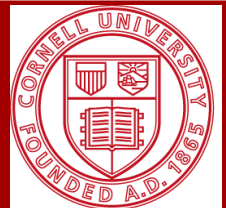




FRUIT NOTES

Lake Ontario Fruit Program



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Stone Fruit Disease Management D. Breth

Rusty Spot on Peaches:

It has been a great mildew season so far. [Rusty spot on peaches](#) is caused by the same powdery mildew fungus that infects apples. Dr. Norm LaLancette, Rutgers, says the control is related to varietal susceptibility, and susceptible varieties should not be planted next to powdery mildew susceptible varieties of apples. The most critical timings for applying effective fungicides in his tests are petal fall, shuck split, and 1st and 2nd cover sprays using the most effective mildewcide. In his several years of field trials, Rally is still the most consistently effective fungicide for mildew (rusty spot) on peach and nectarine. The Rally label for mildew in peaches requires 5-6 oz. /acre for high pressure, applied on a 10-14 day schedule. If powdery mildew is coming through a Rally program in apples, you should rely on the higher rate in your peaches. But you will need to use an alternative chemistry which should be effective for brown rot (chlorothalonil through shuck split or captan under low pressure). The alternative fungicide for less susceptible varieties is Gem (trifloxystrobin) at 1.9-3.5 oz./acre. Other SI's that have not performed as well and are not recommended for rusty spot include Indar, Tilt, Tebuzol, and Quash. Dr. LaLancette does not recommend relying on Pristine, Abound, Topsin M, or Sulfur in peaches susceptible to rusty spot.

Bacterial spot on peaches and plums:

This is a bacterial disease caused by *Xanthomonas campestris* on peaches, nectarines, Japanese plums, and apricots, but European plums are generally less susceptible than Japanese plums. Cultivars among these stone fruit crops vary widely in rating for resistance vs. highly susceptible. This is one disease if present in orchards you will not want to collect budwood from. The spots can occur on leaves and fruit, but bacteria overwinter on twigs invading through leaf scars in the fall. Infected cankers on twigs serve as primary inoculum source during the growing season. Periods of frequent rain and warm temperatures favor the disease during late bloom to a few weeks after petal fall when peaches and nectarine fruit are most susceptible to infection. Copper is used during leaf fall (not like leaf curl sprays after leaves fall) and is recommended again in early spring. Kocide 3000 is registered for use on bacterial spot at petal fall and during the growing season using .25-.5 lb./acre on peaches and nectarines, but could result in defoliation due to copper phytotoxicity and you must discontinue use when you see signs of phyto. Copper is only registered on apricots, plums, and prunes up to early bloom but you might still see some phyto. During the growing season, oxytetracycline is labeled for peaches and nectarines at 150 ppm starting at shuck split, and weekly if rainy conditions persist through 1st cover. Ziram containing zinc, labeled for "red spot" in peaches and nectarines has been used with varying success. Unfortunately, no oxytet is labeled for use on plums, only peaches and nectarines. Click on the link below for more on susceptible varieties:

http://msue.anr.msu.edu/news/management_of_bacterial_spot_on_peaches_and_nectarines



Cornell University
Cooperative Extension

Lake Ontario Fruit Program
in Wayne, Orleans, Niagara,
Monroe, and Oswego Counties
<http://lof.cce.cornell.edu>

Deborah Breth
Area Extension Educator
Team Leader, Pest Management
585-747-6039 dib1@cornell.edu

Alison De Marree
Area Extension Educator
Production Economics
315-573-8881 amd15@cornell.edu

Craig Kahlke - Newsletter Editor
Area Extension Educator
Fruit Quality Management
585-735-5448 cjk37@cornell.edu

Mario Miranda Sazo
Area Extension Educator
Cultural Practices
315-719-1318 mrm67@cornell.edu

Building Strong and Vibrant New York Communities

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

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 still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide.

Internal Lep Update

D. Breth and A. Agnello

A trap network is being run across the LOF region by D. Breth (with Liz Tee doing most of the work) and Art Agnello (and his people). We are trapping for oriental fruit moth, codling moth, and obliquebanded leafroller to set biofix (first sustained trap catch) and use that date for specific locations to determine the optimum insecticide timing based on degree day accumulations. Each of these pests has a different degree day (DD) base temperature as pointed out below.

Oriental Fruit Moth (OFM)

We caught our first OFM the between May 8-9 in the LOF region, but this pest is not a serious pests in all orchards. In problem blocks we caught 137 this past week but none; zero, in many other sites because OFM is not well established. The biggest problem sites are where there is a mix of stone fruit and apples. And note that this past week, there have been many lesser appleworm moths in the OFM traps since this moth is closely related to OFM. In problem blocks (i.e., those with a history of more than 1–2% fruit infestation over the past 10 years), the first spray against the first larval brood in apples is recommended at 350–375 DD (base 45°F) from biofix, which corresponds with 55–60% hatch. This typically fits in with petal fall sprays in peaches and apples. And that time is now in inland sites in apples, and late last week in peach sites. Insecticides used at petal fall effective for OFM include Altacor, Assail, Avaunt, Belt, Calypso, Delegate, and Rimon in apples; Altacor, Assail, Belt, Delegate, Asana, Danitol or Warrior in peaches. With the exception of Altacor, Belt, Delgate and Rimon, these insecticide options will also help control plum curculio.

Codling moth: First sustained trap catch, biofix, was set for May 22 in inland sites and we have accumulated ~90 DD50F as of May 27. For lake

sites we set the biofix in LOF trap network on May 25 and have accumulated about 50-60 DD50F. Based on the forecast, we will add 10-15 DD50F per day with the through next week.

Where codling moth continues to challenge you, consider the following guidelines for control:

1. Monitor flight using pheromone traps to set biofix, first sustained trap catch. Maintain these traps on a weekly basis so you can see clear trends in peak flight and sustained trap catches over the suggested thresholds of codling moths per week. Be aware of an increase in CM trap catch that indicates a “B” peak of the emergence of the overwintering CM typically late June. This is the flight that usually requires a third insecticide application for the first generation.
2. Suggested trap thresholds are: If apples have > 30 oriental fruit moths per trap per week for the first flight, and >10 moths per week for the 2nd-4th flights, this is a treatable population. In peaches, if there are > 15 moths per trap per week for the first flight, there could be potential fruit infestation problems if control steps are not taken. The suggested trap threshold for OFM in peaches for 2nd-4th flight is 10 moths per trap per week.
3. My experience is that growers who have seasonal trap catch totals of more than 150 CM/ per trap get better control of CM when they add mating disruption to the control program along with 2 insecticide applications per generation under mating disruption for the first season. Seasonal trap catches between 50-100 should be able to get good control of CM and OFM using mating disruption and a reduced insecticide programs with 1 insecticide targeting each generation, or in a year with a light crop with 1-2

insecticide applications for the first generation, and depending on continued trap catch, 1-2 for the second flight usually in early August. It is getting late for CM mating disruption since we have significant trap numbers for this week.

4. Choose effective insecticides. Insecticide choices must depend on your population pressure and other pests that are being targeted. The best internal lep insecticides are Altacor, Delegate, Voliam Xpress, Belt, Assail, Calypso, and Rimon. If also targeting obliquebanded leafroller, the best choices will be Altacor, Belt, Delegate, Voliam Xpress, and Rimon (at petal fall).
5. If you plan to rely only on insecticides, check your spray coverage in problem orchards using

Surround or the fluorescent dye and blacklight from the kit distributed by Andrew Landers. Get a ladder to look in the tops for residue – that is where the mating and egg-laying activity is going on.

6. Target effective insecticides based on the insect developmental degree day model. To control codling moth first generation larvae, insecticides should be targeted at first egg hatch and 2 weeks later, starting at 250 DD 50F after biofix set for codling moth. If using Rimon, this ovicide should be applied at about 100 DD 50F, and the neonics can be applied between 200-250DD 50F.

New Tree Care

D. Breth

You have invested a lot of money in your new tree plantings. Here are the key pests you need to be aware of to allow sufficient growth of the new trees to fill their space and set fruit buds for a crop in the 2nd leaf.

- **Fire blight:** Continue to monitor for and remove blossoms as they develop, and watch for fire blight blossom blight conditions. **Do not remove blossoms under high risk of blossom blight.** If you still have blossoms in your new apple or pear plantings long after the rest of the orchards are at petal fall, it is critical you watch for blossom blight conditions and treat with preventative copper treatments using the lower labeled rates, or streptomycin, or tank mix streptomycin with oxytetracycline. I will be running models through mid-June to determine the risk in new plantings, but don't be afraid to give me a call if you are not sure about the risk. If you see infections, it is important to get the infection tested for streptomycin resistance. Low rate coppers have

been demonstrated as good options for prevention of fire blight in shoots, but if blossoms are present, streptomycin is still the best option.

- **Powdery mildew:** Apply fungicide for mildew protection in apples, including options such as Topguard, Rally, Sovran/Flint, Stylet oil, or sulfur (but not if using oil for mildew or mites). Using the new DMI's (Inspire Super and Indar) and SDHD (Fontelis) fungicides for mildew in new trees is likely not necessary. The leaves are susceptible to mildew infection until they set terminal buds, usually much later than established orchards.

- **Gypsy moth:** Watch for gypsy moth damage as the newly hatched larvae will be floating in from the surrounding woodlots. They are easily controlled using Bt. or most other insecticides applied for other pests.

- **Monitor for aphids,** white apple leafhopper and potato leafhopper – imidacloprid (Admire Pro), Assail, Actara (still one application only per season in NY), Calypso, or use a pyrethroid. But also

watch for leaf curling midge. I will include more info in next issue on this insect.

- Monitor for **obliquebanded leafroller** in these plantings when also managing OBLR in established orchards. Larvae will be easy to find in the young, succulent shoot tips.

- **Deer:** Hang soap bars, install deer fence, or try deer repellents to prevent deer feeding on new trees.

- **Weeds:** Keep these trees weed free to eliminate competition for water and nutrients since you are trying to grow the trees. Do not contact tree trunks with post emergence herbicides – paraquat or glyphosate.

Other Tree Fruit Pests

A. Agnello

Most regular biological events like insect development respond positively to warmer conditions, so assuming that this week's forecast of 80-plus degree weather will help get us there, pest management decisions will tend to need addressing on a fairly predictable schedule. Although this week's temperatures probably won't translate into a lot of management decisions having to be made all at once, the following is a long-view update of some of the traditional crop protection scenarios during this period. **Dates in parentheses, where present, are the mean date of occurrence in Geneva, according to our recent records.**

Plum Curculio (May 25 - scars present). Curcs have only so much egg-laying activity programmed into their behavior, and it's directly related to the temperature. The cooler the post-petal fall period is, the slower they finish, so the long-term forecast will be instrumental in determining how many cover sprays might be needed after petal fall to adequately protect the region's orchards until the ovipositing is finished. Most orchards probably will have received their petal fall spray this week. We should just begin to notice a few instances of injury from this pest in western NY, and the **Apple IPM Insect Models Website** (http://newa.nrcc.cornell.edu/newaModel/apple_pest) puts curculios just barely into their egg-laying activity. For apples, if you additionally have **Rosy Apple Aphid** colonies active in your trees, consider using Actara or Calypso now, both of which have good activity against both species.

European Apple Sawfly

Traditionally confined to the eastern half of the state, but steadily making westward progress in recent years, the adults start laying eggs on or near newly set fruitlets at petal fall, so the plum curculio applications will do double duty against this pest as well. This damage is typically seen in orchards with stretched out petal fall windows with early to late blooming varieties.

Obliquebanded Leafroller (June 9)

We have yet to catch the first obliquebanded leafroller adult in western N.Y. Depending on the location, larvae should be able to be found now in various stages of development. Next week would therefore be an advisable time to be sure a pheromone trap is hung in problem apple blocks, to fix the date of first emergence in your specific area. Recall that we recommend sampling at 600 DD (base 43°F) after the first adult catch, to determine the need and timing for treatment. For problem orchards with a reliable OBLR history where sampling is generally not needed, egg hatch (which equates to the first occurrence of susceptible larvae) occurs more or less 350 DD after the 1st adult catch. It pays to keep an eye on the daily highs and lows for your area if you are doing your own trapping, as it's likely that our "normal" first sampling date of July 5 won't turn out to be necessarily appropriate this year; once again, the **Apple IPM Insect Models Website** can help you zero in on these events in your specific area. In orchards not too removed from petal fall and containing large larvae, an application of Altacor, Belt, Delegate, Intrepid, Proclaim, Rimon,

or a B.t. product (e.g., Agree, Dipel, Deliver) at this time will help diminish the population for better management during the summer.

Stone Fruit Aphids

Although green peach aphids are not always a serious pest every year, colonies of these greenish, smooth-looking aphids are likely to occur in peach blocks during this period, along with their damage. They cause curled leaves that may turn yellow or red in severe cases, and more importantly, they are vectors of Plum Pox Virus, which continues to be a threat in the western part of the state. The young aphids begin to hatch about the time of peach bloom and remain on the trees for 2–3 generations, until early summer, when they seek other hosts (mainly vegetable truck crops). Green peach aphids suck the sap from the new fruits and twigs, and are also found on plum, apricot, cherry, and many ornamental shrubs. These insects are difficult to control; the recommended options, where needed, include Actara, Admire, Assail, Beleaf, and Movento. Lannate is an alternative, but possibly less effective choice. Applications are recommended before excessive leaf curling occurs, in order to maximize the spray's effectiveness. Also, keep an eye out for black cherry aphid in your cherry trees after shuck fall. If colonies are building up on the foliage, recommended materials include Admire, Assail, Beleaf, Lorsban, Movento, Sevin, and pyrethroids such as Asana, and Baythroid. Pre-mixes labeled for this use include Endigo, Leverage, Voliam Flexi and Voliam Xpress.

Cherry Fruit Flies (June 16)

It's too early for catches of adults on sticky board traps, but because of the zero tolerance in cherries for insect damage or presence, it's prudent to begin sprays in your cherries soon after shuck split (for this pest as well as for curculio). Imidan (tart cherries only), Sevin, Diazinon, Assail, Actara, Delegate or the pyrethroids are all effective treatments. Sevin will also control black cherry aphid.

Lesser Peachtree Borer (May 24)

The first adults were caught in Geneva on 5/27. Remember to get your trunk and scaffold sprays on peaches and cherries during the next couple of

weeks if borers are a problem in your blocks. An effective alternative is Isomate-PTB Dual for pheromone disruption. Now is a good time to think about hanging the ties (150-250/acre will disrupt both species -- Peachtree Borer appears about mid-month in our region; use the higher rate where pressure is more severe). This pest increases the severity of *Cytospora* canker infections in peaches and is often found within the canker; by feeding in the callous tissues, it interferes with the tree's natural defenses against the disease. Infestations can be determined by the presence of the insect's frass, which resembles sawdust, in the gum exuded from the wound. In peaches, you can use Ambush, Asana, Baythroid, Lorsban (all formulations), Pounce, Voliam Xpress or Warrior for this application (or pre-mixes such as Endigo, Gladiator, Leverage, or Voliam Xpress). In cherries, use Ambush, Asana, Baythroid, [Lorsban (tarts only), as a trunk spray ONLY; do not spray the fruit], Pounce, Warrior, Endigo, Gladiator or Voliam Xpress, and observe the proper PHIs for these respective materials. Check the labels of all products for the recommended target area, where applicable (trunk vs. foliar).

European Red Mite

Mite populations are slowly starting to build this season, and adults should be present soon, which means that they'll be laying summer eggs that will hatch into potential problems before long. We once again had at least some favorable pre-bloom weather for early season oil or miticide applications this year; however, if you failed to take advantage of these opportunities before bloom, it's not too late to use one of the preventive materials such as Savey/Onager, Apollo, Agri-Mek, Portal, or Zeal in problem blocks or where you may have noted ERM eggs.

In situations where European red mite pressure or the crop's sensitivity to them haven't necessarily justified an early season treatment with any of the above options, this is the time of year when a summer oil program also might be considered as an alternate preventive approach, particularly considering this species' slow start during the spring. Our field research trials have shown the effectiveness of using highly refined oil in a

seasonal program to control mites throughout the summer. Some examples of these products are PureSpray Spray Oil 10E, BioCover UL, or PureSpray Green (all from Petro Canada), Stylet-Oil (JMS Flower Farms), and Omni (an ExxonMobil product formulated using Orchem 796 and distributed by Helena); others are available, such as Damoil (Drexel), Saf-T-Side (Brandt Consolidated) and Mite-E-Oil (Helena), although we haven't tested all brands.

Our approach is to make three applications, on a preventive schedule, immediately after the petal fall period, before mite populations have a chance to build. The first application can be any time from petal fall to 1–2 weeks later, followed by two additional sprays at 10–14-day intervals. The oil is not concentrated in the tank, but rather mixed on the basis of a rate per 100 gallons of finish spray solution; in most cases, we recommend 100 gal per acre. A rate of 1–2 gal/100 should maintain control of most moderate populations. Don't apply without leaving at least a 10–14-day interval before or after a captan spray.

San Jose Scale (June 19 - 1st crawlers)

Minute SJS adult males emerge in the spring from beneath scale covers on the trees, usually during bloom, and mate; 1st catch in Geneva occurred on 5/27. The females produce live crawlers within 4–6 weeks of mating; these make their way to new sites and insert their mouthparts into the tree, secreting a white waxy covering that eventually darkens to black. SJS infestations on the bark contribute to an overall decline in tree vigor, growth, and productivity. Fruit feeding causes distinct red-purple spots that decrease the cosmetic appeal of the fruit. Insecticidal sprays

are most effective when directed against the first generation crawlers, specifically timed for the first and peak crawler activity, which are usually 7–10 days apart.

In the Geneva area, first crawler emergence has tended to occur sometime around mid-June. If and when a treatment against this stage is needed, Esteem 35WP is one option. It should be applied at 4-5 oz/acre at first crawler emergence; a low rate (0.25% or 1 qt/100) of a highly refined summer oil (see above) has been shown to improve penetration and, therefore, control. Additional products showing control efficacy include Assail, Centaur (except Nassau and Suffolk Counties) and Movento (which must be mixed with an organosilicone or nonionic spray adjuvant). Other options include Imidan, Admire, or pre-mixes such as Endigo, Leverage, or Voliam Xpress.

Pear Psylla

These insects have also been making steady progress, and the gradually warming temperatures will eventually result in the production of summer nymphs. Particularly if you weren't able to get an oil spray on before bloom, populations of 1–2 per leaf would be an indication of the need for a prudent application of Agri-Mek at this time; alternatively, Actara, Asana, Assail, Calypso, Centaur, Danitol, Delegate, Esteem, Movento, Nexter, Portal, Proclaim, Provado, and Warrior also have varying degrees of effectiveness against this pest, usually negatively correlated with frequency of past use. (Note from D. Breth: Pay close attention to the rates on the labels as they are typically the higher end rates required for pear psylla. Include necessary adjuvants recommended for these products.)

The Petal Fall Thinning Window Opportunity was Early this Week

Mario Miranda Sazo

Early this week I measured king fruit diameters of hard-to-thin varieties such as Empire, Gala, Jonamac, Macoun, Spur Delicious, Spur Rome and hard-to-thin, strongly biennial varieties such as Honeycrisp, Fuji, and Golden Delicious at

different locations. I also talked with several growers who sprayed (or missed) the first petal fall sprays for these cultivars in Western NY. At one of the sites in Wayne County (a site distant 2 ½ miles from the Lake) Fuji king fruit measured

5.27mm in diameter, Macoun king fruit measured 3.77mm in diameter, Gala king fruit measured 5.26mm in diameter, and Honeycrisp king fruit measured 5.38mm in diameter by Monday May 26. On Tuesday May 27 and at another Honeycrisp site distant less than a mile from the Lake in Monroe County, king fruit measured 6.87mm in diameter. There were several hard-to-thin varieties that were left unsprayed at the optimal thinning window opportunity for the 5-6mm king fruit stage.

Research trials indicate that the best timing for the petal fall spray is about **2-4 days after petal fall** when **king fruit diameter is about 5-6mm**. Thinning at petal fall has the advantage of allowing some assessment of pollination before making the decision about aggressiveness of thinning. As with bloom thinning, the objective is to remove a portion of the crop before competition between fruits reduces fruit size. In addition, after petals have fallen and bee hives have been removed from the orchard, carbaryl can be used as a thinner. Thinning response with NAA, carbaryl or BA at petal fall is usually moderate, thus the petal fall timing can be viewed as safe. Petal fall sprays alone are unlikely to provide adequately thinning in most years. Petal fall sprays are usually used as part of a multi-spray program, which allows a portion of the crop to be removed at petal fall and the balance of the thinning to be done 7-10 days later at 10-12 mm fruit diameter.

Chemical thinning at petal fall for Gala, Empire, Honeycrisp, Macoun and Fuji: Terence's suggestion for Gala and Empire is to spray @ 5-

6mm fruit diameter (two to three days after petal fall) with NAA 6oz/acre + Sevin 2pt/acre. For Honeycrisp and Macoun use a higher rate of NAA 8oz/acre + Sevin 2pt/acre at the same timing. These rates are for use with 200 gallons of water TRV.

Chemical thinning at petal fall for Fuji use Maxcel 96oz/acre + Sevin 2pt/acre. Many other varieties will also benefit from a petal fall spray of either Sevin alone or a combination of NAA+Sevin or Maxcel+Sevin.

Carbohydrate Model to guide Thinning

Decisions in 2014: The carbohydrate model is available on the web at the NEWA website (<http://newa.cornell.edu>) under the crop management tab. Run the model before each thinning spray and adjust thinner rate based on the recommendation in the last column of the output. The four very simple steps are: (1) Go to the NEWA Apple Carbohydrate Thinning Model Page, (2) Choose a station and click "Continue", (3) Enter your green tip and full bloom dates and click "Calculate", (4) Move the scroll bar on the right to find today's date on the table. The last column gives the recommended adjustment in thinning rates for today based on the model. Since the weather forecasts change regularly and that affects the thinning model, we suggest that growers check the model each day but especially immediately before spraying to get the best estimates of thinning effect.

We will update you as soon as we get the first round of fruit measurement results after the petal fall sprays applied this week in Western NY.

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Save The Dates

June 23-24

Premier Apple Forum, Syracuse, NY. See flyer in issue 9.

July 24

LOF Summer Fruit Tour, Niagara & Orleans counties-
stay tuned here for details.

