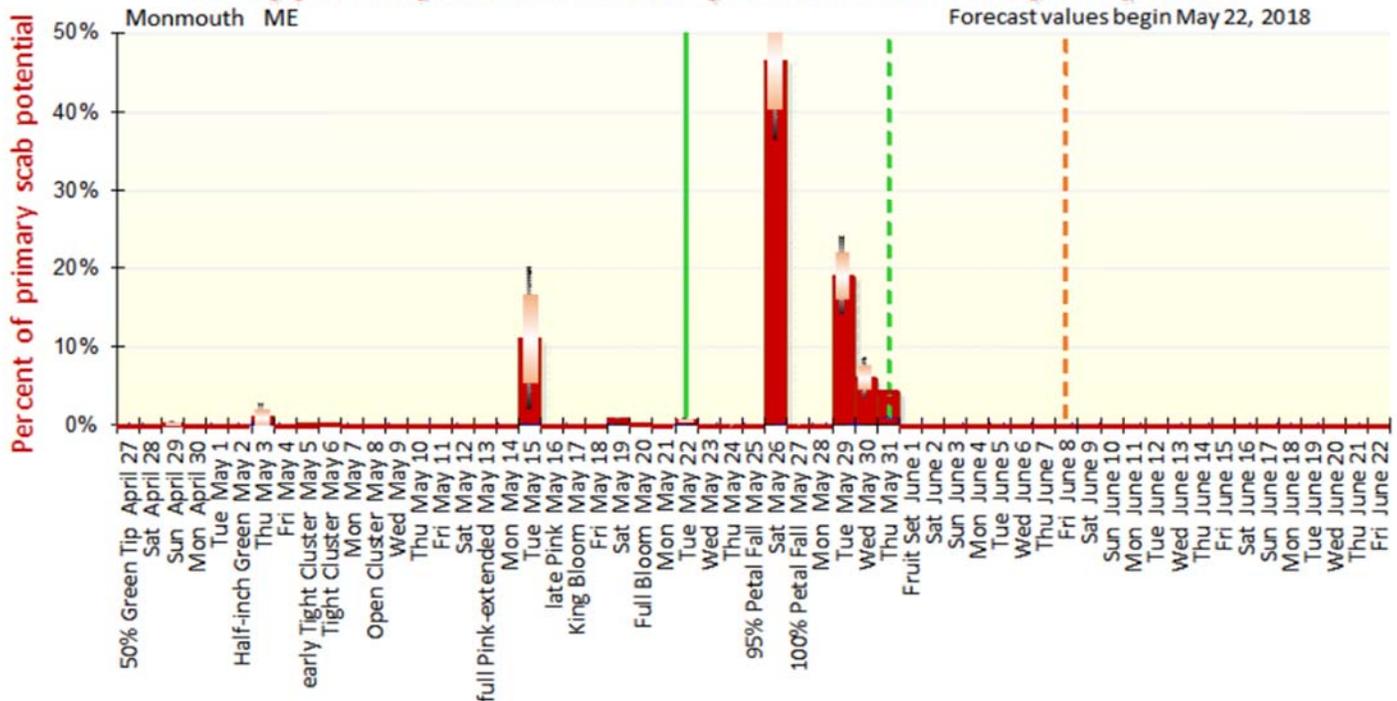
Maine Tree Fruit Newsletter

Tuesday, May 22, 2018 Vol 25:5

Apple Scab Update

The next two or three rains will bring the highest apple scab infection pressure of the year. Even Sanford has 75% of its primary scab infection potential still unreleased. In Monmouth it is over 90% left to release. The rain forecast for Saturday-Sunday May 26-27 is more than sufficient to create a fire blight infection period, but is borderline for apple scab. Showers like this have a history of disappearing out of the forecast as the day draws near. But it is bound to rain sometime, and when it does there will be a lot of pent up scab infection pressure. Tuesday-Thursday May 29-31 currently have 50:50 rain probability. Watch the forecast and plan ahead to have solid protection in place BEFORE the rain. Given the high scab infection pressure expected, combining a protectant with one of the single-site mode of activity fungicides is good insurance. Those materials (DMI, strobilurins, SDHI) not only have post infection activity, they also have translaminar absorption and redistribution inside foliage to improve coverage beyond the original spray droplet deposit.

Daily primary scab infection potential as % of yearly total



Top of wide red bar shows best estimate of primary scab ascospore infection potential.

White-to-light red shaded narrow boxes overlaid on red bars show range expected to contain the true value most of the time (68% confidence interval). Vertical black bars show wider range of 90% confidence interval.

Vertical green line = today's date. Vertical dotted green line = end of forecast range.

Vertical orange dotted line = date of final significant primary scab infection period (estimated 99+% cumulative spore release, and 95% chance of at least 95% cumulative spore release).

Infection potential rating is for scab ascospores (i.e. primary scab) only. Uncontrolled infections can produce secondary scab spores that magnify infection risk beyond what is indicated by this chart 9-17 days after the infection period (number of days depends on temperatures after infection).

Fire blight

The fire blight situation has been low key so far. But remember, it only takes a tiny bit of rain to drive a fire blight infection IF inoculum and sufficient heat units are present.

For the Sanford area: There is potential for blossom blight infection in the Sanford area from showers Tuesday night and Wednesday. But only for locations where overwintered fire blight cankers are present in the orchard or nearby and are currently oozing (Category III in the Cougarblight model). I think the dry weather reduces that risk somewhat. Except in those high risk situations, the number of expected heat units in Category II situations (which is a reasonably cautious default assumption for most blocks unless you had an obvious fire blight problem last year), there is probably not enough heat units on Tuesday night. There will be more heat units on Wednesday, but no rain forecast.

But the forecast for this weekend is much more threatening. Even though McIntosh reached Petal Fall in Sanford on Tuesday, there will be still enough flowers on late blooming cultivars to allow blossom infections to occur. Category II blocks have a HIGH infection conditions if it rains on Saturday May 26 in the Sanford area. And the Eastern Fire Blight model also rates conditions as sufficient for blossom infection on May 26 in the Sanford area.

Fire blight blossom infection risk varies with block history. If you do not know orchard history, use category II as default assumption.

I = No active fire blight within 1 mile of the orchard in last two years. Requires 500 – 799 heat units for HIGH rating, 800 – 999 for EXTREME!, and 1000+ for EXCEPTIONAL!

II = Fire blight was present within 1 mile of the orchard within last 2 years, but not currently active in the area this year. Requires 200 – 349 heat units for HIGH rating, 350 – 499 for EXTREME!, and 500+ for EXCEPTIONAL!

III = Active fire blight cankers within 1 mile of the orchard this year. Requires 100 – 199 heat units for HIGH rating, 200 – 299 for EXTREME!, and 300+ for EXCEPTIONAL!

If blossom infection occurred May 15, then blossom blight would be noticeable by June 2, and shoot blight by June 13.

Open blossom dates for common apple cultivars. "Date" is from 8am to 8am the next day, not midnight to midnight.	Cumulative Heat Units (single day units) Inches Rain, & Leaf Wet Hours 8am to 8am next day	I - No active FB within one mile of the orchard in last two years	II - FB active within one mile of orchard in last two years, but not this year	III - Fire blight currently active within one mile of orchard.	Date blossom blight (and shoot blight) symptoms would be obvious if infection occurred
McIntosh 95% Petal Fall on Tue, May 22	152 HU (13) 0.07", 8 hrs	Caution	Caution	HIGH	June 5, (June 15)
McIntosh 100% Petal Fall on Wed, May 23	231 HU (82) 0.0", 2 hrs	Caution (dew risk)	HIGH (Dew risk)	EXTREME! (Dew Risk)	June 6, (June 16)
Thu, May 24	201 HU (20) 0.0", 0 hrs	Caution (if wetting)	High (if wetting)	Extreme! (if wetting)	June 7, (June 17)
Fri, May 25	307 HU (191) 0.0", 3 hrs	Caution (dew risk)	HIGH (Dew risk)	EXCEPTIONAL! (DEW RISK)	June 8, (June 18)
Late Cultivar Petal Fall on Sat, May 26	344 HU (50) 0.21", 21 hrs	Caution	HIGH	EXCEPTIONAL!	June 9, (June 19)
Sun, May 27	273 HU (11) 0.0", 4 hrs	Caution (dew risk)	HIGH (Dew risk)	EXTREME! (Dew Risk)	June 10, (June 19)

For the Monmouth area and points north and east – heat levels are lower, and not enough to drive fire blight blossom infections on Friday – Monday, May 25-28 unless temperatures are higher than currently forecast. Cougarblight shows infection potential for Category III orchards but not Category II, and the Eastern Fire Blight model does not rate conditions as sufficient for infection.

Sanford area growers with a recent history of fire blight should apply streptomycin within 24 hours before or within 12-24 hours after the start of a rain event. Sanford Cougarblight ratings for next few days. See Ag-Radar page for explanatory text and background info.

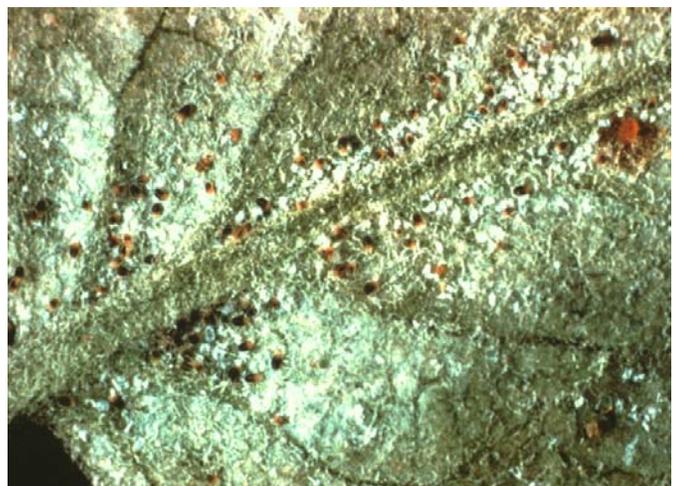
Petal Fall Scouting

As apple trees reach petal fall across much of Maine in the next week, that begins one of the most important pest monitoring periods of the year.

Overwintered European red mites that hatched before bloom will begin laying eggs for the next generation. That first generation of mites are in synchrony as adults, which makes them relatively easy to see, though they are still small. Having the population at roughly the same life stage makes it possible for ovicides to work more effectively. The prime period for scouting ERM is May 22-29 in Sanford, May 25-June 4 in Monmouth, and May 26-June 9 in Newport. That period begins with McIntosh Petal Fall and ends when 1st generation ERM start laying eggs for the next generation.

You can certainly scout after that date, and you should. But it is ideal to scout within that window so that you can get treatment on, if needed, before too many eggs are laid, creating many more mites that will require control. Also, some materials like Agri-Mek work best when foliage is still tender within the first two weeks after Petal Fall.

There are several early-season, miticides that are most effective when used against developing, above-threshold mite populations. They materials are not ideal as rescue materials if needed against an established high mite population of mixed life stages later in the summer. But used within the first two weeks after Petal Fall when most ERM are at a similar life stage, these materials can provide prolonged residual control, often preventing any subsequent mite problem for the rest of the year. Apollo is effective against egg and immature ERM, but not on adults. Zeal is a growth regulator that prevents further maturation of eggs and immatures, and sterilizes adult ERM. Savey and Onager have long residual efficacy against eggs and young immatures, but not adult ERM. All four of these materials have low bee poisoning hazard. Agri-mek and Agri-flex.



European red mites on underside of apple leaf

Collect 40 older fruit cluster leaves per block of up to 10 acres (if the planting is relatively uniform, divide into separate blocks if not uniform). Select leaves from inside the canopy near the trunk, as that is where ERM populations are more likely to develop first. Count the number of leaves before you start checking them, because it is very easy to have a number different than 40. Use a magnifier of at least 3X. Dollar store glasses are a practical inexpensive option. An optisor headset (available from Great Lakes IPM, Gemplers and elsewhere) costs more but makes the job easier because you can flip the lenses out of the way when you don't need them, and flip them down when you do.

Check the underside of the leaves, where the petiole stem attaches to the leaf. If there are living hatched mites (eggs don't count) on 30% or more of the leaves, then treatment is recommended. Mathematically, that would be 12 out of the 40 leaves. But we use a small sample size of 40 leaves instead of 100 to save time. The 40 leaf count introduces possible small sample size bias, so instead of 12 out of 40, we use a statistically adjusted threshold of 6 or fewer out of 40 leaves with ERM present as indication that the ERM are below threshold. It takes 24 or more leaves out of 40 to have statistical confidence that the percentage of infested leaves is over 30%. If your count of infested leaves is larger than 6 and less than 24, collect another 60 leaves to get a full 100 leaf sample. And compare the total number of leaves out of 100 against the 30% = 30 leaf threshold.

Use those same leaves to check for sap-feeding mines of spotted tentiform and apple blotch leafminers. Greatly different thresholds have been recommended for 1st generation leafminer mines, from 0.15 to 1.0 mines per leaf. Let's keep it simple and cautious and use the same 30% of leaves threshold as used for ERM, i.e. 30% of leaves with a sapfeeding mine present. This is less sloppy than it might appear because in many cases a pest is either detectably present or it's not, so the fine distinctions of threshold level become less important.

Similarly, thresholds vary for White apple leafhopper. New York recommends a Petal Fall threshold of 1 WAL per leaf. But in the past, Ron Prokopy at UMass recommended a lower threshold. Again, let's keep it simple and say that WAL present on more than 30% of leaves at Petal Fall is worth paying attention.

If both leafminer and ERM are over threshold, Agri-mek and Agri-flex will control both in the first two weeks after Petal Fall. Agri-Flex is also effective against plum curculio and European apple sawfly. Both Agri-Mek and Agri-Flex are effective against White apple leafhopper. That said, if you are using Sevin (carbaryl) as a thinner, it is also effective against WAL and provides about a week of protection against plum curculio.

Closing Words

"If you want the rainbow, you've got to put up with the rain."

"The early bird may get the worm, but the second mouse gets the cheese."

"I almost had a psychic girlfriend... But she left me before we met."

~ Steven Wright

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