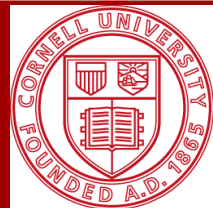




# FRUIT NOTES

## Lake Ontario Fruit Program



Volume 13 Issue 11

May 15, 2013

### Update on Precision Chemical Thinning

T. L. Robinson

A group of 15 growers is participating in a group precision thinning effort this spring on Gala and Honeycrisp (two problem varieties for thinning). This program includes sequential applications of thinners beginning in bloom and then at petal fall, 12mm and 18mm fruit size and adjusting the rate of chemical based on the carbohydrate model which is available now on the web for all growers in NY to use (<http://newa.cornell.edu>). After the petal fall application we will assess the effect of the bloom and petal fall sprays by measuring fruit diameters of 375 fruitlets two times (day 3 and day 8 after the petal fall spray) to precisely determine the effect of those first two sprays. Then we will spray the 12 mm spray and reassess with by measuring the same fruitlets. If we need more thinning we will apply another spray at 18mm. We hope through this process to achieve a precise number of fruits on the tree for maximum crop value. We will keep other growers informed of the results as we go through the next 3 weeks. Stay tuned for some exciting thinning results.

For those of you who are participating in the group effort and chose to apply a bloom spray it should have been applied late last week or Monday or Tuesday of this week. There are no fruit measurements after the bloom spray. The first fruit diameter measurements will be done 3 days after the petal fall spray. By this time you should have all counted all the flowering clusters on 5 representative trees and tagged 15 spurs on 5 representative trees. The next big event will be the petal fall spray which will be next week in WNY. Then the fun begins with measuring fruit 3 days and 8 days later. Let me know if you have any questions ([tlr1@cornell.edu](mailto:tlr1@cornell.edu)), cell phone 315-521-0435).

**You are invited: DEMONSTRATION of a New 3-ROW SPRAYER**  
**JUNE 3 – More information on the back page.**



Cornell University  
Cooperative Extension

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#### *Building Strong and Vibrant New York Communities*

Cornell Cooperative Extension provides equal program and employment opportunities. NYS College of Agriculture and Life Sciences, NYS College of Human Ecology, and NYS College of Veterinary Medicine at Cornell University, Cooperative Extension associations, county governing bodies, and U.S. Department of Agriculture, cooperating.

Every effort has been made to provide correct, complete, and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide.

## **The Use of Promalin after a Frost Event to Mitigate Frost Damage to Buds or Flowers of Apple Cultivars**

T. L. Robinson, L. Dominguez, and M. Miranda

We conducted an experiment in the spring of 2012 at Geneva, NY to evaluate the use of Promalin after a frost event to mitigate frost damage to buds or flowers. The experiment was very successful and was done in a 12 year old orchard of Gala/M.9, Jonagold/M.9 and Gingergold/M.9. Treatments were: (1) Untreated control, and (2) Promalin applied two times at 2 pt/100 gal (1<sup>st</sup> treatment applied on April 22 after frost on April 18 of 30 °F, and 2<sup>nd</sup> treatment applied on May 1<sup>st</sup> after frost on April 28 at 27°F, April 29 at 31°F, and April 30 at 29 °F). Fruit set was improved significantly although a full crop was not achieved after the severe frost last year.

### **How We Suggest the Use of Promalin if You Get a Significant Frost Event at Your Site this Year:**

Apply 2pt Promalin per acre using 100 gallons of water per acre within 24 hours of the frost event. This Promalin spray can be tank mixed with

fungicides or insecticides. The spray should improve fruit set where flowers were damaged but not totally killed. This spray is most useful with a hard frost (lower than 28°F) when there is significant flower damage. If the frost event was marginal (29-31°F) and caused damage to only a small portion of the flowers then the Promalin spray is not likely to be needed since there will still be many more flowers still alive than are needed for a full crop. The Promalin spray following a frost has worked on the 3 varieties we tested in Geneva in 2012 (Gingergold, Jonagold, and Gala on M.9) and the variety tested (Taylor Spur Rome on M.26) in North Carolina in 2012 and is used in Europe on all varieties. In our experiment where fruit load was reduced dramatically by the frost of 2012, the application of Promalin improved fruit set more than enough to pay for the spray and in some cases by 10X the cost of the product.

## **Fontelis Fungicide Registered in New York**

Dave Rosenberger

Fontelis, a new SDHI fungicide from DuPont, has just received a Special Local Need 24(c) label for applications on apples, pears, and stone fruit in New York State, except that it cannot be used on Long Island. On apples and pears, Fontelis is labeled at rates of 16 to 20 fl oz/A to control scab, mildew, rust diseases, and Alternaria leaf spot. On stone fruit, it is labeled at 14 to 20 fl oz/A for control of brown rot (both blossom blight and preharvest), peach scab, and powdery mildew. On all crops, Fontelis is restricted to no more than two sequential applications before switching to a fungicide with a different mode of action, and the maximum amount that can be applied annually is 61 fl oz/A. Fontelis has a minimum preharvest interval of 28 days on apples and 0 days on stone fruits. You must have a copy of the SLN label in your possession at the time of application. It can be found on the CCE-LOF website at <http://www.fruit.cornell.edu/lof/>.

Fontelis provides apple growers in New York with a new fungicide chemistry (new mode of action) that can be used against apple scab and powdery mildew. Including Fontelis in fungicide rotations to replace a DMI or QoI fungicide may help to extend the useful lifetime for these older chemistries. The best timing for Fontelis applications will be during the window between tight cluster and first cover, with earlier timings preferred where rust diseases are a concern or where mildew pressure is very high. Like the DMI and QoI fungicides, Fontelis is absorbed into leaves, has limited systemic activity, and can provide a day or two of post-infection activity. As noted below, however, it should NOT be used in post-infection sprays to cover missed infection periods. Fontelis should not be applied in the rain as it needs to dry on the leaves to be fully effective.

On apples, Fontelis should always be tank-mixed with a contact fungicide both for scab

resistance management and for enhanced efficacy. The enhanced efficacy with contact fungicide tanks mixes presumably derives from better redistribution of the contact fungicides to new leaves than occurs with Fontelis alone. When tank-mixed with either captan or mancozeb, the low label rate of Fontelis (16 fl oz/A) has provided control of apple scab at levels equivalent to what one would expect from combinations of Flint plus a contact fungicide.

At the Hudson Valley Lab, we tested Fontelis in 21 different treatments between 2005 and 2012 using various rates and tank mixes. In those trials we measured its effectiveness against apple scab in a total of 123 different assessments (spur leaves, terminal leaves, fruit scab, etc.). In 29% of those assessments, Fontelis performed better than programs involving captan, mancozeb, or captan-mancozeb combinations used alone. Fontelis was less effective than contact fungicides alone in 3% of the assessments (mostly in trials where Fontelis was used alone), and it provided scab control comparable to the contact fungicide programs in 68% of my trials. A major advantage of using Fontelis in combination with a contact fungicide is that Fontelis will provide mildew control whereas captan and mancozeb do not.

For powdery mildew on apples, Fontelis has performed at about the same level as Flint. It has been better than Inspire Super in some trials, but less effective than Rally, Indar, and other DMI fungicides (except where the powdery mildew is already DMI-resistant). Mildew control with Fontelis can be enhanced by applying it at 20 fl oz/A. Adding low rates of sulfur with Fontelis in a 3-way mix that also includes captan or mancozeb should enhance activity against mildew and may be useful for resistance management, but combinations with sulfur have not yet been evaluated in university trials. Mildew activity in some trials was enhanced by applying Fontelis with 0.5% or 1% oil, but mixtures with oil would preclude using

it in combination with sulfur or captan and therefore are not considered very useful.

Fontelis provides adequate control of rust diseases (about like Flint), but it is much less effective against rust diseases than the DMI fungicides. Rust control should be pretty good if Fontelis is tank-mixed with mancozeb but it may be marginal if Fontelis is mixed with captan. Our observations suggest that, like Flint and mancozeb, Fontelis has only protectant activity against rust diseases. By comparison, the DMI fungicides provide at least 96 hr of post-infection activity against rust diseases on fruit, and they may provide more than 7 days of post-infection activity against rust on leaves. As a result, DMI fungicides consistently provide better rust control than any other class of fungicide.

Fontelis is rated as being more susceptible to resistance development than the DMI fungicides, so we can be virtually certain that apple scab and mildew will become resistant to Fontelis rather quickly if the product is abused. Resistance management is part of the rationale for always mixing Fontelis with a contact fungicide when using it in scab control programs and for not using it in reach-back sprays. Even more important, however, is that Fontelis should NEVER be used as a “clean-up” fungicide in blocks where primary scab has already appeared on leaves. Attempting to arrest scab epidemics with Fontelis will almost certainly result in less-than-satisfactory disease control as well as rapid selection for resistance. High rates of captan or combinations of captan and dodine are far better options for arresting scab epidemics, although post-infection applications of dodine are also less than ideal for resistance management as it relates to dodine.

Ultimately, Fontelis should be viewed as another “super protectant” fungicide that, in most situations, will provide activity similar to that of Flint, but with the advantage of doing so via a different mode of action.

# Chillin' Til Petal Fall

Art Agnello

Although our extended stretch of warm spring weather was abruptly interrupted by the cold cell moving through our area this weekend, the temperatures will rebound in a couple of days, and the "old faithful" insect pests we always look out for at petal fall will continue their progress towards the newly formed fruits, so this overview will help take your mind off the current chill in the air and make preparations for when things heat up again.

## Plum Curculio

Adults move into orchards from overwintering sites in hedgerows or the edges of woods and adults are active when temperatures exceed 60°F, something that will recur this week. Adult females oviposit in fruit during both day and night but feed mostly at night. Depending on temperature, overwintering adults remain active for 2–6 weeks after petal fall. Because adults are not highly mobile, orchards near overwintering sites, woodlands, and hedgerows are most susceptible to attack. Fruit damage is usually most common in border rows next to sites where adults overwinter. Although initial post-bloom sprays for plum curculio control should begin at petal fall, growers are often unsure how many additional sprays will be necessary to maintain protective chemical residues to prevent subsequent damage throughout the PC oviposition cycle, which varies according to temperatures and weather patterns after petal fall.

Following from the fact that PC activity and oviposition are largely determined by temperature, we use an oviposition model to determine when control sprays after petal fall are no longer necessary to protect fruit from PC damage. This model is based on the assumption that residues from sprays applied after petal fall need to be maintained on fruit and foliage only until PC adults stop immigrating into orchards, which corresponds to the time when about 40% of the oviposition cycle is complete. This is predicted by the model to occur at 308 DD (base 50°F) after petal fall of McIntosh. Most probably, this strategy works because, after 40% of PC

oviposition is complete, adults usually do not move into the orchard from outside sources, or within orchards from tree to tree. Therefore, by this time, adults residing in treated trees have already been killed by insecticide residues and are unable to complete the remainder of their normal oviposition cycle.

In order to use this strategy: (1) Treat the entire orchard at petal fall with a broad spectrum insecticide. (2) Start calculating the accumulation of DD after petal fall of Macs (base 50°F); this is easily done from the NEWA Apple Insect Models page (<http://newa.cornell.edu/index.php?page=apple-insects>) by entering the petal fall date for your area. (3) No additional sprays are necessary whenever the date of accumulation of 308 DD falls within 10–14 days after a previous spray. We'll attempt to give local updates for the major fruit areas as the post-PF period progresses. In cherries and other stone fruits that are already at shuck fall, sprays should start (or should have started, as appropriate) at the first opportunity. Recall that, in addition to the industry standard broad-spectrum materials, some additional options may be considered: Lorsban 75WG can still be used at petal fall in tart cherries, but obviously is no longer labeled for this use in apples; also, Calypso, Avaunt and Actara are effective for plum curculio in apples and pears, and Avaunt is also labeled in stone fruit as another PC option. Delegate and Altacor both have some activity on this pest, but should not be considered as the first choices in high-pressure blocks.

## European Apple Sawfly

This primitive bee and wasp relative shows a preference for early or long-blooming varieties with a heavy set of fruit. This insect is generally a pest mainly in eastern N.Y., although it has been gradually making its presence known in the more western sites, recently progressing as far as Wayne Co. (or beyond). Debbie has seen the damage from this pest increase in some orchards in Orleans Co. The adult sawfly emerges about the time apple trees come into bloom and lays

eggs in the apple blossoms. Young larvae begin feeding just below the skin of the fruits, creating a spiral path usually around the calyx end. This early larval feeding will persist as a scar that is very visible at harvest. Following this feeding, the larva usually begins tunneling toward the seed cavity of the fruit or an adjacent fruit, which usually causes it to abort. As the larva feeds internally, it enlarges its exit hole, which is made highly conspicuous by a mass of wet, reddish-brown frass. The frass may drip onto adjacent fruits and leaves, giving them an unsightly appearance. The secondary feeding activity of a single sawfly larva can injure all the fruit in a cluster, causing stress on that fruit to abort during the traditional "June drop" period.

Certain insecticides that control this pest also adversely affect bees, which can pose a problem at petal fall because certain apple varieties lose their petals before others. In blocks of trees where petal fall has occurred on one variety but not the others, the variety that has lost its petals is likely to sustain some curculio or sawfly injury until an insecticide is applied. Some newer insecticides with activity against both plum curculio and sawfly -- Calypso, Avaunt and Actara -- may have a slight advantage over conventional OPs in this case. Assail represents another option for controlling sawfly; it's not very active against plum curculio, but will do a good job against rosy apple aphid and spotted tentiform leafminer, as well as sawfly, at this timing. To minimize the hazard to honey bees, apply any pesticide only when no bees are actively foraging on blooming weeds (evening is better than early morning).

#### **Obliquebanded Leafroller**

Larvae overwintering as 1st or 2nd stage caterpillars may have had the ability to grow to a noticeable size, although we haven't actually seen any up to this point, so most are likely still relatively small. While you're assessing bud viability, it would be prudent to have a quick look for later-stage larvae in problem blocks to determine whether a treatment against the

overwintered brood should be included in your petal fall plans. Scout the blossom clusters or foliar terminals for larvae feeding within both the flowers and rolled leaves; a 3% infestation rate could justify an application to minimize overwintered fruit damage and help reduce summer populations.

Among the selective insecticides available, Intrepid has been successful at this timing, and B.t. products, which can be used while blossoms are still present, include Dipel, Deliver, Agree, Biobit and Javelin. More recently, Proclaim has been shown to be very effective at the petal fall timing, and also provides activity against early season mite populations. Delegate, Altacor, and Belt all offer very good efficacy against not only OBLR, but also the internal leps. Pyrethroids such as Asana, Baythroid, Danitol, Warrior, Proaxis or Leverage may also be effective, depending on past use history, but be aware of their broad-spectrum effects, which can work both for and against you, according to your approach to conserving beneficial mites and insects.

#### **Oriental Fruit Moth**

Biofix is spread out across NY again this year, with May 1 as a proposed date in the earliest WNY sites, while others are yet to record any moth captures; moderate temperatures forecast for this week will likely continue the indistinct pattern of emergence in most sites. Use the NEWA Apple Insect Models page to chart current degree day (base 45°F) progress towards the recommended totals of 170 (in peaches) and 350 (in apples) as the timing at which to apply a protective spray. To maximize the efficacy of 1st brood control, peach growers should use one of the suggested options from the Recommends starting at petal fall, backed up 10–14 days later. In apples, in addition to Delegate, Altacor, and Belt, a number of the petal fall selection of insecticides will do an acceptable job of controlling this generation, including the OPs, pyrethroids, Intrepid, Assail, Avaunt, and Calypso.

## What am I seeing?

D. Breth

I have seen my first **apple scab** in unsprayed trees on the 4<sup>th</sup> leaf. So your scab fungicide sprays have not been wasted and now you have the potential for primary scab AND secondary infection if you miss anything. We still have a long way to go. I am concerned that we've had a fairly dry spring and ascospore maturity has been delayed. So be sure to maintain fungicide protection for apple scab through first cover.

**Fire blight** cankers are oozing and blossom blight will return as a risk at the end of this week. This is especially an increased risk in newly planted trees that will be blooming after petal fall and growers turn their attention to thinning.

Some odd things- I am seeing frass coming out of rootstocks at this point indicating borer activity under the bark. But the worst case is where shot hole borer has settled into an orchard and is riddling the trunks with pinhole like entries and small bits of frass (sawdust) coming out of the entry points. Although chlorpyrifos was applied prebloom, this problem is still a contentious one and is resulting in a lot of tree loss. I am not certain what is happening there but I thought perhaps a review of borer management in the hedgerows is helpful. First – for those of you pushing hedgerows back, these can be pests of wild cherry trees and I suggest you make sure you are burning the trees that get pushed out to open up hedgerows. The shot hole borer is believed to attack trees that are weakened by some other

factor, including drought stress, and damage to the trees caused by other things including fire blight in the rootstock. Chemical controls are not effective; keeping trees healthy is the best management. The adults emerge in the spring, feed at the base of the leaves and small twigs before they tunnel into the bark perpendicular to the tree. They excavate very narrow channels off the main channel (like an irrigation header) and lay eggs in these channels, where the larvae feed up or down from the main channel filling the mines with sawdust (frass) for about 6-8 weeks before pupating and then emerging as an adult to produce a second generation for the season. For some good pictures, go to this website from Washington State University:  
<http://jenny.tfrec.wsu.edu/opm/displaySpecies.php?pn=530>

**Brown marmorated stink bug.** Art Agnello and I have been trapping some most likely areas like receiving lines at apple storages to see if we can trap BMSB. The USDA has improved the lure and the traps in 6 sites in western NY have yielded 2 traps with a total of 2 BMSB adults last week. Stay tuned. I do not believe this is a significant problem at this point and trying to trap in an orchard will be like looking for a needle in a haystack. If a focus needs to be adjusted based on significant trap catches, we will respond as we need. A team of Cornell faculty and staff will be trapping for **spotted wing drosophila** in June.

## NYS Cooling Grant Available for NY Growers – deadline June 14!

C. Kahlke

This funding opportunity is to increase the cooling capacity on your farm or to/from market. The goal of this project is to decrease farm waste, expand product shelf-life, product quality, food safety, and profitability on farms in NY. These dollars have been allocated to improve agriculture and farm economies, hence the questions on the size and economic impact of your farm. Funding has been received from NYS Department of Agriculture and Markets as part of the regional economic development councils.

This is a state project that is being coordinated through CCE Wayne.

**Application deadline is June 14, 2013.**

There is a 4 page application that should not take more than an hour or two to complete. Go to:  
[http://cvp.cce.cornell.edu/submission.php?id=123&crumb=food\\_safety|food\\_safety](http://cvp.cce.cornell.edu/submission.php?id=123&crumb=food_safety|food_safety) or contact Craig Kahlke @ 585-735-5448, [cjk37@cornell.edu](mailto:cjk37@cornell.edu).

Products to be considered include (but not strictly limited to), in no particular order:

- Vegetables
- Fruits
- Meats
- Cheese & eggs
- Flowers

Farms that will be considered:

- Those with NO cooling currently available for products
- Farms with inefficient or outdated cooling systems
- Those with some cooling space but a need for more cooling space
- Those who have adequate on-farm cooling or freezing and need cooled transportation

Fund Disbursement:

This is a 50/50 match program up to \$3000. Farmers will need to expend for the project before they are reimbursed. Maximum reimbursement is 50% of the costs of the project up to \$3000. This is designed for maximum impact across the state. No funds can be spent before acceptance of the application.

Application Process:

- Fill out the application with as much detail as possible.
- Avoid leaving blanks.
- Help is available as you work through the application. Please contact one of the extension educators, as indicated on page two of the cover letter online.
- Once your application has been accepted, you will be contacted by one of the extension educators indicated.

Priorities for Funding, in order of importance:

- Those who currently have NO refrigeration but have perishable products
- Cost share ratio
- Fuel source/efficiency/environmental impact
- Best return/impact per grant dollar
- Numbers of workers employed – FTEs

All applications need to be returned to: Cooling Project, CCE Wayne, 1581 Rte 88N, Newark, NY 14513 or emailed to [wayne@cornell.edu](mailto:wayne@cornell.edu). Overall questions about the project can be directed to Beth Claypoole, Executive Director CCE Wayne County, 315-331-8415.

## **Reminder to Share Your Full Bloom Dates on McIntosh**

C. Kahlke

Full Bloom on Macs and most other varieties occurred last week in Western NY. The range seems to be May 5-6 on the very warmest inland sites to perhaps May 7-9 in the lion's share of orchards in the region to May 10 and 11 in orchards very close to the Lake. If you know your full bloom dates on Macs and if they're

somewhat close to a NEWA weather station, please text, call, or email Craig with the dates and locations at 585-735-5448, [cjk37@cornell.edu](mailto:cjk37@cornell.edu). Craig will use this information to put into the model for predicting the cutoff for harvest of Macs for CA.

## **Save the Dates**

**August 1 – Summer Fruit Tour**, NYSAES, Geneva- more info TBA

**August 6 – Storage Workshop**, Cornell University, Ithaca-more info TBA

**Lake Ontario Fruit Program  
Cornell Cooperative Extension  
12690 NYS Rt. 31  
Albion, NY 14411**

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- You are Invited: Demonstration of a New 3-Row Sprayer June 3<sup>rd</sup>

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**Petal Fall Thinning Meetings**

Wednesday, May 22 in Orleans County

Thursday, May 23 in Wayne County

**Times and Locations:**

**1:00 PM, May 22- Lynoaken Fruit Farm**, 1872 Greenman Road, Lyndonville, NY 14098. 1/4 Mile North of Platten Rd. Look for Cornell Fruit Event Signs.

**1:00 PM – May 23- Ridgeview Farms**, 4715 Congdon Road, Williamson, NY 14589 (from Route 104 – turn south onto E. Townline Road, Congdon Rd. is approximately one mile south of Route 104. Look for Cornell Fruit Event Signs.

Cornell faculty and the LOF team members will be present to answer questions. Come to hear updates on insects and diseases, and of course, thinning recommendations by Terence Robinson.

**You are invited: DEMONSTRATION of a New 3-ROW SPRAYER, JUNE 3<sup>rd</sup>  
at VANDEWALLE FRUIT FARM, 6003 SHAKER ROAD, ALTON, NY  
4:00-5:00 P.M. and 6:30-7:30 P.M.**

Mr. Thijs Munckhof will be visiting from the Netherlands to demonstrate the MUNCKHOF 3-ROW SPRAYER he has designed. Originally introduced in 2008, there are now over 100 of these machines in use around the world - - but this is the first such unit in the United States. MUNCKHOF has been manufacturing Harvesting Machines and Sprayers for over 125 years.

Dr. Andrew Landers, Cornell University, has arranged two sessions for your convenience.  
For more information, call 315-787-2429.