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Tree Fruit News

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Regional Updates:

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

Tree phenology: Apple—dormant

Current growing degree days 1/1/13 to 3/19/13	Base 42 ⁰ F	Base 50 ⁰ F
South Hero, VT	1.7	0
Burlington, VT	9.9	0
Shoreham, VT	1.3	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 3/19/13	Base 42 ⁰ F	Base 50 ⁰ F
Granville	0.5	0
North Easton	11.8	0
Clifton Park	3.2	0
Guilderland	7.0	0

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

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

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

Predicted apple green tip date — April 10-15

Current growing degree days 1/1/13 to 3/19/13	Base 42 ⁰ F	Base 50 ⁰ F
Hudson	6.6	0
Highland	14.9	1.8
Marlboro	11.1	0
Montgomery	10.5	0

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

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 egg laying	40±126	11±53

A Note Regarding NEWA Weather Stations and Growing Degree Data Locations

Unfortunately, we are experiencing some technical difficulties with several NEWA weather stations in Clinton and Essex counties NY which is why you see weather data from nearby Champlain Valley locations in Vermont.

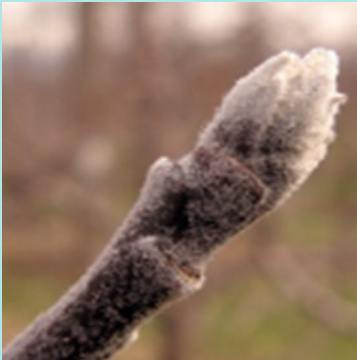





I will be working with the several NEWA station owner operators in Chazy, Peru, and Crown Point, the instrument manufacturer, and the NY IPM program to resolve these issues as soon as possible. Clearly, locally relevant data flow is essential for orchard carbohydrate balance computations and the various disease and insect development models we rely upon. -Kevin Iungerman.

Cold Constancy Welcome As Fruit Trees Approach Bud Break

By Kevin Iungerman, ENYCH Program

Late winter, early spring conditions move back and forth across the season’s arc of possibilities, like a metronome, but without that instrument’s very measured cadence. Recent experience, and the evidence of shifting climate, has us more attuned to surprises of variability. Just a year ago we had real “heat” in March, and the earliest onset of fruit bloom heretofore seen in Eastern New York.

Seemingly we have swung back, a slumber under fresh snow and temperatures on the colder side of normal; yet the sun ascends, sap is astir, and fruit buds too. Lets keep fingers crossed and hope for temperatures well south of 2012’s heat and comfortably above critical cold injury thresholds (see below) as buds break forth. To see other growth stages and respective critical risk temperature thresholds visit the Cornell Fruit Site at http://www.fruit.cornell.edu/tree_fruit/GPGeneral.html.

Tree Fruit Critical Risk Temperatures (F°) at Bud Swell Stages						
Bud Kill Risk Level						
	APPLE Silver Tip	APRICOT First Swell	CHERRY Swollen Bud			
	10%	15	15	Sweet 17	Tart 15	
90%	2	-	Sweet 5	Tart 0		
Bud Kill Risk Level						
	NECTARINE – PEACH Swollen Bud	PEAR Swollen Bud	PLUM Swollen Bud			
	10%	18	15	14		
90%	1	0	0			
Source: Adapted information and photos from Utah State University Extension Critical Temperatures for Frost Damage on Fruit Trees, Murray, IPM 012-11, February 2011, and Growth Stages in Fruit Trees-Dormant to Fruit Set, Chaplin and Catlin, NYS Life Sciences Bulletin 58, February 1976. K. Iungerman CCE ENYCH						

Managing Crop Load of Apple Orchards by Pruning

By Mario Miranda Sazo, CCE Lake Ontario Fruit Program, and Dr. Terence L. Robinson, Cornell Department of Horticultural Sciences. Adapted by Kevin Jungerman, CCE ENYCH Program

Short crop in many New York orchard blocks in 2012 set the stage for higher flower bud initiation last summer. Light cropping, a long growing season, a mild fall, and a normative winter, together suggest the region's apple trees today possess ample carbohydrate reserves to support strong growth in 2013. Typically, this means high initial fruit set if normal spring weather conditions prevail. Thus far more flower buds are primed than are needed for this year's fruit production. If most set, it will be difficult – even with aggressive chemical thinning and additional extensive hand thinning - to thin to optimum levels and avoid small fruit.

Excessive flower bud levels, and thus crop load, can begin well before bloom by conducting “aggressive” dormant pruning as a prelude to later chemical and hand thinning. Where pruning remains to be done in high-density blocks, your use of pruning shears can impose a more “precise” bud load per tree. Even where pruning has been completed, a quick pass through can assess whether a sufficient volume of buds were removed. The ability to identify flower buds will be important in order to prevent the removal of too many via pruning.

Mid-March can be a better time to identify flower buds than earlier timing, because they will be larger than leaf buds, with swelling toward the base, whereas leaf buds are smaller and narrower. As apple and pear trees also generally bear flower buds at the tips of spurs and short shoots, do not prune all of these sites off as they give rise to future flower buds.

Where high flower bud numbers exist, we suggest removing about 30% of the flower buds per tree, mainly through three types of pruning cuts: (1) limb renewal of 2-3 whole limbs by leaving a beveled renewal cut, (2) spur pruning or spur extinction for spur type trees with many weak and multibranching spurs, and (3) stubbing back (a more aggressive technique more applicable to Gala and explained below).

Now would be the time to remove those large branches you were hesitant to remove last year. An effective further approach to reducing loads and improving fruit color is to “simplify” or “columnarize” retained branches. This is accomplished by removing secondary side branches or “forks” (greater than ½ the diameter of the

main branch) to leave a single axis of spurs and short fruiting shoots. One can quickly remove downward oriented spurs by “running” pruning loppers along the underside of limbs to knock them off.

Columnarized branches cast less shade on lower tree areas and can be renewed through limb renewal pruning if they become overly long or large. At maturity, limit tree height annually to about 90% of the between-row spacing in the orchard by cutting the trunk to a small side branch. Trees kept both narrow and columnar, with tops narrower than bottoms, maintain long term productivity.

A last effective crop load management technique, one very useful with Gala, is stubbing back pruning. It can produce an abundance of lateral flower buds on 1 year-old wood, but as it disrupts the apple's natural growth pattern, it must be done carefully to avoid invigoration. Two levels of stubbing back pruning exist:

- **Severe stubbing back** into older wood, which often results in vigorous regrowth responses, and narrow angled upright shoots if done in the upper tree; the effect is greater on vigorous rootstock or soils, and flower bud loads can be depressed too severely.
- **Stubbing back to pencil size diameter wood** on each weak fruiting branch, especially in the upper 1/3 of the tree, causes little vigor response and it allows removal

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Dormant Apple Buds: Leaf Bud left, Flower Bud right

Photos adapted from The “Walden Effect” Homestead Blog, at http://www.waldeneffect.org/blog/Flower_buds_vs._leaf_buds/

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of excessive flower buds. The technique is particularly important for mature Gala of medium or low vigor. Such trees produce excess crop annually on very pendant branches and form weak terminal shoots covered with flower buds, and small apples. Cutting back fruiting wood to “pencil” diameter better manages flower bud load and fruit size on Gala.

In summary, we suggest the following pruning steps for orchards in the Northeast which have high flower bud loads in 2013: (1) Remove 2-3 large branches (leave a beveled renewal cut), (2) “Columnarize” or “simplify” each remaining branch, (3) Remove all down oriented spurs with your hands or loppers and, (4) With Gala shorten back each pendant branch to the point where it has “pencil size” diameter wood.

About Pesticide Labels

By Mike Fargione, ENYCH Program

Pesticide Labels are complicated legal documents and reviewing them annually helps keep us in touch with their application requirements and restrictions. It can be surprising how frequently pesticide registrants change their product’s labels, even within a year of an earlier revision! So take the time to review the label of every product before you use it.

For a pesticide to be legally used in NY, the site (crop) and pest must be listed on the label. (This requirement may not apply in other states.) If the pest is not on the label, check to see if there is a 2(ee) recommendation for the unlabeled pest and crop. If not, it cannot be legally used in NY.

Labels may also carry use restrictions specifying that a pesticide cannot be applied within certain areas of NY such as on Long Island. Remember that researchers and extension specialists (me included) may be rushed and not point out such restrictions each time they write about control options.

In recent years, pesticide registrants have been adding statements to their labels that place increasingly restrictive environmental conditions on product use. NY labels are often more restrictive than EPA requirements and those of other states. Restrictive statements that are showing up with increasing frequency include:

- **Do not apply by ground within XX feet** of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds; estuaries and commercial fish farms (The distance represented by XX depends on each label but often varies from 25-110 feet).
- **Do not cultivate within XX feet of water** (The distance represented by XX depends on each label but often varies from 10-60 feet).

- **Do not apply** within **100 feet** of a coastal marsh or a stream that drains into a coastal marsh.
- **Spray last XX rows windward of aquatic area on one side** only directing spray away from the aquatic area (The distance represented by XX depends on each label but often varies from 1-3 rows).
- **Do not apply** when wind is **lower than XX mph** or **greater than YY mph** (again these vary by label).
- **Wind speed must be measured** adjacent to applications on the upwind side, **immediately prior to application**.

The requirement to measure wind speed is unique and shows up on an increasing number of labels, including frequently applied materials such as many pyrethroids (including but not limited to Asana, Danitol and Warrior) and organophosphates like Lorsban (and its generic formulations). The trend appears clear: such restrictions will become more prevalent as old materials are reregistered.

Record observed wind speeds along with your spray records and be prepared to demonstrate how you determined these values. Don’t expect that the DEC will take your word for it when requirements for wind speed measurements are on the label. Invest in an anemometer from Gemplers, Forestry Suppliers, Ben Meadows or one of the other many suppliers and use it. I suggest purchasing a fan-style anemometer for each spray rig (they start at around \$100).

Be sure to access a copy of any label you use in a given season. You may also want to note which label or year’s stock you used on your spray sheet when you are using older material. It is a very sound idea to double check if that older material’s label remains legally current in NY and potentially prevent an off-label use citation and lots of stress at the time of a DEC inspection. You can access

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current and past labels for any pesticide registered in NY State by visiting the Cornell PIMS website at: <http://pims.psur.cornell.edu/>.

A few years ago, DEC indicated that a sprayer tank may be considered an alternative pesticide container when they contain a pesticide spray mix being transported on or across a public highway or off premises from where it was loaded. Under these conditions, the tank must be marked with the following information:

- 1) Name and address of the manufacturer, registrant, or person for whom manufactured;
- 2) Name, brand or trademark under which said article is sold;
- 3) Net weight or measure of the content.

The easiest way to fulfill the first 2 requirements is to have copies of the appropriate pesticide labels attached to the

tank. Fabricated PVC pipe tubes or plastic sleeves can hold labels onto tanks. (Visit <http://hudsonvf.cce.cornell.edu/gallery%20tank%20labels.html> to see one example.) The third requirement can be fulfilled by making sure the maximum volume (not the actual volume of spray material) is written somewhere on the tank.

Remember, the label is the law and being familiar with it will improve your success at growing a fabulously valuable crop and avoiding unnecessary regulatory headaches!



Label holder



Label holder on tank

Fungicides for Early-Season Disease Control in Apples

By Dave Rosenberger and Kerik Cox, Cornell Department of Plant Pathology. Adapted by Kevin Iungerman, CCE ENYCH Program

Most apple growers now know that the DMI fungicides (Rally, Procure, Indar, Inspire Super, Topguard, etc.) no longer effectively control apple scab in some orchards as more and more strains of the disease have acquired resistance to such chemistry. Research trials at Geneva have shown uneven performance of Indar and Inspire Super for scab control relative to Rally on Empire and Cortland apples, and some disastrous levels of scab control have been seen where McIntosh growers attempted to control DMI-resistant scab with Inspire Super.

We now strongly recommend growers avoid Indar and Inspire Super completely during the spring scab season if they know (based on lab tests) or suspect (based on control failures) that Rally, Procure, or other DMI fungicides are no longer effective for apple scab in their orchards.

Many Michigan and Pennsylvania orchards have apple scab populations that are also resistant to the QoI or strobilurin fungicides (Flint, Sovran, Cabrio, Pristine). So far as we know, this is not the case here. The QoI fungicides remain effective against scab in most orchards of New York and New England, though lab testing has detected a shift toward resistance in some sites. Consequently, to maintain QoI fungicide efficacy against scab, use them in protectant spray programs only, and where products are applied at roughly 7-day intervals

during the peak scab and mildew periods (between tight cluster and first cover). More recently, both DMI and QoI fungicides have been showing weaknesses against apple powdery mildew.

For reasons unknown, Inspire Super has always been weaker against mildew than Rally or Topguard. However, even Rally used at 6 or 8 oz/A is no longer controlling mildew in some orchards, suggesting resistance to DMI fungicides. In Virginia, Dr. Keith Yoder has documented a gradual decline in the mildew activity of QoI fungicides such as Flint. And increasingly, a number of growers have been reporting greater than expected mildew levels where repetitive applications of Flint or other QoI fungicides were made between tight cluster and second cover.

Growers must face the possibility that both DMI and QoI classes of fungicides may fail to control mildew.

(Note: Recent trade advertising may inadvertently mislead New York growers to believe that newer, alternative scab and mildew fungicides are available; in particular, while Fontelis from DuPont, Merivon from BASF, and Luna Sensation and Luna Tranquility from Bayer have been registered for use in apples by the EPA, they are not approved by the NYS DEC in NY, nor are likely to be for 2013. All of the new materials contain SDHI chemistry (SDHI = succinate dehydrogenase inhibitors).

Any strategy to incorporate sulfur into spray programs must be cognizant that sulfur lacks post-infection activity

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against mildew so it must be applied earlier in the season than was true when DMI fungicides controlled mildew. Sulfur at 3 to 8 lb/A (depending on tree size, inoculum levels, cultivar susceptibility, and sulfur product used) should be incorporated into every spray starting at half-inch green where other fungicides are no longer working against mildew.

Where other fungicide chemistries are still working, sulfur use in at least two or three sprays between tight cluster and second cover will likely prolong their useful life. Good resistance management requires using different chemistries in successive sprays and applying these prior to petal fall. Getting this timing right eases selection pressure by preventing an inoculum build-up that would have occurred if no mildewcides were applied prior to petal fall.

In summary, here are key scab and mildew control strategies for New York growers in 2013:

- Add a mildewcide in all sprays during the key control period between tight cluster and second cover.
- Apply a protectant fungicide before the first scab first infection (i.e., at green tip) so as to prevent development of early-season infections that raise inoculum levels by producing conidia.
- Avoid using fungicides that have lost effectiveness in your orchard due to resistance. If

necessary, opt to control scab and mildew by combinations of mancozeb, captan, and sulfur. As a tank-mix these will provide excellent protection against scab, rust, and mildew if no coverage gaps occur.

- Where dodine, DMIs, and/or QoI fungicides are still effective, continue to use them judiciously. They are far more powerful than programs consisting only of captan, mancozeb, and sulfur.
- Dodine can provide valuable added scab protection in high-inoculum orchards if it is tank-mixed with mancozeb or captan in one or two applications between green tip and tight cluster.
- QoI fungicides provide extra protection against both scab and mildew when used in two applications sometime between tight cluster and first cover.
- The QoIs (and future SDHIs) must still be tank-mixed with captan or mancozeb for scab control.
- Where DMIs are still working against mildew, they are best used at petal fall and first cover to target the peak risk periods for mildew and rust diseases.
- Inspire Super should be used either prebloom or in summer sprays targeted at sooty blotch and flyspeck because it has shown significant weaknesses against mildew.

New Generation Energy: Sustainable Power for Your Farm or Homestead

Are your farm energy bills on the rise - and are you wondering what you can do to reduce them? Are you looking for more sustainable sources of energy? Join us online for a webinar series of farmer-led virtual tours and informational tips for saving energy and converting to renewables on your farm or homestead!

This four-part lunchtime webinar series will provide examples of energy conservation measures, solar arrays, wind turbines, compost heat, and a variety of other ecological production techniques and introduce you to farmers and professionals who are successfully harnessing the power of renewable resources to produce affordable, sustainable energy. Tune in to learn if solar, wind, geothermal, and even compost power are right for you!

The series will run from noon-12:45pm every Friday from March 29th through April 19th. Go to the following link for more details and registration information: <http://smallfarms.cornell.edu/2013/03/18/new-generation-energy-sustainable-power-for-your-farm-or-homestead/>

Sponsored by NE SARE (Northeast Sustainable Ag Research and Education) and the Cornell Small Farms Program.

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

Cornell Cooperative Extension provides equal program and employment opportunities.



A Bergey Excel 10kW wind turbine installed at Cross Island Farm, NY

Source: Cornell Small Farm Program
Website <http://smallfarms.cornell.edu/>