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Tree Fruit News

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Pest and Weather Data

Degree Day Accumulations (as of 06/09/2014, via NEWA)		
Location	Base 43 F	Base 50 F
Peru	790.4	448.9
Watermill	745.7	336.8
Clifton Park	845.6	485.4
Marlboro	931.2	520.2
Hudson	971.0	565.1
Clintondale	988.5	565.8
Highland	999.3	573.2

In this issue of Tree Fruit News:

- Run That Irrigation System!
- Using the NEWA Apple Irrigation Model
- Training and Irrigating New Plantings
- Last Chance to Participate in the BMSB Survey
- Sad Saga of the Dogwood Borer and the M9
- USDA Pollination Security Study
- Madex HP Labelled in New York State
- Beware! USDA/FSA Phone Scam
- Important Reminders and Upcoming Meetings

Upcoming Pest Events	DD Range (43F)
American plum borer 1st flight peak	590-970
Codling moth 1st flight peak	561-991
Lesser appleworm 1st flight peak	349-761
San Jose scale 1st flight subsides	855-1227
Pandemis leafroller 1st catch	773-901
Pandemis leafroller flight peak	874-1170
Obliquebanded leafroller 1st trap catch	812-986
Obliquebanded leafroller 1st flight peak	830-1204
Redbanded leafroller 1st flight subsides	592-898
Black cherry fruit fly 1st catch	702-934
Cherry fruit fly 1st catch	755-1289
European red mite summer eggs hatch	737-923
Rose leafhopper adults on multiflora rose	689-893
Rose leafhopper adults on apple	809-1053
Spotted tentiform leafminer 2nd flight begins	992-1166
Dogwood borer 1st catch	819-1299
Oriental fruit moth 1st flight subsides	835-1117
Peachtree borer 1st catch	797-1341

Insect Trap Catches (Number/Trap/Day) (Highland, NY)		
Pest Species	Count 06/02	Count 06/09
Lesser Apple Worm (LAW)	1.3	0.3
Tufted Apple Budmoth	1.2	3.2
Oriental Fruit Moth (OFM)	4.1	1.9
Red Banded Leaf Roller (RBLR)	0.6	0.0
Spotted Tentiform Leaf Miner (STLM)	1.8	0.9
Codling Moth (CM)	2.8	3.5
Variegated Leafroller	1.1	3.9

Run That Irrigation System

To date, mother nature has been providing us with, more or less, average rainfall this season, here is some of the data taken across the Eastern New York region.

The Palmer Drought Index (PDSI), developed in 1965 by meteorologist Wayne Palmer, also indicates “near normal” drought status for the region. However, it is not time to be complacent, as the NEWA apple irrigation model is indicating that apple trees need additional water across the region for optimum fruit growth. Below you will find a description of the model, and step by step instructions on how to run the model for your farm.

A Summary of this Season's Rainfall Across Eastern New York (from NEWA)

Weather Station	5 yr. Ave. 03/01-06/09/14	This Year 03/01-06/09/14
Marlboro, NY	11.12	11.96
HVL Highland, NY *	10.03	11.76
Hudson, NY	10.86	9.12
Clifton Park, NY	11.00	10.41
Chazy, NY **	11.03	10.86

* 3 year average

** 4 year average

NEWA Apple Irrigation Model

The apple ET model was developed at Cornell University due to inadequacies in our climate in the standard method. The standard method estimates apple water use as a fraction of the water use of a standard reference grass, adjusting seasonally for relative canopy development. The grass model, calculated by an equation (called the Penman-Monteith equation) based on the physics of evaporating surfaces like a grass, is strongly controlled by sunlight radiation but not very sensitive to temperature and humidity. Apple tree water use, however, for complex reasons is much more sensitive to temperature and humidity.

In humid climates where we can have days of similar sunlight radiation but greatly different temperatures and

humidities, the standard method gives some large errors. Consequently, it was felt necessary to adapt the Penman-Monteith equation directly for apple rather than relating apple to grass which is a poor model of apples.

Also, the apple model is a general model and does not take into account variations in soil characters, tree conditions (except for young trees) or cultural practices. It runs on weather data from the selected weather station that may or may not be representative of any specific orchard, especially in rainfall. Please use it with these precautions in mind. The model was tested against direct measurements in New York, but will be continuously tested and refined over time.

Excerpted from the NEWA website

How to use the NEWA Apple Irrigation Model

Get out your daily irrigation records for the block(s) you want to evaluate

Go to the NEWA Website: newa.cornell.edu

Step #1: Hover over “Crop Management” and click on the first choice in the list “Apple Irrigation”

Step #2: Click on “Select Station” and select the most appropriate weather station from the drop-down list

Step #3: The “DATE” field will default to today's date, click on “CONTINUE”

Step #4: Enter specific information about your orchard block:

Green tip date below is estimated from growing degree day accumulations. Enter your orchard's green tip date to fine-tune results. Enter in-row and between-row spacing (or trees/acre) and select age of orchard from menu. Click "Calculate" to obtain results.

Green tip date	In row spacing	Between row spacing	Trees per acre	Age of orchard	Water balance
	feet	feet			

Step #5: From your irrigation records, enter your daily irrigation volume (gallons/acre) for each of the previous seven days, into the boxes under the heading “IRRIGATION”. Backspace over the “0”, and enter your number. Complete all of your entries, then click “CALCULATE” to refresh the screen.

Call Dan Donahue at the Hudson Valley Lab at 845-691-7117 for further assistance.

Taking Care of those Newly Planted Orchards

Excerpts from “Managing High-Density Apple Trees for High Yield and Fruit Quality” by Terence L. Robinson, Cornell University Department of Horticultural Sciences. Introduction by Dan Donahue, CCE ENYCHP.

Those young apple trees planted in the last month and a half are looking for your attention. Positioning the new shoots and providing adequate water are essential practices needed to obtain both early yields and rapid canopy development. As they say “time is money”, and the faster that new orchards starts to return dollars back to you, the better. What follows are excerpts from an article by Terence L. Robinson, on the topics of limb positioning, irrigation, and fertiligation.

The successful management of apple trees in any high-density planting system depends on maintaining a balance between vegetative growth and fruiting. If vigor is too low, excessive fruiting results, fruit size declines, biennial bearing increases and trees fail to fill their allotted space soon enough to make the orchard profitable. If vegetative vigor is excessive then flowering and fruiting are reduced and containment of the tree to the allotted space becomes problematic. The successful balance of vegetative vigor and fruiting results in ‘calm’ trees that produce heavy annual crops and require only a light annual pruning. Pruning and crop load management are the primary management tools along with fertilization and irrigation that are used to achieve a balance between vegetative growth and cropping throughout the orchards life. These management variables are affected by planting density, tree quality and tree training strategies.

Branch Angle Manipulation

An important method of shifting the balance between vegetative growth and cropping in young trees is tying down of the scaffold branches below horizontal to induce cropping. In the vertical position, a shoot grows more vigorously than in a horizontal or pendant position and tends to remain non-fruitful. A horizontal or pendant limb grows less vigorously and then crop heavily the next year and bend under the weight of the fruit. The fruits are also strong competitors for resources and limit the growth of

the branch even more. If a vertical limb is manually bent horizontal, lateral buds are released from dormancy. If the vigor of the branch is excessive, these buds may grow into vigorous upright shoots themselves and remain unfruitful. However if the branch has more moderate vigor, the lateral buds grow into short shoots which become fruitful. At moderate or low tree densities, trees must be grown rapidly to fill the allotted space while with modern high-density orchards which are spaced 3-5 ft. between trees only moderate growth is desired.

If trees are highly feathered at planting almost no lateral growth is needed but only vertical leader growth to achieve proper tree height. This requires that feathers be managed by manipulating the angle of the feathers soon after planting to limit extension growth. The extent which feathers must be managed to limit growth is a function of the in-row plant spacing. With 3-4 ft in-row spacing’s (the Tall Spindle), feathers must be tied below horizontal in a pendant position at planting so that they produce almost no extension growth and begin cropping in the second year. This also prevents them from developing into substantial lower scaffolds. The pendant position results in a weak fruiting branch instead of a scaffold branch. In contrast with 5-6 ft. spacing’s (Vertical Axis), feathers should not be tied down at planting to allow some extension growth before cropping bends them below horizontal. This allows them to grow into scaffolds over the first 4 years. However, any original feathers that are not horizontal at the third year must be tied down or they will become too vigorous for the spacing. Growers who attempt to plant feathered trees at the Tall Spindle spacing but do not tie the feathers down often end up with limbs in the lower part of the tree that are too strong which requires severe limb removal pruning at an early age, which invigorates the tree and makes long term canopy containment problematic. This simple change in tree management allows for long-term cropping of many feathers and little invasive pruning for the first 5-8 years at the very close spacing of the Tall Spindle system. In contrast to feathered trees, whips require significant lateral extension growth even at 3-4 ft spacing’s. However, in

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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 30.

From the Outreach Team for “StopBMSB”, a project focused on the biology, ecology, and management of the brown marmorated stink bug. For more info: www.StopBMSB.org or https://pubs.ext.vt.edu/444/444-356/444-356_pdf.pdf



Taking Care of Newly Planted Orchards, continued from previous page
the second year, the new lateral branches should be managed according to their in-row spacing as described for feathered trees.

After the initial tying or weighting down of feathers at planting, new lateral branches that arise along the leader do not need to be tied down. In most climates, if moderate vigor shoots are not pruned, often crop load in the third year will bend branches down below horizontal and a natural balance between vigor and cropping will be established without additional limb positioning. Thus with the Tall Spindle, no additional limb tying is needed after the initial tying or weighting down of the feathers at planting. However, in vigorous and/or warmer climates where winter chilling is insufficient, often limbs become too large before they set sufficient crop loads to bend the branches down. In these climates, tying down of all vigorous limbs must be done annually for the first 3-5 years until the tree settles down and begins to crop heavily. However, in most traditional apple growing areas, growers often invest too much money in limb tying which should be limited to only the feathers at planting. Thereafter, the precocity of the rootstock induces heavy cropping and a natural balance is established.

Irrigation and Fertigation

Large, highly-feathered trees often undergo water stress shortly after planting despite adequate soil moisture levels. This is due to the damaged root system of a transplanted tree which cannot adequately support the large top without frequent irrigation. Large, highly 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. In-addition during many years, dry weather following planting results in water stress of newly planted trees which can limit tree growth. Frequent and early trickle irrigation can help these trees produce good growth in the first year. In humid areas growers are unaccustomed to installing irrigation immediately after planting and delay its installation until mid-summer. We recommend

that growers install trickle irrigation soon after planting with high density orchards that use feathered trees to prevent water stress and maximize first year tree growth.

Frequent low doses of nitrogen fertilizer delivered at least twice weekly through the trickle system (fertigation) for the first 12 weeks of the season will greatly improve tree growth during the first 2 years to speed development of the canopy. Ground fertilization with dry fertilizers is often ineffective since too much time elapses between applying the fertilizer and uptake by the tree. In high tree density systems, as with the Tall Spindle, and highly feathered trees, almost no lateral tree growth is required and only vertical extension growth is needed. In this case fertigation for the first 2 years is essential both for the water to avoid water stress and for the nitrogen which is rapidly moved to the root zone and is readily available to the tree as soon as it starts growing. Adoption of immediate fertigation of highly feathered trees, by New York growers will considerably improve tree growth and vastly improve yield potential in the 2nd and 3rd year. For moderate tree densities such as with the vertical axis, slender pyramid or Y-trellis, trees must be grown vigorously for several years to fill the allotted space with canopy and relatively high nitrogen fertilization is desirable for 2-3 years after planting. However, excessive fertilization, especially nitrogen, can cause too much growth which results in delayed flowering, reduced yields, poor fruit quality and greater pruning. After the first few 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 rates which cause 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 amount needed by mature high density orchards. Excess fertility often results in excessive vegetative growth, delayed cropping and soft and poorly colored, unmarketable fruit.

Enrollment Reminder—Don't Miss Out!

Thank you to those of you that have enrolled in CCE Eastern NY Commercial Horticulture Program—we appreciate your support. You should have received your complimentary Cornell University Integrated Pest Management Guidelines and the seasonal newsletters you chose as part of your enrollment.

For those of you that have not enrolled, we invite you to do so as soon as possible by completing the enrollment forms that were mailed to you in early April. If you do not think you received them or misplaced them, contact Marcie Vohnoutka at 518-272-4210 or mmp74@cornell.edu for a copy.

Unless we receive your enrollment information by June 20th, any publications that you are currently receiving from the ENYCHP will end. If you have questions about enrollment please contact one of the educators listed on the cover of this publication or call Chuck Bornt at 518-272-4210 or email cdb13@cornell.edu

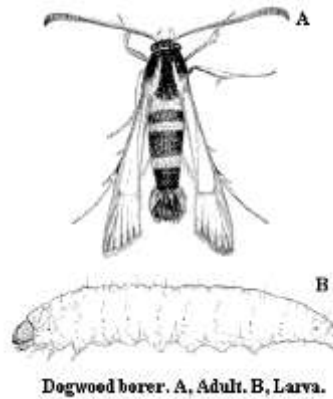
Tough Year for Apple Trees, Courtesy of the Dogwood Borer

Field reports this year indicate a high level of pressure from the Dogwood Borer. Trees on the M9 (and similar) dwarfing rootstocks appear to suffer more than larger size trees from the deleterious effects of the Borer's feeding damage. Below is an article just released on Dr. Peter Jentsch's blog. Dr. Jentsch's blog can be accessed at <http://blogs.cornell.edu/jentsch/tree-fruit/>

Who Let the Dogs Out: Dogwood Borer Management on M9 Rootstock

From the Hudson to the Champlain Valley, it's hard to find a single orchard of slender spindle high density apple on M-9 rootstock free of [dogwood borer \(DWB\)](#), *Synanthedon scitula*. It's rare to find Dogwood borer on healthy bark or pruning wounds in apple trees, however, the adult will lay eggs on root initials or burrknot on certain rootstock varieties, giving rise to DWB adult egg laying and larval feeding within this susceptible area of the tree. The M-9 rootstock is quite susceptible to burrknots, very sensitive to fireblight and its shallow root system drought sensitive. Its near relative, Bud-9 has much less burrknot initials, having greater resistance to fireblight and *Phytophthora* & quite cold hardy. The detailed publication of the [NC140 rootstock trial](#) provides descriptions of rootstock and interstems selection strengths and weaknesses.

Given the 'slender' size of the rootstock, it's likely that most DWB infestations will reduce vigor and yield, increase stress and potentially increase disease from DWB in young plantings on M-9 if left unmanaged. Telltale signs of infestation will be found within and along the edge of burrknots growing on the exposed portion of



clonal rootstocks. Pupa cases protrude from the rootstock well after the adults have emerged and reddish frass from larvae feeding often accompanied by ozze within 'wet' areas of the burrknot will often be inhabited by larva in May with the onset of pupation beginning in June

My concern this season is not just the presence of DWB in rootstock but what appears to be sites of disease, likely established last season where DWB are

actively present. *Phytophthora* are fungus-like organisms that are favoured by wet conditions and can cause crown, collar and root rot on fruit trees. Between the 3th of June and the 2nd of July in 2013 we received 11.2" of rain. If trees were predisposed to DWB injury on M-9, it may have been a period in some sites for *Phytophthora blight* to spread and move into surface wounds, such as those created by DWB. We have seen this in the Champlain and Mid-Hudson Valley regions this season with associated die back and crown, collar and root rotting on M-9.

The American plum borer larva (APB), *Euzophera semifuneralis* (Walker), are also found on apple in habitats similar to those preferred by the dogwood borer. Borers can be monitored by checking under tree guards in the spring to locate active infestations as guards applied to newly planted trees encourage adult egg laying and larval presence. The larvae size of the two species are similar. DWB larva are white to cream-colored, with one row of crochets on the abdominal prolegs, while the APB larva is dusky purple to gray in color, and has two rows of crochets on the prolegs. Pheromone traps can be used to estimate the timing of peak flight in the Northeast. Adult emergence

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M.9 rootstock containing DWB infestation.



M.9 rootstock painted to reduce borer infestation.



Canker and dogwood borer larva.

Continued from previous page

begins in early June and continues into early September, peaking in mid July. Traps should be placed at 4 feet above the ground for optimum captures.

If DWB larva are found in burrknots of young trees, trunk applications of Lorsban should be applied using a course directed application to tree trunks at the earliest window to reduce the present larval population and prevent further infestation by newly emerging adult egg laying as they take to the wing over the next few weeks.



Dogwood borer adult



Dogwood borer larva



DWB Pupal case from emerged adult

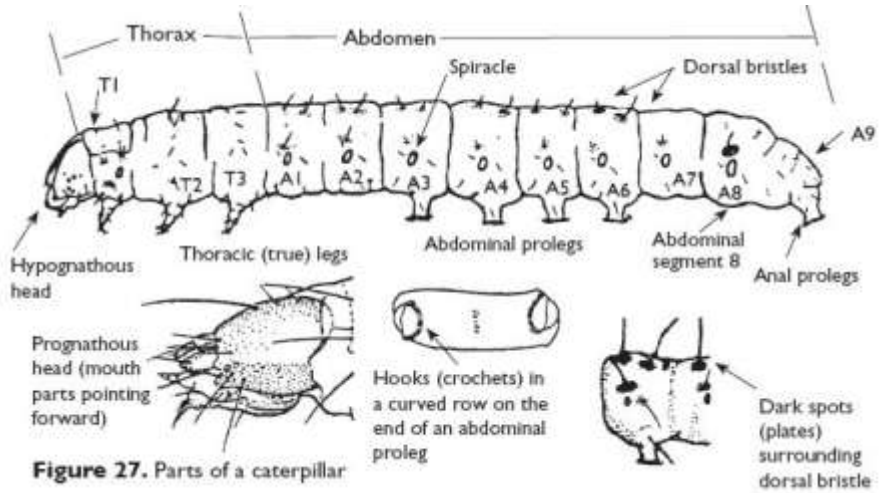


Figure 27. Parts of a caterpillar

Immature larva diagram (Alabama CCE Pub.ANR-1121)

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>.

Madex HP Labelled in NYS

The New York State Department of Environmental Conservation has approved the labeling of Madex HP (EPA Reg. No. 69553-1) from Certis USA, for use in controlling codling moth and oriental fruit moth in NYS pome and stone fruit crops. The active ingredient, Cydia pomonella granulosis virus isolate V22, has activity against both of these tortricid pest species, is OMRI approved for use in organic production, and is harmless to natural enemies and other non-target organisms. Application should target the 5% egg hatch point of each generation of OFM and CM, and can be applied on a 7-day interval. It has a 4-hr REI and no PHI.

Source: *Scaffolds Fruit Journal*, edited by Art Agnello

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/plantpathhvl/>. Both websites are still in the early stages of development, but then websites documenting the current state of knowledge are never really complete.



SCAM ALERT: Phone Scam Alleging Association with USDA Farm Service Agency

It has been brought to the attention of USDA’s Farm Service Agency (FSA) that a phone scam is being perpetrated on FSA customers. Please share this alert with family, friends and neighbors.

The caller, who identifies themselves as a Farm Loan Services representative out of Washington, D.C. states that FSA “owes” you disaster assistance funds and proceeds to request your checking account information or requests a credit card number alleging that funds will be credited to these accounts.

SHOULD YOU RECEIVE A SIMILAR CALL, DO NOT, UNDER ANY CIRCUMSTANCES, PROVIDE PERSONAL OR FINANCIAL INFORMATION TO THE CALLER.

Questions?

If you have any questions or concerns regarding this issue, please feel free to contact your local FSA Office.

To find contact information for your local FSA office, go to <http://offices.sc.egov.usda.gov/locator/app>.

NYS DEC Clean Sweep Agricultural Chemical Disposal Program

Just a heads-up to expect an opportunity to dispose of obsolete, no longer registered agricultural chemical through the NYS Department of Environmental Conservation’s “Clean Sweep” program, sometime in the Fall of 2014, or the Spring of 2015. As we move through the thinning period, and settle into our summer programs, it’s a good time to take stock of your spray shed. Spray materials should be clearly labeled, and organized by type (insecticides, fungicides, herbicides, growth regulators, foliar nutrients, etc.). Obsolete materials must be set aside, marked “Do Not Use”, and clearly labelled as to content.

Important Reminders and Upcoming Meeting Announcements

Reminder - Fire Blight Strikes it Big This Year

Closely monitor your newly planted trees for fire blight. Infections have been observed in new plantings this season. While strep resistant fire blight has not been established in eastern New York orchards to date, strep resistant bacteria originating from out of state nursery stock is of concern. If strikes are observed in newly planted trees, or in mature orchards that had received two or more bloom sprays of streptomycin, it is highly recommended that you send samples of infected tissue to Dr. Kerik Cox at Cornell University for testing. Please contact Dan Donahue at the Hudson Valley Lab for a copy of the instructions and reporting form. Dr. Peter Jentch will also post the form and instructions on his blog site <http://blogs.cornell.edu/jentsch/tree-fruit/>



Upcoming Meetings

Dan Donahue has been out in the counties, visiting orchards and meeting with growers on a regular basis. If you would like to be on the list for a visit, please contact Dan at the lab. In the future, scheduled trips out into the field will be announced in the morning email alerts.

Pricing for Profit Workshop

June 18 at 6 pm - Hudson Valley Lab, 3357 Route 9W, Highland, NY

***“What price should I charge?” “Where’s the best place for me to sell my produce?”
“How can I make a profit at this?” “What is a market channel anyway?”***

Are these questions you wonder about? On June 18 at 6 pm, Bob Weybright, Business Development Specialist with the Eastern NY Commercial Horticulture Program (ENYCHP) will be at the Hudson Valley Lab for a twilight presentation and discussion, including a light dinner. He’ll provide some suggestions that can help you find some answers to these and other questions you might experience over the course of your growing and selling season. Resources to help you determine a price, where to find price comparisons, and the ins and outs of various market channels will be discussed to help you feel more comfortable with your selling decisions.

Cost: \$20 per person for those enrolled in ENYCHP, \$30 for those not enrolled, light supper included. (For enrollment information contact Marcie at 518-272-4210 or mmp74@cornell.edu.) We need a head count in order to have enough food so please mail your registration ASAP. Make checks payable to CCE ENYCHP. You can still enroll to get the discount; we will have enrollment forms available that night.

Mail registration to the Hudson Valley Lab, Attn. Teresa Rusinek/Pricing for Profit, PO Box 727, Highland, NY 12528. With your registration include: Names of attendees, Farm name and address, Phone number where you can be reached, and Email address. If you have questions, call Teresa Rusinek at 845-389-3562 or email tr28@cornell.edu.

Directions: The Hudson Valley Lab is on the southbound side of Route 9W, about 1/4 mile north of the Route 299 intersection; there is a divider, so if you’re heading from the south on the northbound side of 9W proceed to the traffic light just past the lab where you can make a legal U-turn.

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.