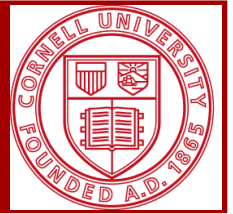




FRUIT NOTES

Lake Ontario Fruit Program



Volume 14 Issue 15

June 12, 2014

One of Our Own Has Retired!

A. De Marree

Working with WNY fruit growers, extension educators and Cornell faculty and staff for the past 32+ years has been a great experience! I want to thank all of the growers whom have shared their experiences and helped me grow and better understand the fruit industry. I particularly appreciate the growers committed to participating in the Lake Ontario Fruit Farm Business Summary. The willingness of progressive growers to share business financial information has been beneficial to the entire fruit industry, helping extension to develop decision making models based on industry economics. Thank you for your patience and perseverance! Thank you also, to those of you whom have reviewed our programs, discussed industry problems and given the Lake Ontario Fruit Program advice over the years at advisory meetings. The sacrifice of your time and willingness to answer our questions has made working with this industry very gratifying. It has been a pleasure to work with some of the finest fruit growers in the world!



Between June 26th and the end of this year, I will be working on a very limited basis to: finish up existing grant projects and the 2013 Farm Business Summary; write articles for newsletters and assist growers with labor and economic questions. Beginning on July 2nd, I will be available on Wednesday mornings from 7am until noon to take phone calls (315-573-8881) and answer e-mails (amd15@cornell.edu).

Best wishes for continued success not only this year, but in the future! - Alison

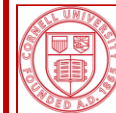
Black Stem Borer Alert

D. Breth

Black stem borer can be devastating and whether it is a combination of stress and then the borer or not, it is finishing off trees in large sections of orchards. I saw this pest for the first time last year in 6 sites, all related to fire blight, and 4 of (Continued on page 6)



Toothpick frass from Black Stem Borer emergence. Once it is shaken or disturbed, the frass falls off.



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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.

Preliminary Results of Precision Thinning Group Effort in Western NY in 2014

Mario Miranda Sazo, T. Robinson, Craig Kahlke, and Elizabeth Tee

More Western NY fruit growers implemented the precision thinning program this season. The majority of the growers who participated in 2013 did participate in 2014 and several new cooperators joined this effort in 2014. There were a total of 22 precision thinning sites for Gala, Honeycrisp, and Fuji just in Western NY this year.

At each location the grower cooperator (or a CCE-LOF team, or Spanish-speaking farm personnel trained by CCE-LOF) counted the number of flower buds on 5 representative trees at pink. Cooperators calculated the target number of fruits needed to achieve a desired high yield. The cooperators then tagged 15 representative spurs per tree on the 5 test trees. At petal fall each fruit in each cluster was marked with a number or dot to identify its position in the cluster. After the petal fall spray the fruit diameter of each fruit in the 15 tagged clusters on each of the 5 trees (375 fruits) was measured 3 days after spraying and then again 7 or 8 days after spraying. These diameter data were sent via email to Dr. Robinson who analyzed the data with the fruit growth rate model and within 24 hours sent the cooperator the results with his recommendation for the next spray. The cooperators then sprayed the test blocks sequentially with one of two spray protocols (bloom+ PF+12mm+/-18mm sprays or PF+12mm+/-18mm sprays). After each spray the cooperators measured fruit diameters at 3 and 7 days after spraying and the data was analyzed by Dr. Robinson and a new recommendation was sent back to the cooperators. The CCE-LOF Fruit Fax has summarized the results and has sent daily reports to subscribed growers.

Special Thinning Alert for this week: Fruit size of many varieties in WNY is rapidly exceeding the thinning window, thus the next few days provides the last opportunity to thin. King fruitlets are rapidly approaching or have in some cases already exceeded the 18mm stage. Beyond this stage, the

effectiveness of NAA and BA declines rapidly. Our results from the group Precision Thinning project are showing that no Gala orchard has been thinned adequately. If a spray has not been applied this week then the next few days are an opportunity to re-thin Gala blocks on an emergency or rescue basis when earlier attempts to reduce cropload have only given partial thinning. When fruit size is rather large, thinning can be done with BA plus Carbaryl plus oil as an adjuvant, or Ethrel with oil, or Carbaryl with oil. We recommend the spray be directed only to the top of the trees. Use 48 oz 6-BA + 1 pt Sevin + oil 1 pt/100 gal v/v (rates are per 100 gal based on full dilute TRV application. Rate per acre = amt/100 gal x 100s of gallons per acre TRV.). For many other varieties, thinners have worked quite well and good fruit separation is occurring for Empire, Fuji, Honeycrisp, and McIntosh this season. A rescue thinning treatment for these cultivars is not recommended.

Summary of Second round of measurements after 10-12mm thinning sprays: This update on the progress of thinning from fruit diameter measurements analyzes 15 sites that applied a bloom spray, and (or) a petal fall spray, and a 10-12mm spray. Unfortunately some sites on Table 1 have only the first 3 day measurement of the second round and we need to get the next 7 day measurement to fully assess the effects of the 10-12mm spray.

For the majority of the sites, Gala trees still have significant more fruit on the trees than the target fruit number. Thus there is still significant thinning to be done when the overall goal is to reduce fruit set by about 90-95%. The thinning sprays have reduced Gala fruit set to about 30-45% for the Wayne County sites while Honeycrisp fruit set was reduced to about 13-19%. In Orleans/Niagara county fruit set of Gala is about 30% while Honeycrisp fruit set is about 9-20%. There were two Honeycrisp blocks at the Buhr and Geneva sites

where perfect thinning was achieved after the 10-12mm spray. We congratulate and appreciate the collaborative work done by these cooperators.

In some cases with Honeycrisp the target thinning level has been achieved while at other sites a little more thinning is needed. For example, the data from the Honeycrisp block at the Lamont site shows thinners reduced fruit set to 23% (which is very good for this year). That level of fruit set represents 95 fruits/tree (down from the original 415 fruitlets/tree). Trees were essentially down to

1 fruit per cluster but to achieve this thinning target growers must go significantly lower. This is where growers must decide if they want to chemically thin again or hand thin off the 60 extra fruits/tree. In contrast, at all Gala sites there are several hundred extra fruits still on tree, which is too large of a hand thinning job and calls for another thinning spray.

Table 1. Summary effect of bloom, and(or) petal fall spray, and 10-12mm spray, and chemical thinning recommendation for the last thinning window for 15 field studies conducted as part of a precision thinning group effort in WNY in 2014.

Farm	Block	Variety	Initial Clusters Counted	Estimated Total Initial Fruitlets	Target Number of Fruitlets	Calculated Number of Fruits on Tree	Extra Fruits Still on Tree	Recommendation
VanDeWalle	Bartelson	Gala	292	1460	150	662	512	Need another full spray of Maxcel+Sevin
VanDeWalle	McDowell	Gala	400	2000	150	909	759	Need another full spray of Maxcel+Sevin
VanDeWalle	Trammell	Gala	247	1235	88	369	281	Need another full spray of Maxcel+Sevin
VanDeWalle	Water Tank	Gala	519	2595	160	1045	885	Need another full spray of Maxcel+Sevin
Lamont	239	Gala	94	470	65	152	87	Pending a fourth measurement
Reisinger	Gala	Gala	426	2130	193	562	369	Need another full spray of Maxcel+Sevin
Cahoon	SLJ	Gala	276	1380	185	500	315	Need another full spray of Maxcel+Sevin
Geneva	RS20	Gala	260	1300	130	276	146	Need another 1/2 dose spray of Maxcel+Sevin
Jeff Smith	Ledge 99	Gala	451	2255	290	698	408	Need another full spray of Maxcel+Sevin
Lamont	239	HC	83	415	35	95	60	Need another 1/2 dose of NAA+Sevin
Hance	HC	HC	385	1925	130	246	116	Need another 1/2 dose spray of NAA+Sevin
Buhr	Block51	HC	230	1150	100	98	-2	Thinning is done. Congratulations

Farm	Block	Variety	Initial Clusters Counted	Estimated Total Initial Fruitlets	Target Number of Fruitlets	Calculated Number of Fruits on Tree	Extra Fruits Still on Tree	Recommendation
Cahoon	Slaght Rd	HC	454	2270	185	424	239	Need another full spray of NAA+Sevin
Geneva	RS20	HC	260	1300	100	114	14	Thinning is done. Congratulations
Jeff Smith	Ledge 2000	HC	906	4530	177	411	234	Need another full spray of NAA+Sevin

Pest Update, Disease & Insect Status

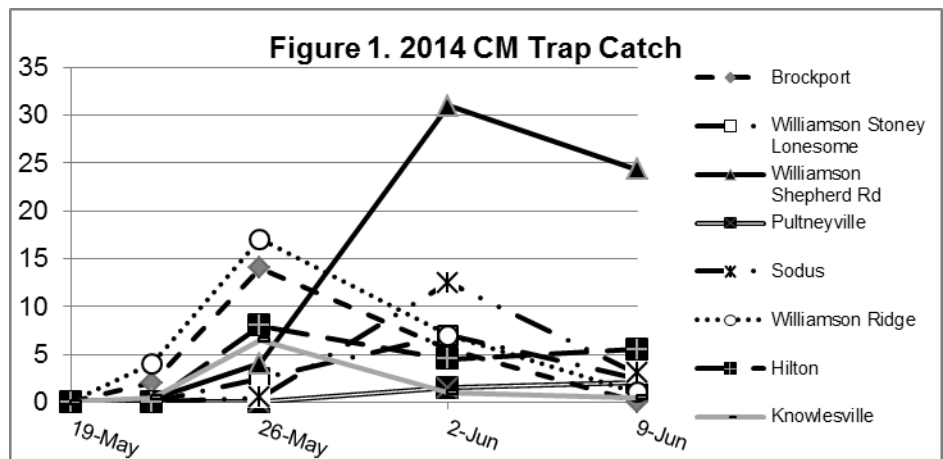
D. Breth

Fire Blight! I am getting phone calls regarding fire blight infections showing up, especially in young trees. Although most are fire blight, some are Nectria infections of old fruiting stems or pruning wounds in established orchards. With the stormy weather, a little hail that went through last week, I expect these sites to have more blight show up by the end of the week. It is time to look over your orchards for FB infections, and cut them out at least 12 inches behind the visible infection into 2-3 year old wood and save them in a cool location for pick up so we can test them for streptomycin resistance. Please keep infections from different blocks and different varieties separate. Please call me if you see any fire blight (585-747-6039 or email dib1@cornell.edu) so we can check it for streptomycin resistance. **NEWLY planted trees that are still blooming are at serious risk with high temperatures in the 70's and lows in the 60's until the blossoms are gone.**

Apple scab: By the end of the week we should be able to see if we got through primary scab season without any infections. June 3rd rainfall was likely the last ascospore shoot, and 9-10 days later for lesions to appear is

Jun 12-13. Continue to monitor and maintain protectant coverage for 2 more weeks. If you can see scab lesions on leaves at this point, you will need to protect from secondary infection of fruit and leaves. If scab is not resistant to dodine, and you have scab coming through in some of your orchards, treat it with 3 pt. of Syllit plus Captan 80 W at 2.5lb/acre in 2 sprays on a 7-day interval (max of 3 applications and 9 pt. per acre per season for Syllit). Syllit or Inspire Super are preferred for orchards with scab problems. Maintain fungicide protection for powdery mildew through terminal bud set – Rally at 8 oz./acre, Topguard, or sulfur (when temperatures are not exceeding 85F).

Codling moth – Biofix was set for inland sites for May 22 and lake sites, May 25. We have



accumulated 256 and 200 DD50F as of June 9, and the forecasted temperatures will add about 15 DD per day. My traps counts are still running high in my high pressure sites, but lower pressure sites are subsiding. Figure 1 shows the first peak of the first flight. This is the week for the first generation egg hatch and it is critical that effective insecticides are applied such as Altacor (3 – 4.5 oz/acre), Belt (5 oz./acre), Delegate (5.2 oz./acre), Calypso (7-8 oz./acre), Assail (6-8 oz./acre), and Voliam Xpress (12 oz./acre). The Calypso and Assail would also help with plum curculio. For those who used Rimon at petal fall, and others with low populations of CM, you can wait until 350 DD50F and apply another spray for the first generation egg hatch.

Obliquebanded leafroller moth first trap catch was noted by Art Agnello in Wolcott on June 9, but at other locations we expect by the end of this week. In high pressure inland sites in our region we expect the first egg hatch treatment date the third week of June. If low populations, you can wait for the 600 DD 43F window and scout for larvae and treat if over 3% infested terminals. Delegate, Altacor, (Voliam Xpress with a pyrethroid) or Belt are the best insecticides for targeting both OBLR and CM.

Beware of potato leafhopper! They will fly in on the southern breezes and infest your new plantings quickly shutting down growth of new trees as they feed on the developing leaves. Peter Jentsch conducted field trials in the Hudson Valley to evaluate reduced rates of Provado against PLH, rose leafhopper and white apple leafhopper. Provado was applied in combinations at a full rate (2 oz/100 gal) and a quarter rate (0.5 oz/100 gal), at varying intervals (3rd–5th cover). Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs (however, reduced rates will not control leafminer). Against PLH nymphs, the more frequent applications were shown to be more important than rate; i.e., better protection of new foliage. Admire is now the replacement for Provado and there are many generics available. If leafminers are a

problem, bump up the rate. The low rate may allow survival of more aphid predators.

Stone fruit? Maintain brown rot sprays in sweet cherries using Indar, Pristine, Tilt, Cabrio, or Tebuzol, or Quash. The Indar label is for 6-12 oz/acre with a 24C label allowing for the higher rate where there has been a shift in fungicide susceptibility of up to 12 oz. in cherries, peaches and nectarines (but not apricots or plums) and no more than 48 oz. per acre/season. Indar is in the same fungicide group as Tilt, Tebuzol, and Quash (14 day PHI), and should be applied no more than 2 times in succession, followed by a QoI fungicide such as Pristine, Cabrio, or Gem. We also have labels for new class SDHI fungicides, Fontelis and Merivon, for brown rot. Under low disease pressure on tart cherries and peaches, captan will work.

Maintain **cherry leafspot** control during rainy weather to maintain tree health and support next year's crop using many of these same fungicides for brown rot.

Cherry fruit flies will be flying soon and you need to protect fruit from infestation with an insecticide after the threat of plum curculio is past. Using one of several pyrethroids (but on a tighter spray interval than other materials (especially in the heat), or carbaryl, Leverage, or Voliam Xpress. Delegate is also labeled but at 6-7 oz./acre for cherry fruit fly. Imidan is still an option on tart cherry.

OFM in peaches – Now that the pruning is done, mid-June is the traditional time to hang Isomate OFM TT (100 ties per acre) for control of OFM in peaches. The alternative is to maintain insecticide coverage.

Berries? Stay tuned for information on spotted wing drosophila detections.

Strawberries are beginning harvest late this spring. Warm, wet weather will promote anthracnose (black spot) infection of fruit so where you have a history of the disease, you need to apply Switch or Pristine or

Cabrio and mix with captan for resistance management of botrytis. Alternate with Captevate or Elevate.

Raspberries: Begin fungicide protection for summer bearing varieties in bloom for botrytis. Red and purple raspberries are more susceptible than black raspberries. Captan, Captevate, Switch, Iprodione, Cabrio and Pristine are options for control. The new primocanes in black raspberries are getting to the height (about 30-36 inches) that will need growing tips to be pinched to encourage branching for next season's crop. S

Blueberries: Petal fall sprays for plum curculio, cranberry fruitworm, and cherry fruitworm are critical now! See berry guidelines for control options. Imidan, Assail, Avaunt, Brigade, Danitol, carbaryl, or Delegate are all options for control. Plum curculio are still active so choose insecticide that is also effective for PC – Imidan, Avaunt, Brigade, or Danitol, are the best choices.

Black Stem Borer Alert (Continued from Page 1)

those sites had streptomycin resistance. I have never seen this before (except for shot hole borers, a different animal). This is a much more aggressive pest. Now growers and others are thinking back to take a look where winter injury was the diagnosis and we have identified more sites. I have seen at least 5 more sites both east and west of Rochester and so far in 2-4 year old tall spindle, without irrigation, one with irrigation. If you see collapsing trees with blistered bark, you may have black stem borer.

They are actively flying now to relocate and drill new chambers straight into the heart wood of

young trees. They are very difficult to see until the tree starts to collapse. The holes are just pin holes, and tiny black beetles will push out sawdust from their entrances which on dry calm days resembles "toothpick" frass (photo on page 1) that can extend about $\frac{1}{4}$ - $\frac{1}{2}$ inch perpendicular to the tree. If it is windy or rainy, you will not see the frass.

Stay tuned for more information. Call me (585-747-6039) if you think you have this pest. This website from Oregon tells a lot- http://oregonstate.edu/dept/nurspest/PA_Xgermanjpg.htm, but there are several others.

The Worst That Could Happen

A. Agnello

This is the point of the season at which we normally begin to hear reports of the first infestations of woolly apple aphid (WAA) in problem sites in western NY. In addition to apple, its hosts include American elm, hawthorn, and mountain ash. It overwinters as an egg in bark cracks and crevices, or as a nymph on roots underground and in various protected locations on trees. WAA is attracted to the base of root suckers and around pruning wounds and cankers

on limbs and trunks, and colonizes both above-ground parts of the apple tree as well as the roots. In the spring, the nymphs, which are reddish-brown with a bluish-white waxy covering, crawl up from the roots to initiate aerial colonies. These initially build up on the inside of the canopy on sites such as wounds or pruning scars, and later become numerous in the outer portion of the tree canopy, usually during late July to early August.

The aerial colonies occur most frequently on succulent tissue such as the current season's growth, water sprouts, unhealed pruning wounds, or cankers. The main injury to young and mature trees is stunting due to the formation of root or twig galls; mature trees are usually not damaged. Heavy infestations cause honeydew and sooty mold on the fruit and galls on the plant parts, which interferes with harvest operations because red sticky residues from crushed WAA colonies can accumulate on pickers' hands and clothing.

During late June, water sprouts, pruning wounds, and scars on the inside of the tree canopy should be examined for WAA nymphs. During mid-July, new growth around the outside of the canopy should be examined for WAA colonies. No economic threshold has been determined for treatment of WAA, but they are difficult to control, so the occurrence of any colonies should prompt the consideration of some remedial action.

WAA is frequently parasitized by *Aphelinus mali*, a tiny wasp that is also native to North America. Parasitized aphids appear as black mummies in the colony. *A. mali* has been successfully introduced to many apple-growing areas of the

world, and is providing adequate control of the WAA in several areas. It does not provide sufficient control in commercial orchards in our region because of its sensitivity to many commonly used insecticides; however, the wasp is thought to reduce WAA populations in abandoned orchards.

WAA is difficult to control with insecticides because of its waxy outer covering and tendency to form dense colonies that are impenetrable to sprays. Insecticide treatments are more effective the earlier they are applied, since they are more capable of decreasing the population before it becomes widespread, and the insects' waxy covering is less extensive earlier in the season. WAA is resistant to the commonly used organophosphates, but other insecticides are effective against WAA, including Diazinon and Thionex, and some newer products such as Admire, Assail, Beleaf, or Movento may offer suppression (for Movento and Assail, addition of a non-ionic surfactant or horticultural mineral oil will improve activity). Good coverage to soak through the insects' woolly coverings is integral to ensuring maximum efficacy. Additionally, a Lorsban trunk application for borers made at this time will effectively control any crawlers that might be contacted by these sprays.

Stink Bug Survey Closing Soon

Got stink bugs? We need your help! We're surveying growers to assess the impact of BMSB on crops and gather information that will help us defeat this pest. Receive a free *Guide to Stink Bugs** if you **complete the 10-minute BMSB survey** (https://cornell.qualtrics.com/SE/?SID=SV_5ssnjXLNhvp6v1H). Your participation will **help us to help you Stop BMSB!** The survey will be available until June 30th.

The Outreach Team for "StopBMSB," a project focused on the biology, ecology, and management of the brown marmorated stink bug. For more info: StopBMSB.org

[*see it at https://pubs.ext.vt.edu/444/444-356/444-356_pdf.pdf]

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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-
See more info in next issue, and on our website for
more updates.



Save the date July 24, 2014 for a retirement celebration for Steve Hoying and Alison DeMarree immediately following the LOFT summer tour on July 24 at 5:00pm. Details on location and registration in the next newsletter.