



Tree Fruit News

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Pest and Weather Data

Degree Day Accumulations (03/01 through 07/21/2014, via NEWA)		
Location	Base 43 F	Base 50 F
Peru	1861.7	1226.2
Watermill	1794.1	1099.6
Clifton Park	1949.6	1295.4
Marlboro	2155.1	1456.7
Hudson	2169.3	1450.5
Highland	2169.3	1450.5

Upcoming Pest Events at the Highland Lab

Spotted Tentiform Leafminer sap feeding mines beginning to appear

Oriental Fruit Moth 2nd flight is at its peak

Codling Moth 2nd generation larvae emerging

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Upcoming Pest Events	DD Range (43F)
American Plum Borer 2 nd flight peak	2005-2575
Codling Moth 2 nd flight begins	1548-2090
Lesser Appleworm 2 nd flight begins	1418-2002
Apple Maggot 1 st oviposition punctures	1605-2157
Redbanded Leafroller 2 nd flight peak	1554-2002
Comstock Mealybug 1 st flight subsides	1818-2132
Spotted Tentiform Leafminer 2 nd flight subsides	1987-2365

Insect Trap Catches (Number/Trap/Day) (Highland, NY)		
Pest Species	Count 07/14	Count 07/21
Lesser Apple Worm (LAW)	0.2	0.5
Oblique Banded Leaf Roller (OBLR)	0.4	0.0
Tufted Apple Budmoth	0.8	0.1
Oriental Fruit Moth (OFM)	2.8	2.1
Red Banded Leaf Roller (RBLR)	2.3	0.4
Spotted Tentiform Leaf Miner (STLM)	48.9	11.1
Codling Moth (CM)	1.1	2.5
Sparganothis Fruitworm	0.1	0.0
Variegated Leaf Roller	0.3	0.1
Apple Maggot (AM)	0.1	0.4

Insect Trap Catches and Upcoming Pest Events courtesy of Scaffolds and Art Agnello

Let's Welcome our Newest Member of the ENYCHP Fruit Team, Anna Wallis

Hello! As the most recent addition to the Eastern New York Commercial Horticulture Program, I am thrilled to become a part of this team and of Cornell Cooperative Extension.

As regional fruit specialist I will be serving primarily the apple and grape growers of the northeast region of the state. I will be working out of the Clinton County CCE office in Plattsburgh, conveniently located near many of the farms I will frequent and the cold-hardy grape planting at the Willsboro farm.

I recently received my Master's degree from the University of Maryland where I was involved in a number of horticultural projects and taught various plant science classes with my advisor Chris Walsh, Professor of Horticulture and a graduate of Cornell. I am excited to use my eclectic background to sustain and improve the apple and grape production in the area through the development of local programs and a strong collaboration with Cornell scientists.

In my first week, I have already been welcomed by many of you in the Plattsburgh area and in Ithaca. I am absolutely thrilled to be in the beautiful North Country, and part of such a wonderful community of farmers and educators. I look forward to meeting many more of you at upcoming programs and events. Please don't hesitate to contact me!



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Summer Pruning Apple Trees

*By Richard Marini, Penn State University Dept. of Plant Science.
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Today we are experiencing our fourth wave of interest in summer pruning fruit trees during the past 130 years. Summer pruning is a vague term and simply refers to the time of year pruning is performed (when trees have foliage) and does not describe the type of pruning cuts, pruning severity or the physiological stage of tree development when pruning is performed.

Reasons for Summer Pruning

Although the reasons for summer pruning have varied over the years, the primary assumption first stated in the 1880s is that summer pruning promotes reproductive growth (flowering) and dormant pruning promotes vegetative (shoot) growth. Research results from controlled experiments performed during the 1920s and the 1980s did not support this assumption and summer pruning has never been recommended for commercial orchards. Exceptions include removing excess shoot growth to enhance light distribution in the tree to improve red fruit color and to retain fruiting wood in the interior of vigorous peach trees.

Lorrette Pruning

In the late 1800s Louis Lorrette described summer pruning for espalier apple trees in France. Dr. H.B. Tukey, in his book "Dwarfed Fruit trees", provided a good description along with figures for "Lorrette pruning". This involved heading shoots to 3 to 5 leaves when the base of the shoot, or the shoot induced by the heading cut, became woody. So

an individual shoot may be headed 2 or 3 times during a summer. This repeated heading supposedly would induce flower bud formation on the shoot and the removal of leaves supposedly suppressed vegetative growth the following season by reducing the amount of stored carbohydrates in the tree for spring growth.

The benefits of summer pruning continue to be described on many web sites today. Although it seems that summer pruning should suppress vegetative vigor and promote flowering and fruit quality, the results from a number of studies do not support these claims. In the early 1980s I performed Lorrette pruning on several varieties of apple on M.9 rootstock trained to a five-wire trellis in New Jersey. This practice of repeated heading was very time-consuming and it did not affect flowering, fruit set, or shoot growth the following season. I also visited a couple of home gardeners who followed the Lorrette system without success.

Summer Pruning Vigorous Apple Trees

In the late 1970s, before dwarfing rootstocks were being used commercially, Dr. Utermark, from Germany spoke at the IDFTA conference and described a number of benefits obtained with summer pruning. The benefits included vigor suppression, enhanced flower bud formation, improved fruit size, red color and sugar levels. These claims seemed logical because shoot removal during the summer increased light penetration into the canopy and this should promote flower bud development and enhance fruit quality. This seemed like a perfect topic for my Ph.D. dissertation, and my advisor John Barden agreed, so in 1978 I started my

Bifenthrin Section 18 Approved Against BMSB in the Hudson Valley

By Peter Jentsch, Cornell University Dept. of Entomology

Bifenthrin receives an emergency exemption use permit (Section 18) to control brown marmorated stink bug (BMSB) on apples, peaches and nectarines in Orange, Dutchess and Ulster Counties of NY.

Bifenthrin is one of the most effective insecticides for use against the brown marmorated stink bug (BMSB). Its use is limited to apples, peaches and nectarines in Orange, Dutchess and Ulster Counties of NY. Applications should be considered as the first step in managing the insect, considering the 30 day interval between applications. The first application, upon trapping or observational threshold, can be made along the orchard, bordering deciduous woodland and hedgerow or clusters of host trees such as black locust, tree of heaven, maple, & ash. Over the past three weeks we have seen the insect on fruit and/or captured in pheromone traps. First observation along the orchard perimeter or using a 40 BMSB per trap per week are presently the thresholds we are recommending for the first application to reduce damage from BMSB.



Tedders trap using pheromone combination lures in peach. *Image by Peter Jentsch*

The EPA and NYS DEC have renewed an emergency exemption use permit (Section 18) for the pyrethroid bifenthrin to control brown marmorated stink bug on apples, peaches and nectarines this year. The regional application request was submitted to EPA from the mid Atlantic states of DE, MD, NC, NJ, PA, VA, WV and NY state.

Bifenthrin is a pyrethroid sold under the trade names of Brigade WSB (10% bifenthrin, EPA Reg. No. 279-3108, FMC Corp.), Bifenture EC (25% bifenthrin, EPA Reg. No. 70506-227), and Bifenture 10DF (10% bifenthrin, EPA Reg. No. 70506-227, United Phosphorus Inc.).

Regardless of the product used, a maximum of 0.08 to 0.2 lb.[AI]/acre/season will be allowed, with no more than 0.5 lb. a.i. per acre applied per year with multiple applications made at a minimum of 30 day intervals; a restricted entry interval (REI) of 12 hours and pre-harvest interval (PHI) of 14 days must be observed.

When applying either of these materials for BMSB control on apples, growers must have possession of the Section 18 label, which can be found at http://pmep.cce.cornell.edu/regulation/sec18/2013/Bifenthrin_s18_let_0613.pdf.



BMSB adult on peach. *Image by Peter Jentsch*

Eastern NY Commercial Horticulture Website

The Eastern NY Commercial Horticulture Team is proud to announce that their updated website is up and running. For online class registrations, announcements, older issues of our newsletters, and more, please visit <http://enych.cce.cornell.edu/>. We hope you bookmark it on your computer and begin using it as your 'go to' website for production and marketing information. Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!



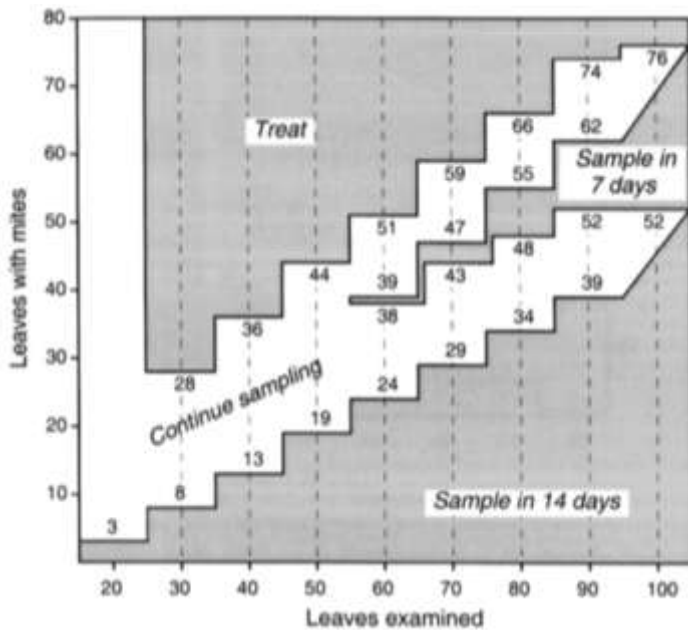
Summer European Red Mite Control

By Dan Donahue, CCE ENYCHP, with additional information provided by Peter Jentsch and the Cornell Pest Management Guidelines for Tree Fruit Production

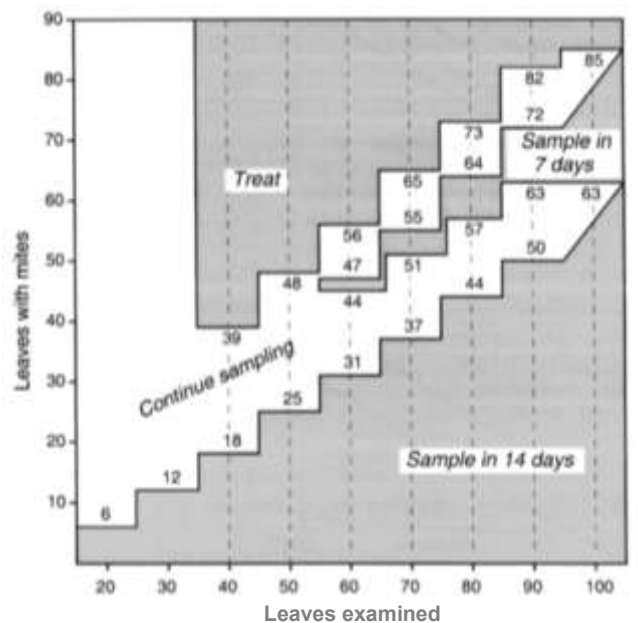
In general, the orchards I've seen in the last two weeks are showing excellent management of ERM. The common denominator for blocks that currently have a problem is the omission of an early season control program, such as oil or Agri-Mek. We are now in a period of hot weather, pay close attention to these blocks, and blocks where pyrethroid insecticides have been applied. Consult with your crop advisor and/or the Cornell Pest Management Guide for sampling protocols and spray recommendations. For a quick reference, use the charts below and follow the sampling directions. Call if you have questions, and remember to always read the label.

Summer Mite Sampling Charts and Instructions

July 1 – 31 @ 5 Mites/Leaf Threshold



August 1 – 15 @ 7.5 Mites/Leaf Threshold



- This procedure involves examining middle aged leaves for motile mites (any stage except eggs). Choose one of the two charts based on the sample date. You will not be counting mites, but will only determine whether they are present or absent on each leaf sampled.
- Starting with a random tree and sampling every other tree, collect 4 leaves in a plastic bag from each of 5 trees, choosing from each quadrant of the canopy. To make sure the leaves are of an intermediate age, pick them from the middle of the fruit cluster or foliar terminal.
- Using a magnifier, examine the top and bottom surface of each leaf for motile mites, and keep track of the number of leaves containing motile mites. When all 20 leaves have been examined, compare this number with the numbers on the above decision guide. If the

number of leaves with mites is equal to the values on the staircase lines, the decision is the one shown in the area immediately below the value (example: For "39" after sampling 40 leaves, the decision is "Continue sampling"; for "18" the decision is to "Sample in 14 days"). When the counts fall into any of the shaded regions, sampling is stopped and a decision is made to either treat, or else re-sample in 7 or 14 days. If the counts fall in the "Continue sampling" zone, take and examine more leaf samples in batches of 10 (5 per tree) until the counts fall into one of the shaded regions. If you reach one of the resample zones, the population is below threshold, and should remain so for at least the number of days stated. Return at the designated time and conduct another sample. If the resample date falls after August 15, there should be no further need for additional samples or miticide sprays this season.

Spotted Wing Drosophila Update

By Juliet Carroll, Cornell Univ. School of Integrative Plant Science

Spotted wing Drosophila (SWD) is a destructive vinegar fly (fruit fly) recently introduced to North America from Asia. Females can slice directly into ripening fruit to lay eggs; about 7 to 16 per day. When populations build in late summer and early fall, soft fruit such as fall raspberry, blackberry, blueberry, elderberry, grapes, plums, cherries and peaches can be at risk of severe infestation.

Cornell University and Cornell Cooperative Extension established a SWD monitoring network in 2012. In 2014, monitoring for SWD is being done in Albany, Cayuga, Chautauqua, Chemung, Clinton, Columbia, Dutchess, Erie, Herkimer, Livingston, Monroe, Niagara, Onondaga, Ontario, Orange, Orleans, Rensselaer, Saratoga, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Tompkins, Ulster, Washington, Wayne, Wyoming, and Yates Counties. Traps are checked once per week and results are posted on the SWD blog, <http://blogs.cornell.edu/swd1/>, which you can subscribe to for email alerts.

Four SWD, the first reported for of the 2014 growing season, were captured the week ending July 9. Two females in ripening summer raspberry in Suffolk County; one male in summer raspberry in Onondaga County; and one female in summer raspberry in Cayuga County.

Eleven SWD were captured the week ending July 17. One female in blueberry and one female in summer raspberry in Niagara County; one male in blueberry and one female in summer raspberry in Schuyler County; three females in summer raspberry, two SWD in woods, and three SWD in blueberry in Ontario County.

Sustained trap catch is a milestone often used in IPM for timing management tactics against insect pests. Insect traps in the SWD monitoring network are checked once per week until adult SWD have been caught for two consecutive weeks at that location, indicating sustained trap catch.

On the blog, we post SWD first catch reports. Some of these reports may not prove to be first sustained trap catch because SWD adults are not caught the following week. This was the case for the traps in Suffolk, Onondaga, and Cayuga Counties. No SWD adults were caught at these locations the week ending July 16, and in Suffolk County, no infested fruit was detected.

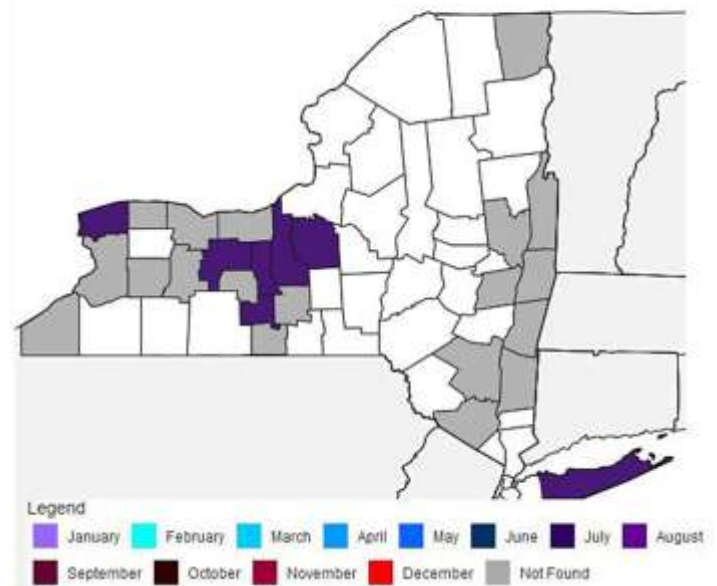
This indicates that SWD populations are still very low in NY. Cultural practices such as removing overripe berries from the planting, clean picking, dragging equipment across the ground to squash and break up dropped berries, etc., may provide some benefit, particularly in crops that are nearing the end of the harvest window, such as summer raspberries. Also, remove alternate weed hosts, pokeweed and bittersweet nightshade, from the area before these

weeds develop fruit. Consider creative approaches to sanitation in U-pick plantings such as providing a discount on purchased fruit when the customer brings in an extra bucket of damaged and over-ripe fruit to the counter for disposal.

Keep track of fruit ripening in other susceptible crops and plan to protect these with insecticides in the coming weeks. [Berry insecticide tables](#) and [tree fruit and grape insecticide tables](#) are found on Cornell Fruit Resources. SWD populations and damage can increase dramatically with favorable weather and susceptible ripe fruits. Insecticide control requires frequent applications (5-7 day interval), so plan spray programs carefully to maintain coverage and optimize the utility of the applied materials. Rotate insecticide mode-of-action to avoid insecticide resistance.



spotted wing drosophila (*Drosophila suzukii*) January 1, 2014 - December 31, 2014



More information on SWD can be found on the Cornell Fruit Resources' [SWD website](#), www.fruit.cornell.edu/spottedwing. An up-to-date distribution map for NY and the Eastern US can be found on the Cornell Fruit Resources [SWD Distribution page](#), courtesy of the Southern Region IPM Center and the University of Georgia Center for Invasive Species and Ecosystems Health. And don't forget to subscribe to the blog, <http://blogs.cornell.edu/swd1/>.

Summer Pruning Apple Trees, continued from page 2

summer pruning research. While reviewing the pruning literature, I was amazed at how little research-based information existed on summer pruning. There were several articles in trade journals, but no research, so I followed the recommendation outlined by Dr. Utermark. We used 12-year-old vigorous 'Delicious', 'Golden Delicious' and 'Stayman' trees on MM.111 rootstock, which were perfect for studying the effects of pruning on tree vigor. For three consecutive years the trees were pruned in mid-August, about four weeks before 'Delicious' harvest, by cutting all one-year-old shoots to three leaves. This was very time-consuming, but we thought the process could eventually be mechanized by mowing the sides of the trees. Another set of trees were pruned exactly the same way, but in March.

The trees did not respond as expected. We estimated that we removed about 30% of the foliage in August and this greatly improved light penetration in the canopy interior. Summer pruning also delayed leaf senescence in the fall, so the remaining leaves had higher photosynthetic rates than March-pruned trees. Even the leaves in full sun on the tree periphery had higher photosynthetic rates following summer pruning. Trunk growth between August and November was suppressed by summer pruning and in greenhouse experiments root growth was drastically reduced by summer pruning. Since trunk and root growth were suppressed after summer pruning, we expected to see a suppression of shoot growth the following season. Although summer pruning suppressed trunk growth each year, shoot growth, flowering and fruit set were never affected. Most years summer pruning enhanced fruit red color development and fruit flesh calcium concentration, and reduced bitter pit, pre-harvest fruit drop, fruit size, flesh starch ratings, water core and fruit soluble solids concentration. Apparently, we removed enough foliage to reduce trunk growth, fruit growth and sugar levels in the fruit, but not enough to affect shoot growth the following season. In a preliminary experiment I measured total nonstructural carbohydrates (starch plus sugars) in trunk bark and found that carbohydrates were reduced by summer pruning when measured in November but not in April. The lack of difference in spring carbohydrate reserves may explain why vegetative growth was not suppressed the year following treatment.

Another student working with Dr. Barden pruned a different set of apple trees growing in pots every month and measured growth the following year. He found that all trees grew the same regardless of time of pruning. From these experiments we concluded that apple tree growth may vary

depending on the type of pruning cuts that are used, but time of pruning will not affect vegetative growth the following year. Since summer pruning was fairly expensive and had few benefits, summer pruning was not widely recommended. Research results from Massachusetts, Ohio and Europe also supported our results. The only place where summer pruning may be beneficial is when light is the primary factor limiting fruit red color development. In those cases, selective removal of vigorous shoots 3 or 4 weeks before harvest may increase light enough to improve red color without reducing fruit size and quality.

Summer Pruning Non-Vigorous Apple Trees

During the past 20 years apple orchards have changed tremendously. Trees on dwarfing rootstocks are being planted close together and trunks are supported to at least 10'. The most common training systems include variations of the Vertical Axis and the Tall Spindle. These orchard systems are extremely productive, produce fruit early, produce high quality fruit and require less pruning than large trees on semi-dwarfing rootstocks. There is interest in mechanizing orchard operations as much as possible, so some growers and researchers have started to mow trees during the summer, primarily to reduce pruning costs.

As a horticulturist I hate the idea of mowing because indiscriminant shoot heading typically results in reduced flower spur development, and crow's feet develop on every headed shoot and shade the lower portion of the tree. Dr. Terence Robinson has been summer mowing some Tall Spindle trees and early results look promising. After mowing the trees are shaped like an inverted V-shaped narrow hedge. I asked him why he thought tall spindle trees respond so differently to summer mowing than more vigorous free-standing Central Leader trees. Terence said that most of the shoots that are being headed are thin in diameter and lack vigor, so they produce little regrowth during the season that they are headed, sometimes they produce flower buds after being headed and they do not produce vigorous shoot growth the following season. Before initiating a summer mowing program Dr. Robinson feels that the trees should be dormant pruned well, and then the trees can be mowed for two summers, followed by a detailed dormant pruning in the third year. I think he is only two years into this study, so it will be interesting to see if his 3-year plan works. If his hypothesis is correct, then trees with vigorous shoots will likely not respond favorably to summer mowing, but non-vigorous trees may be mechanically pruned.

GAPS Help?

Remember to call the Orange CCE office if you want help with writing your GAPS plan or need to get ready for your first inspection. We have a staff person that is prepared to help you take the next steps needed to get that inspection and to be GAPS certified. This Fall, we plan on having more 2-day classes across the region for those who have yet to get started with their plans or investigating "what it takes." Please call Maire Ullrich 845-344-1234 with questions or to make an appointment with our GAPS specialist.

Sunburn of Apples

By Mario Miranda Sazo, Cornell LOFT

Sunburn of apples is a physiological disorder caused by heat and/or light stress. In the orchard direct sunlight under hot air conditions can increase skin temperature of exposed fruit by 25-30° F. This means that under very average weather conditions sunburn can occur and result in economic losses to growers. In the last three years, some fruit growers have mentioned the increase of fruit sunburn due to hotter summers. Some growers have tried “sunblock” materials (kaolin material, calcium carbonate material) to reduce sunburn on Honeycrisp, SweeTango, Cameo, Fuji, Jonagold, Crispin, and Gala. Some material labels suggest first applications be made at around this

timing. Other labels suggest the first application at 7, 8, 9 weeks after full bloom with a second application 7 to 10 days later. I have very limited experience in our climate with these materials, but some growers have informed me that some of these sprays delayed color development, maturity, and affected fruit finish. My best advice is to read the label and follow directions for the several sunblock materials available this year. Keep an eye on the updated forecasts in case you plan on testing these materials on limited areas this season. Don't forget to leave an untreated area for comparison. Please call me to evaluate sunburn control during August.

Tips When Summer Pruning Apple Trees

By Dan Donahue, CCE ENYCHP

Clearing water sprouts, and cutting some of this year's growth back to an apple will help improve light distribution in the tree. The result is better color at harvest on those hard-to-color varieties, and stronger buds for next year's crop. However, consider the following points:

- The rule of thumb is to wait until 75% of terminals have shut down before starting.
- Avoid over-exposing fruit on sunburn sensitive varieties such as Honeycrisp, SweeTango, Cameo, Fuji, Jonagold, Crispin, and Gala, and in blocks where you have suffered sunburn in the past.
- Early and excessive summer pruning can also reduce the total photosynthate available to the tree, reducing fruit sizing potential.
- Early and excessive summer pruning can (will?) contribute to an increase in the incidence of pre-harvest drop in McIntosh.
- Early and/or excessive summer pruning can reduce winter hardiness. Considering our previous winter, and the winter cold stress our trees experienced, keep this point in mind as you are managing your pruners, especially on the more cold-sensitive varieties such as Gala and Empire.

USDA Pollination Security Study is Asking for Your Input

A five year USDA project is investigating how to provide greater pollination security for Maine wild blueberries, Massachusetts cranberries, Connecticut squash/pumpkin, and **New York apples**. Researchers in all four states need input from all types of apple growers in New York from all production regions, **especially those in the Hudson Valley**, on how improve pollination on their farms. While the project focuses on native bees, all pollination alternatives are being economically evaluated. Please check with all owners and operators on your farm to make sure someone did not fill out this survey live on paper during one of the following four recent petal fall meetings (Rexford 5/27, Sodus 5/29, Albion 5/29, and Peru 6/4).

The survey was issued by Dr. Aaron Hoshide, Adjunct Assistant Professor/Faculty Associate with the University of Maine School of Economics (207-945-6830 or email aaron.hoshide@umit.maine.edu).

If your farm did not fill out a survey, please complete this survey anonymously online at the following web link:

<https://www.surveymonkey.com/s/NKT2Z6G>.



Images from Dave Rosenberger online article available at <http://blogs.cornell.edu/plantpath/vl/2014/04/22/apricots-at-full-bloom/>

Hudson Valley Lab Pest Info Blogs

To better serve the fruit industry in the Hudson Valley, both Dave Rosenberger and Peter Jentsch have recently established websites where they are posting information on diseases, pests, and pest management that is relevant to fruit growers in the Hudson Valley. Both the plant pathology and entomology websites for the Hudson Valley Lab contain blogs where they post time-sensitive observations and pest alerts.

Fruit growers interested in receiving alerts via e-mail when they make new posts in these blogs can subscribe by entering their e-mail address in the “subscribe” box on the relevant website. The bottom of each e-mail alert from the blogs will contain an “unsubscribe” link



so that alerts can be discontinued at any time.

The URL for the Hudson Valley Entomology website and blog is <http://blogs.cornell.edu/jentsch/>, and the URL for the Hudson Valley Plant Pathology website/blog is <http://blogs.cornell.edu/plantpathhv/>. Both websites are still in the early stages of development, but then websites documenting the current state of knowledge are never really complete.

Counterfeit Money at Farmer's Markets

Counterfeit Money sightings are on the upswing. An increase in counterfeit dollars at Farmers Markets is on the rise. Be in the lookout. \$10's and \$20's are most common. Invest in some of the pens that highlight based on special money paper and see this article: <https://docs.google.com/file/d/0BzEMJRQuH2M1aE5hcGUwMTNBZIE1dGdMWmhhSXP2bzE3cGdR/edit?pli=1>

Upcoming Meetings

Michigan State University CA Clinic Wednesday, August 6, 2014 at Boulder Creek Golf Club, Belmont, MI

Storage operators will kept up-to-date on most recent changes in CA and packinghouse regulations, methods for increasing efficiency of CA operations and techniques for improving their ability to maintain high fruit quality. Contact Dr. Randy Beaudry at (517) 355-519, ext. 1303 or beaudry@msu.edu for more information, or click on the link <http://www.event.com/d/g4qs1z>.

Agr.Assistance Wayne County Fruit Grower Tour, August 6th, 2014

Starting time is 9:00 am. Registration and 1st stop at Wafler Nursery & Orchards, 10748 Slaughter Rd, Wolcott, NY. Sponsored by agr.assistance, this tour will feature presentations on new club varieties, advances in automated fruit harvest systems, fire blight and apple scab management, PGR use, dealing with biennial bearing, orchard weed control, and internal worm management options. Free attendance. Contact Lindsay LaMora at 585-734-8904 or email lindsaylamora@agrassistance.com for RSVP pre-registration and tour information and more details, or go to <http://www.agrassistance.com/waynecountyfruitgrowertour.html>.

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 possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide. This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension.

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.