Cornell University
Cooperative Extension

Eastern NY Commercial Horticulture Program

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Tree Fruit News

Regional Updates:

North Country– Clinton, Essex, northern Warren and Washington counties

Tree phenology: Apple—dormant

Current growing degree days 1/1/13 to 3/5/13	Base 42^{0}F	Base 50^{0}F
Chazy	0	0
Peru	0	0
Crown Point	0	0

Pest focus—none

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington counties

Tree phenology: Apple, pear, peach, cherry, plum, apricot—dormant

Current growing degree days 1/1/13 to 3/5/13	Base 42^{0}F	Base 50^{0}F
Granville	0.5	0
North Easton	6.8	0
Clifton Park	2.0	0
Guilderland	4.5	0

Pest focus—bacterial spot and peach leaf curl on peach & nectarine; pear psylla adult activity

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Mid-Hudson Valley—Columbia, Dutchess, Green, Orange, Sullivan and Ulster counties

Tree phenology: Apple, pear, peach, cherry, plum, apricot—dormant

Current growing degree days 1/1/13 to 3/5/13	Base 42^{0}F	Base 50^{0}F
Hudson	3.1	0
Highland	5.9	0
Marlboro	5.5	0
Montgomery	5.5	0

Pest focus—bacterial spot and peach leaf curl on peach & nectarine; pear psylla adult activity

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Coming Events

Coming Events: Range (normal + std deviation)	Base 42^{0}F	Base 50^{0}F
McIntosh silver tip	60±110	18±42
McIntosh green tip	95±147	36±62
Pear psylla adults active	31±91	8±34
Pear psylla egglaying	40±126	11±53

TREE FRUIT SPECIALISTS' CONTACT INFORMATION

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Serving the educational and research needs of the commercial small fruit, vegetable and tree fruit industries in Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Rensselaer, Saratoga, Schoharie, Schenectady, Sullivan, Ulster, Warren and Washington Counties

You Can Strengthen the NEWA Backbone in Eastern New York

By Kevin Iungerman, ENYCH Program

All of Eastern NY's NEWA weather stations show a zero degree day accumulation (base 50F) as of March 5 and all tree fruit are dormant. But as we know from experience, circumstance can change rapidly in March as indicated in the NEWA reports for Clintondale, NY below – just one site in a string of NEWA reporting stations in eastern NY.

Soon enough – perhaps quite soon if 2012 repeats – we will need to begin the 2013 spray season. Are you ready? Once the weather warms and conditions are right, disease and pests will rapidly emerge from winter's shadows. The Cornell NYS IPM site provides degree-day linked models and bio-fix information to help frame and anticipate emerging risk periods to better prepare plant protectant measures. The site also is linked to many valuable informational resources regarding commercial crop production in New York.

During the coming season we will strive to present degree day information for the following NEWA weather stations in Eastern NY: Chazy, Peru, Crown Point, Granville, North Easton, Clifton Park, Guilderland, Castleton, Hudson, Redhook, Highland, Clintondale, and Marlboro. This series of weather stations forms the "NEWA Backbone" for Eastern NY, which together with the field observations of the Eastern New York Commercial Horticulture Team and Cornell researchers will provide the basis for many seasonal reports and alerts in the coming months. The NEWA system is admittedly sparse in places, notably in outlying western locations about the greater Capital District.

How might this be improved upon? Look no further than your mirror. Consider obtaining and linking a weather station to the NEWA system yourself; this is how the current network has been assembled: it is private grower

Date	Max Temp	Min Temp	Daily DD Base 50	Accumulation Since			
				Jan 1	Mar 1	Apr 1	May 1
Clintondale - Daily Degree Day Summary							
3/1/2008	41.0	20.0	0.0	1.5	0.0	-	-
3/2/2008	41.0	20.0	0.0	1.5	0.0	-	-
3/3/2008	54.0	21.0	0.0	1.5	0.0	-	-
3/4/2008	48.0	32.0	0.0	1.5	0.0	-	-
3/5/2008	49.0	30.0	0.0	1.5	0.0	-	-
3/6/2008	48.0	25.0	0.0	1.5	0.0	-	-
3/7/2008	49.0	26.0	0.0	1.5	0.0	-	-
3/8/2008	46.0	32.0	0.0	1.5	0.0	-	-
3/9/2008	35.0	24.0	0.0	1.5	0.0	-	-
3/10/2008	39.0	20.0	0.0	1.5	0.0	-	-
3/11/2008	45.0	21.0	0.0	1.5	0.0	-	-
3/12/2008	42.0	31.0	0.0	1.5	0.0	-	-
3/13/2008	43.0	23.0	0.0	1.5	0.0	-	-
3/14/2008	54.0	28.0	0.0	1.5	0.0	-	-
3/15/2008	53.0	35.0	0.0	1.5	0.0	-	-
3/16/2008	43.0	31.0	0.0	1.5	0.0	-	-
3/17/2008	41.0	23.0	0.0	1.5	0.0	-	-
3/18/2008	44.0	24.0	0.0	1.5	0.0	-	-
3/19/2008	40.0	34.0	0.0	1.5	0.0	-	-
3/20/2008	43.0	31.0	0.0	1.5	0.0	-	-
3/21/2008	40.0	27.0	0.0	1.5	0.0	-	-
3/22/2008	46.0	22.0	0.0	1.5	0.0	-	-
3/23/2008	45.0	20.0	0.0	1.5	0.0	-	-
3/24/2008	-	-	-	1.5	0.0	-	-
3/25/2008	-	-	-	1.5	0.0	-	-
3/26/2008	-	-	-	1.5	0.0	-	-

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owners who are responsible for virtually all of these reporting stations. (Only Highland is a Cornell installation).

Individuals or groups can purchase NEWA weather stations. NEWA makes it possible for farmers, consultants, processors, educators and faculty to share the weather data-driven analysis products that guide disease and pest modeling and onset. The more extensive the network is, the more reliable the information provided. To find out more about ordering a NEWA weather station for your site contact Juliet Carroll at the NYS IPM Program, Cornell University, Geneva at 315-787-2430 or via email at jec3@cornell.edu.

To learn more about NEWA and IPM, visit the NY IPM home page at http://newa.cornell.edu/

The Current Picture – New York's Pesticide Registration Changes for Tree Fruit

By Dr. Art Agnello, Cornell Department of Entomology

Each year, a number of changes occur in the roster of insecticides and fungicides available to New York's tree fruit growers for crop protection purposes. This article outlines some of the more significant changes (so far) for the 2013 growing season; more are sure to follow:

Insecticides

Guthion/Azinphos-methyl - Despite the EPA's order allowing use of existing stocks in the rest of the country through September 2013, as of September 30, 2012, azinphos-methyl use is prohibited in New York State due to all state-approved labels prohibiting use after this date; revised labeling is not expected.

Thionex - All endosulfan products are currently registered for use in apples and pears only, and EPA has mandated a stop-use date of July 31, 2013 for endosulfan in pears.

Provado - This original formulation of imidacloprid has been replaced by AdmirePro and is no longer being sold by Bayer Crop Science.

Isomate OFM TT (Pacific Biocontrol, EPA Reg. No. 53575-29) - This is the replacement product for Isomate M-100, which is in the process of being discontinued. This twin-tube tie dispenser has a field life of 180+ days, and is therefore being recommended for full-season mating disruption of oriental fruit moth and lesser appleworm in all tree fruits.

Agri-Flex and Voliam Flexi – Are two new pre-mix insecticides that have been registered in NY by Syngenta; both are restricted-use products and their use in Nassau and Suffolk Counties is prohibited. For best effectiveness and insecticide resistance management, the use of pre-mix products should be reserved for situations when multiple pest species are present and appropriately matched to the combination of active ingredients and modes of action contained in the product.

Agri-Flex (EPA Reg. No. 100-1350) is registered for use against a range of pests in apples and pears. This product is a mixture of thiamethoxam, the active ingredient (a.i.) of Actara, and abamectin, the same a.i. found in Agri-Mek. In apples and pears, it is labeled for control of plum curculio, European apple sawfly, green peach aphids, Comstock mealybug, leafminers and leafhoppers, and mites. Additionally in pears, it is labeled for pear psylla. It has a 12-hour REI, and a PHI of 35 days. This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds; it may not be applied between early pink and petal fall in apples, or between green cluster and petal fall in pears.

Voliam Flexi (EPA Reg. No. 100-1319) is registered for use against a range of pests in pome and stone fruits in NYS. This product is a mixture of thiamethoxam, the a.i. of Actara, and chlorantraniliprole, the a.i. found in Altacor and Voliam Xpress. The label lists lepidopteran pests such as codling moth and oriental fruit moth, obliquebanded leafroller, leafminers and green fruitworm; plum curculio; European apple sawfly; leafhoppers and aphids (except woolly apple aphid); pear psylla; plus (in stone fruits only) cherry fruit fly, stink bugs, tarnished plant bug and thrips. It has a 12-hr REI, and a PHI of 35 days in pome fruits, 14 days in stone fruits. This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds; it may not be applied between early pink and petal fall in apples, between green cluster and petal fall in pears, and between swollen bud and petal fall in stone fruit.

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Fungicides & Bactericides

Tree Tech OTC (Florida Silvics, EPA Reg. No. 64014-11) is a formulation of oxytetracycline, an antibiotic registered for foliar use on peaches and nectarines to control bacterial spot. It is also registered on peach for microinjection to manage peach X-disease, and for control of fire blight on apples and pear, but is not as effective as streptomycin.

Topguard (flutriafol, Cheminova, EPA Reg. No. 67760-75) is a member of the triazole group of sterol inhibitor fungicides. It is exceptionally effective against powdery mildew, cedar apple rust, and scab on apples. Fruit scab control is usually improved by tank-mixing with a contact fungicide (captan, mancozeb).

Progressively Optimizing Spray Technology Practices to Save Money

By Kevin Iungerman, ENYCH Program

As spring draws near, we must be ready to apply the correct protectant product, at allowable and effective rates, and with a properly configured sprayer. Modern sprayers effectively produce and channel air to transport the droplets of spray solution to tree surfaces for deposition against detrimental organisms, and to an extent, this air stream can also buffer the detrimental effects of wind while shaking the canopy up to aid penetration.

Inefficient sprayers take money out of your pocket, either by applying more product than is required, often with added headaches of drift and environmental consequences; or by applying too weak a solution, and thus supplying an insufficient amount of active ingredient, which will fail to adequately deter pests and which can lead to increased disease resistance and eventually even greater economic expense. Both circumstances can waste quite expensive product while not achieving the desired results.

Very often, you can easily mitigate the chances of over- or under-spraying simply by checking pressure gauge performance; doing this one thing can save considerable expense quite cheaply. The cost of replacing a single faulty pressure gauge that has been indicating 15% below actual pressure is typically recouped in a couple of hours of operation. Considering the labor costs of examination and testing all nozzles, and the potential savings to be gained, it makes sense to fit sets of new nozzles at the beginning of each season. Even when there is overdosing by as little as 5%, the cost of a new set of nozzles would be recovered in less than a day's work.

Sometimes though, the issue is more complex. Many orchard operations have inadequate sprayer capacity due to a number of reasons, not the least being increased acreage and reduced employees, often resulting in excessive forward speed to get through plantings within an infection window or close upon a threshold trigger, or while the weather is conducive to spraying. Very often, early season spraying is attacked with the practice of alternate row spraying without adequate evaluation of deposition.

In other instances, tractors have insufficient power to maintain optimal forward speeds under a range of field and load conditions. Forward speed is critical if target output is to be maintained and to ensure that canopy penetration is to be maximized. A fast forward speed, particularly when spraying a full canopy, results in the airflow trailing backwards in to the canopy, which increases the potential area for better deposition since the air arrives at an angle.

Recognizing that "Where the air goes the droplets will surely follow" Dr. Andrew Landers of Cornell asks the important question: "Do we really need to use an airblast sprayer creating up to 50,000 cubic yards of air/hour at an airspeed of up to 200 miles per hour?" when our buds or leaf targets are just a few inches long, or less, in the early season? In such circumstances, too much air can transport the money from your pockets (aka. the spray solution) well past the intended target surfaces.

Early season applications can send 10-15% of the spray solution into the air, 35-50% into the canopy and 40-60% on to the ground. Even when canopy is more extensively developed, too much air can cause "shingling" of the leaves and blunt penetration, or even blow droplets away that had already alighted on the target leaves. In fuller canopy growth situations, 10-15% of solution also goes into the air, but now perhaps 55-60% goes into the canopy, while 20-35% goes onto the ground. In either canopy scenario though, from 40-50% of the spray is off-target!

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The addition of small metal plates at the lower end of the air outlet will greatly enhance air penetration into the canopy and reduce ground contamination. Deflectors on the top of the sprayer have been shown to improve deposition by 30%. Drift can be reduced at the end of blocks by fitting a curved metal plate to one side of the air outlet to avoid spraying fine droplets on the wrong side. Fitting airblast sprayers with air induction nozzles can also reduce drift.

Cornell trials have implicated the frequency of there being too much air with airblast sprayers, and this led to the development of the "Cornell doughnut" to reduce airflow. Reduced airflow can also be achieved by cutting fan speed. A medium fan speed has been shown to deposit pesticides as well as a high fan speed does while also reducing off-target drift. Other methods to reduce fan speed include the following:

- Reduce fan speed via sprayer gearbox choice, and by changed blade pitch.
- Reduce fan speed by switching to a lower PTO speed (but maintain engine torque!).
- Reduce fan speed by fitting a hydraulic motor.

The moral of the story is the need to progressively reassess spray patterns, deposition, canopy growth stage, and appropriate air volume; there will be times that it will even make sense to turn the air off completely, in increase to efficacy and to avoid wasting operator time, equipment and fuel energy, and of course, product.

Evaluation of deposition is your key tool. Coverage on upper and lower leaf surfaces of the trees to be sprayed can be assessed by a number of means: with the use of water-sensitive papers, food coloring, fluorescent tracers, or kaolin clay. Findings can then guide whether there is a need to increase spray volume, to adjust the nozzles and their locations, to change tractors, to change practices, or to do all of these things to achieve optimal deposition and reduce overall costs.

For additional information concerning sprayer technology, calibration, and techniques for improved targeted deposition of plant protectant chemicals visit Dr. Andres Landers's Cornell "Pesticide Application Technology" home page of Cornell at: http://web.entomology.cornell.edu/landers/pestapp/.

Sources: "Recreational Spraying – Frustration for the Well Organized", Improve Spray Deposition with Adjustments in Airflow", "Preparing the Air Blast Sprayer for Work", all by Dr. Andrew Landers, Barton Lab, NYSAES, Cornell University, Geneva, NY. See complete original articles at http://web.entomology.cornell.edu/landers/pestapp/.

New Water Resources Law May Affect You!

By Teresa Rusinek, edited and adapted by Mike Fargione, ENYCH Program

A NYS law signed on 2/15/2012 (final regulations effective on 4/1/2013) requires **a permit and annual reporting for agricultural water withdrawal systems that have the capacity to remove 100,000 gallons per day [gpd] of surface or groundwater, and registration for water withdrawals averaging more than 100,000 gpd during any 30-day period. If you have the *capacity* to withdraw 100,000 gallons of water per day, this law affects you.**

- Regulations cover withdrawals from sources including wells and surface water sources such as ponds and creeks. Farms with multiple locations are considered a single unit, i.e., one agricultural facility, as long as parcels are within 40 miles.
- The DEC defines an agricultural facility as "farming for crops, plants, vines and trees, and the keeping, grazing, or feeding of livestock for sale of livestock or livestock products, and the on-farm processing of crops, livestock and livestock products."
- Agricultural facilities with the ***capacity*** to withdraw water $\geq$ an average of 100,000 gallons per day in any 30-day consecutive period (3 million gallons during a 30-day period) must file an annual report with NYSDEC. **This report is due by March 31st of each year**.
- Registration is required if water use in any 30-day period exceeds 3 million gallons. This is equal to 110.5 acre-inches per 30 days or a daily average water use of 100,000 gallons (3.7 acre-inches in 24 hours). A 30-day running total record of the days that irrigation took place and the amount of water applied per acre will help determine the need for registration. Any agricultural facility with a water source over the threshold volume **that** did not register or report usage to NYSDEC prior to February 15, 2012 must file for a water withdrawal permit.

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More about Registering, Reporting, & Permitting

Interpreting the new regulations can be tricky. Key points include:

- Registration is basically filling in your name and location on the Ag Withdrawal Reporting Form, but not necessarily filling in the numbers on how much water you estimate you used. Why would you do this? Some operators may have no idea how much water they use. Sending in a registration with or without the water use reporting lets DEC know you're out there, and they'll work with you to determine if water withdrawal reports and/or a future permit is needed.
- If you registered/reported by February 15 in 2012, you are now exempt from having to get a permit if you withdraw at or over threshold. **Whether or not you reach threshold, you have to report annually by March 31, if you have the capacity to withdraw 100,000 gpd**.
- At this time the DEC is encouraging farm operations to use this reporting system as a tool to learn about their water usage. If you are over the pumping threshold and have not registered or reported, the DEC suggests that you do as soon as possible so they can evaluate your situation and help you comply without taking regulatory actions.
- Farmers with questions may contact Richard Kruzansky, NYSDEC Division of Water at 518-402-8182.
- More information and reporting forms are available at the NYSDEC Water Withdrawals for Agricultural Facilities website at http://www.dec.ny.gov/lands/86747.html.

Trac Software Workshops

Trac software is a pesticide spray record-keeping program built in Excel which will automatically generate your reports.

Learn more about it at www.nysipm.cornell.edu/trac

The workshops will be taught by Juliet Carroll, Trac Software Developer, and will be held in several locations, with time for questions and discussion.

- CCE Clinton County, Plattsburgh 3/25/13 1-4 pm
- Hudson Valley Lab, Highland 3/26/13 9am-12pm
- CCE Rensselaer County, Troy 3/27/13 9am-12pm

Workshops will demonstrate how to set up your farm's information, applicators, blocks, pesticide inventory; how to enter your records and generate reports, including the EPA WPS Central Posting Form; how Trac can generate spray material costs and keep fertilizer and harvest records.

Advanced registration only! Deadline is March 20. DEC recertification credits available.

For details and registration form go to http://www.nysipm.cornell.edu/news/TracWorkshopPromo2013.pdf or contact Marcie Vohnoutka 518-272-4210, mmp74@cornell.edu.

Berry Pruning Workshops

Proper berry pruning is one part of an effective SWD management program and will encourage long lived, productive plants. Join us for a hands-on demonstration of blueberry and bramble pruning directed at the commercial grower, including how to properly prune blueberries for insect and disease management.*

Depending on the location, the demonstration on bramble pruning will include floricane and primocane raspberries and blackberries. An emphasis on SWD management will be part of the course, and there will be time for questions and discussion.

All workshops are held 10:00 am - 12:00 pm.

+Mead's Orchard Tivoli NY Wed. March 20
Jim O'Connell: 845-943-9814

Och's Orchard, Warwick, NY Thurs.March 21
Jim O'Connell: 845-943-9814

+Rulf's Orchard, Peru, NY Tues. March 26
Amy Ivy: 518-561-7450

+Indian Ladder Farms, Altamont, NY Thurs. March 28
Laura McDermott: 518-791-5038

*+Cashin's Farm, Fultonville, NY Fri. March 29
Laura McDermott: 518-791-5038

*** This location does not have blueberries.**
+These locations have High Tunnel berry production.

Please let us know you are coming! Call the contact listed at each location-it helps us plan ahead and cancel in case of foul weather.