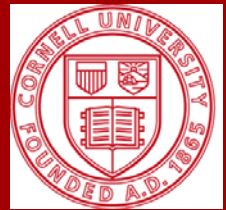




FRUIT NOTES

Lake Ontario Fruit Program



Volume 13 Issue 12

May 22, 2013

Fire Blight Update

D. Breth

This week we had extreme risk for any apples and pears with lingering bloom in the Lake Ontario Fruit Region. The symptoms of the first infection time for generally inland sites on May 8 will show up this week. Infected branches will be collapsing from canker blight. Do not confuse the canker blight symptoms with Nectria twig blight common in Rome but also seen in Fuji. Nectria cankers have also become more common on Empire which seems to be related to pruning cuts. Nectria cinnabarina has reddish pustules that develop, especially after we get some rainfall. The reddish pustules are not present in fire blight infections.

There has been a label change for Mycoshield (oxytetracycline) for NY – there is no more restriction on using treated product for animal feed as long as the 60 day PHI is observed. The new label can be viewed at <http://128.253.223.36/ppds/535234.pdf>. Fireline and Mycoshield have equal label restrictions.

It will be important to continue to survey fire blight infections for resistance to streptomycin resistance so growers can implement the best management options. Those of you who had orchards where fire blight bacteria were found to be streptomycin resistant were informed with a phone call as soon as we knew from last season's survey. But if you are not certain about the results, feel free to call me and I will double check the sample results. There is no regulatory impact to your farm if we find strep resistance on your farm. But it will help us document the need for special registration of Kasumin.

For 2013, Kerik Cox will be coordinating the survey effort for strep resistance. If you see symptoms of fire blight, please call any of the contacts below to come and collect a sample. If you do not want to leave the infection in the orchard, collect the sample including a healthy part of the plant, trim it down so that it can be placed in a 1 gallon plastic bag and keep it in a cold place until it can be picked up by one of the persons below who will come and collect samples and take data on the situation. The bacteria will not be viable for long if left in the back of the truck.

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Cornell Cooperative Extension provides equal program and employment opportunities. NYS College of Agriculture and Life Sciences, NYS College of Human Ecology, and NYS College of Veterinary Medicine at Cornell University, Cooperative Extension associations, county governing bodies, and U.S. Department of Agriculture, cooperating.

Rusty Spot on Peaches

D. Breth

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/Nova 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.

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.
- 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 anytime now 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.
- 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.

Internal Lep Pest Update

D. Breth

The trap network across the region shows that Oriental fruit moth (OFM) trap catches are peaking this past week and insecticide sprays where they exceed 30 moths per week can result in infestation in apples. We use a much lower threshold of 10 moths per week for peaches. Our highest trap count in apples was 204 OFM for the week. But in most orchards, the numbers are much lower. Petal fall sprays for OFM in apples should prevent damage. Codling moth are flying and in high pressure orchards we have set biofix for inland sites for May 15 and for high pressure orchards north of Rt. 104, May 17. Biofix can vary between high pressure and low pressure sites by 1-2 weeks.

Stay tuned for degree day model prediction of egg hatch timing for controls. Options for control at petal fall include Rimon. If not using Rimon, wait for first egg hatch which occurs at 200-250 DD50 F after biofix. Insecticides which should be targeted at early egg hatch include Calypso, Assail, or Delegate, Altacor, Voliam Xpress, or Belt. The first spray should be followed by a second application no more than 2 weeks later. If average daily temperature is 60F, then we will accumulate about 10 DD/day, and we will wait about 20 days for the first spray, or early June. Reminders and updates will be in Fruit FAX.

Other Pest Reports

A. Agnello

(Excerpt from Scaffolds, Vol. 22, No. 9)

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 in Geneva)

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 in Geneva)

The first adults have just been caught in Geneva. 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, 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 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 have been slow to build so far this season, but 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 Orchex 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.

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any product is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension. Cornell Cooperative Extension provides equal program and employment opportunities.

Registration Has Begun for the 2013 IFTA Study Tour to Gettysburg, PA July 16-17, 2013

The 2013 International Tree Fruit Association (IFTA) Study Tour is taking place in Gettysburg Pennsylvania on July 16 and 17. This event offers another great educational opportunity to visit research and commercial orchards and facilities. Come see the latest in equipment design, packing and storage operations. Plans for the Study Tour are in place and registration

has opened. If you missed last summer's tour in Quebec due to closed enrollment, don't tarry this time! For more information on the tour, a view of the planned itinerary, and registration information, go to <http://www.ifruittree.org/?page=2013StudyTour>

Strawberry Harvest & Storage/Shipping Considerations

C. Kahlke

With a certainly much more normal spring as compared to 2012, strawberry harvest will be underway shortly. Thus now is a good time to discuss handling of the fruit associated with harvest and post-harvest activities. Strawberries are among the most perishable of all fruits, and thus it is critical that marketing channels are open before harvest starts. Strawberries are extremely susceptible to bruising, and rough handling at harvest and during any time thereafter will encourage fungal growth and decay. It is critical that personnel be trained in the careful picking and handling of fruit. In addition, fruit quality declines as the season progresses, so the highest quality fruit will be earliest in the season. With varying degrees of ripeness in single plantings, it is also extremely important that the fruit is harvested as near peak ripeness as possible.

Worker Hygiene

From a food safety standpoint, (microbial contamination with the potential to cause foodborne illness) strawberries, raspberries, and blackberries are considered high risk. One reason is because often the last person to touch the fruit prior to it being eaten by the consumer is the picker, as postharvest on-farm washing soon after harvest reduces shelf-life considerably in soft berries. Therefore, proper worker hygiene training is critical. Workers

should ALWAYS wash their hands before entering the fields, and before/after eating and during breaks, prior to re-entry into fields. This should be an enforceable rule. Workers should be trained in proper hand-washing techniques, and always use soap and potable water, with single-use paper towels. There should be no smoking or eating in the fields, and there should also be designated areas for breaks/lunches (these can be on the edges of harvest fields but not between the rows). For more information and to order proper worker hygiene training materials, please go to <http://www.gaps.cornell.edu>, and click on GAPs Educational Materials.

Strawberries Destined for Direct Markets

Since most strawberry markets in the Northeast are consumed very close to the farms in which they are produced, many growers lack and may not need the cooling methods and storage facilities used by long-distance shippers such as those employed by the production areas in California and Florida. Direct market channels are ideal for many growers in the Northeast, as fruit loss is further accentuated from shipping from the farm to wholesalers, and from the wholesalers to retail markets. By bypassing wholesale shipping, fruit loss due to bruising and fungal decay can be reduced by an average of 20%. For optimum quality, it is critical that direct market fruit is harvested at or very near

peak ripeness. Top quality strawberries should be fully ripe, with a uniform red color, be firm, flavorful, and show no signs of decay or disease.

Temperature is the single most important factor affecting shelf life of strawberries.

If cooling down to the recommended 32 F is an issue for growers, research shows that strawberries held at 50F storage at high humidity will benefit storage life greatly as compared to room temperature storage. In addition, strawberries at 50F tend to retain their color and glossy appearance better than berries stored at 32F. Many direct-market local growers claim approximately 90% of their strawberries are consumed the day they are harvested, thus in these cases, it is very critical that the berries be at peak ripeness. The berries are most often harvested in morning only when field heat is low, are usually then shipped out to markets on refrigerated trucks the same morning, reach the retail shelves by afternoon, and are bought and consumed within a day or two.

Strawberries Destined for Long-Distance Markets

For strawberries that are being transported beyond local markets, there are two factors that impact on maximum shelf life potential. First, the fruit will hold up better if they are harvested at the white tip stage, rather than fully ripe. Second, cooling is critical. As soon as harvest occurs, it is imperative that field heat is removed from the fruit. It is recommended that cooling is started within an hour of harvest. Ideally, 32F forced-air cooling with high humidity (90-95% RH) is recommended. Refrigeration without forced air can also be used; however, shelf-life will be shortened. Proper forced-air cooling removes field heat from fruit in around 90 minutes, while simple refrigeration without forced air can take about 9 hours. Proper ventilation around, below, and above the fruit is essential for removing field heat quickly. Covering containers with plastic prior to cooling, and not removing plastic until

berries are at room temperature for several hours after reaching market shelves will prevent condensation buildup on the inside of the bag and delay fungal growth. It is estimated that for each hour delayed in cooling the fruit results in reducing shelf life of fruit by one day.

Following field heat removal, shipping on refrigerated trucks to market destinations is essential. If cold storage will be limited at market destination, as stated in the section on direct marketing, research shows 50F storage at high humidity will benefit storage life greatly as compared to room temperature storage. If all precautions are taken from harvest to cooling to storage, shelf life from harvest to market and on the consumer's table can be up to 10-14 days maximum for strawberries, but likely averages more like 7 days in the Northeast. For growers interested in exploring the potential of longer distance markets, including more information on how to set up an inexpensive forced-air cooling system for berries and many other types of perishable produce, please contact Craig Kahlke at 585-7355448, or email at cjk37@cornell.edu. In addition, see more information in a future Berry News.

Acknowledgments – I wish to thank the late Jim Coulter, Marvin Pritts and Chris Watkins for their help in providing information for this article.

Resources:

1. Strawberry Production Guide for the Northeast, Midwest, and Eastern /Canada, NRAES-88. 2008
2. Pest Management Guidelines for Berry Crops, Cornell University, Cooperative Extension.
3. Shin, YJ, Liu, R.H., and Watkins, C.B. Temperature and relative humidity effects on quality, total ascorbic acid, phenolics and flavonoid concentrations, and antioxidant activity of strawberry. *Postharvest Biology and Technology* 45: 349-357, 2007.

4. Auger, S., M. Colindres, Editors E.A. Bihn, R.B. Gravani, and K Embrey. Did you know? In the Field there is a need for hygiene too! 2005. <http://www.gaps.cornell.edu>

5. USDA, ARS Agriculture Handbook Number 66, the Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks.

Start Using the “Apple Irrigation Model” for both New and Mature Orchards In 2013

T.L. Robinson, A. Lakso, L. Cheng, S. Hoying,
M. Miranda Sazo, M. Fargione, and K. Lungerman

Proper irrigation will be an important tool for maximum tree growth and achieving optimum fruit size this year. Now is the time get your trickle irrigation system up and running. Start by checking the entire distribution system and emitters this week. This year with the relatively dry spring the application of water should begin in mid-May. We suggest starting irrigation now for new plantings and especially for the NY1 apple cultivar.

This year the proper amount of water to apply to both new and mature orchards can be determined by running the apple irrigation model found at the NEWA website (<http://newa.cornell.edu>) under the crop management tab. This model asks you to pick a weather station near your farm and then define if the orchard is a 1, 2, 3 or 4 year-old orchard or a mature orchard (5 years old or older). When you click the calculate button the model will report how much water should be added each day or each week to your orchard. As we go through the season, log into the NEWA website once per week and run the irrigation model then add the proper amount of water to the orchard in two irrigations per week until mid-June. After mid-June we suggest you should add the proper amount of water in three irrigations per week.

With new high-density orchards irrigation is essential for early tree growth. Feathered trees have a low root: shoot ratio (small root system compared to the top). In many cases these trees undergo water stress shortly after planting despite adequate soil moisture levels in the bulk soil. This is due to the damaged and

small root system of a transplanted tree which can't adequately support the large top without frequent irrigation. Feathered trees produce much more leaf area shortly after planting than unfeathered trees which creates a high water demand before the root system can re-grow sufficiently to support the trees. We recommend growers install irrigation immediately after planting (within 4 weeks) when planting highly feathered apple trees to prevent water stress and maximize first year tree growth. Once the trickle irrigation system is installed the new trees need only **small but frequent** doses of water.

After planting the uptake of nitrogen and tree growth can be improved with frequent low doses of nitrogen fertilizer delivered at least twice weekly through the trickle system (fertigation) for the first 10-12 weeks of the season. With fertigation, the nitrogen which is dissolved in the water, moves rapidly with the water to the root zone and is readily available to the tree growth during season to speed development of the canopy.

The source of nitrogen which is most readily available during the first year is calcium nitrate but other formulations of nitrogen which are liquid (URAN's or CAN's) also are effective. With young non-bearing apple trees we suggest 60-100 lbs. of nitrogen per season. Utilizing the weekly application strategy for the first 10 weeks of the season will require 6-10 lbs. N per acre per week. With mature trees we suggest from 20-40 lbs. of Nitrogen per season which would be 2-4 lbs. N per acre per week.

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After the first two-three years, low nitrogen fertilization is desirable to keep the trees calm with a balance between fruiting and cropping. Many mature high density orchards receive excessive nitrogen fertilizer which causes severe canopy management problems. “Soil strength” or fertility must be considered when calculating the amount of nitrogen to apply to

mature high density orchards especially with vigorous and poor coloring varieties. Many soils in New York produce 30-60 lbs/acre of nitrogen annually through nitrification. This is often close to the amount needed by mature high density orchards. Excess fertility often results in excessive vegetative growth, delayed cropping and soft and poorly colored fruit.

Save the Dates

June 3 – DEMONSTRATION of a *New* 3-ROW SPRAYER, Vandewalle Fruit Farm, Alton

4:00-5:00 P.M. and 6:30-7:30 P.M. See last FN issue (Issue 11) for more details

August 1 – Summer Fruit Tour, NYSAES, Geneva- more info TBA

August 6 – Storage Workshop, Ithaca, NY - Info coming in FN soon!