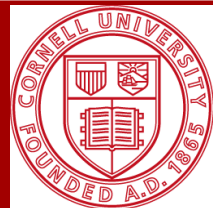




# FRUIT NOTES

## Lake Ontario Fruit Program



Volume 14 Issue 21

October 15, 2014

### Thinking about Fall Weed Control?

D. Breth

Early November, just after harvest is the best time to apply fall weed control after a frost kills off summer annuals. Evaluate your farm operation, labor situation, and weed problems and plan based on the information below.

#### Pros of fall weed control:

- Fall weed control removes a time sensitive task from the early spring which competes with many other time sensitive tasks such as fungicide sprays for scab/mildew, fire blight blossom sprays, thinning sprays, tree planting, trellis building, fertilizer applications, and more. These tasks are all very demanding in May.
- The use of fall herbicides helps prevent weeds from getting ahead of us in the spring. If weeds are not treated in the early spring, they are generally too tall and have passed their susceptible treatable stage.
- Our normally reliable rains in the fall help to incorporate the residual herbicides into the weed seed germination zone. Sometimes we get a dry spring which does not facilitate herbicide incorporation allowing weed seeds to germinate.
- Fall weed control will remove the winter annuals and will help control some persistent perennials. Winter annuals typical in orchards are hoary bittercress, annual blue grass, purple deadnettle, and chickweed. Removing winter annuals will remove the weed competition in the early spring, however it is unclear how much competition the winter annuals are in the fall and early spring. I experienced the best tree growth in a NESARE herbicide trial for 1-year established tall spindle trees where Alion plots (although registered for trees established more than 3 years) had no winter annual weeds from fall through spring.

#### Cons:

- Often a trashy, weedy surface in the fall prevents an even distribution of residual herbicides and failure to uniformly stop weed seed germination.
- Winter annuals are considered good cover crops to hold the soil in place and prevent soil erosion in the winter especially on sloped ground. So fall weed control may not be the best option in all parts of the state where soil erosion would be an issue.
- Harvest runs late in the season and there is little time and energy left to do field work.
- Use of **glyphosate in the fall is very risky** in terms of potential uptake in the trees and transport to the root systems. So it is not advisable, unless you use every precaution including shielding the boom, and **preventing contact with the bark of the trees. Do not spray across the herbicide strip in one pass under a tree row when using glyphosate especially in the fall!**
- Perennial weeds are most susceptible to glyphosate before a frost so may not be effective in a November treatment against them unless they are still green and actively growing. Wait to use glyphosate for perennial weeds in the spring.



Cornell University  
Cooperative Extension

Lake Ontario Fruit Program  
in Wayne, Orleans, Niagara,  
Monroe, and Oswego Counties  
<http://lof.cce.cornell.edu>

Deborah Breth  
Area Extension Educator  
Team Leader, Pest Management  
585-747-6039 dib1@cornell.edu

Alison De Marree  
Area Extension Educator  
Production Economics  
315-573-8881 amd15@cornell.edu

Craig Kahlke - Newsletter Editor  
Area Extension Educator  
Fruit Quality Management  
585-735-5448 cjk37@cornell.edu

Mario Miranda Sazo  
Area Extension Educator  
Cultural Practices  
315-719-1318 mrm67@cornell.edu

*Building Strong and Vibrant New York Communities*

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.

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.

**Residual herbicides that are labeled for fall application and work well in the fall include:**

**Goal 2 XL**, a PPO with burndown activity for small weeds that have germinated, and provides good residual control through May with lambsquarters and ragweed breaking through requiring treatment by mid-June. Gramoxone was included to enhance burndown activity for the fall application. The higher rate at 6 pt./acre provided longer residual control than the 3 pt./acre.

**GoalTender** is also a PPO with burndown activity for small weeds that have germinated. Although I did not include this material in the fall treatments, the same results would be expected as Goal 2 XL (with less odor).

**Chateau SW** is a PPO registered for use on apples after harvest or pre-bloom, or on stone fruit and pears after harvest or before budbreak in the spring. The fall application of Chateau at 12 oz./acre plus Gramoxone did not break with weed growth until mid-June, annual grasses were the first weeds to break through the treatment, followed by lambsquarters, pigweed, ragweed, and chickweed. But it is not to be applied to trees established less than 1 year unless the trunks are protected from spray contact.

**Alion** is a new mode of action which prevents cellulose biosynthesis for cell walls. The fall plots with 5 oz./acre were still clean in mid-June and on Sept. 20 were still very clean with a few escaped, but large lambsquarters. Many growers who applied Alion last fall reported that the herbicide strips are still clean at harvest. Alion needs rain or irrigation within 21 days or before weed germination for activation. Alion is restricted to use in trees established for at least 3 years, so 4<sup>th</sup> leaf orchards are candidates for this treatment. There is no post-emergence activity with Alion so it must be applied with a burndown such as Gramoxone (although I used Rely which will be available hopefully by 2015.) Often the herbicide strip is covered by moss in these plots. Alion has a 14 day pre-harvest interval.

**Matrix** is a sulfonyleurea herbicide like Sandea. It requires a post-emergent burndown to control emerged weeds. It provides good control of many winter annuals and prevents the germination of many weed rosettes like horseweed but must be

combined with paraquat before the rosettes are 2 inches tall or glyphosate (which I do not recommend in the fall). In the fall treatments, the weeds that broke through were narrow leaf plantain, lambsquarters, prostrate knotweed, common groundsel, and ragweed. Matrix requires ½ inch of rainfall within 2 weeks of application for control. Matrix has a 7 day PHI for pome fruit, 14 days for stone fruit. Be sure pH of spray solution is not below 4.0 or above 8.0.

**Sinbar** can be used in the fall but would be more effective if used in a tank mix with diuron (in trees established for at least 1 year) or norflurazon (in trees established for at least 1 year) to broaden the list of weed species controlled. It must be incorporated by rainfall to be effective. Sinbar is only labeled alone for use in nonbearing pome and stone fruit at ½ to 1 lb. per acre. But in apples and peaches established at least 3 years can be applied at higher rates depending on soil type.

**Solicam**, norflurazon is a carotenoid pigment inhibitor, bleaching leaves white from new to older growth and works well on annual grasses and some broadleaves and nutsedge. It must be incorporated by rainfall or irrigation. This is a good tank mix partner for fall applications.

**Diuron** is also a good tank mix partner to broaden the weed spectrum and use multiple modes of action as we do with insecticides and fungicides for resistance development. But it is weak on ragweed and smartweed.

**Casoron**, diclobenil, is available in a 4G or CS formulation for a broad spectrum of weeds. Casoron CS can be applied late fall to early spring; 4G must be applied between Nov 15 and Mar 15 when soil temperature is below 45F.

**Fall weed control trial results:**

We conducted a fall weed control trial in 2012-13 to look at several of the new options registered in apples. Treatments were applied with a CO2 backpack sprayer on Oct. 17 in Gala on Bud9 after harvest. All treatments included a post-emergent burndown herbicide and added AMS (sprayable ammonium sulfate at 2.5% v/v) where required by the Goal, glyphosate, Rely, and 2,4-D labels. The untreated plots had no application in the fall and were 100% covered with annual bluegrass, chickweed, hoary bittercress, and purple

deadnettle. Untreated checks and plots that had no residual herbicide in the fall were treated with glyphosate on May 27 shown as a sudden reduction of % weed cover in data table below. The fall glyphosate treatment had hoary bittercress, and lambsquarters break through; the Gramoxone treatment had hoary bittercress, deadnettle, annual

grasses, and lambsquarters; 2,4-D plus glyphosate had hoary bittercress, lambsquarters, and common groundsel; the 2,4-D application did not stop weed seed germination of winter annuals and resembled the untreated check plots. Alion, Chateau, Goal, and Matrix were all excellent residual options for weed control into June.

Percent weed cover in herbicide strip after fall applications in 2012.				
Treatment	25-Oct-12	29-Mar-13	14-May-13	13-Jun-13
Untreated, May 27	34.6	77	90	0
<b>Goal 2 XL (3 pt) + Gramoxone *</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>27</b>
<b>Goal 2 XL (6 pt) + Gramoxone *</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Chateau (12 oz) + Gramoxone</b>	<b>0.5</b>	<b>1</b>	<b>1</b>	<b>5</b>
Glyphosate *, May 27	9.4	0	2	1
<b>Alion (5 oz) + Rely *</b>	<b>0.6</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Matrix (4 oz) + Gramoxone</b>	<b>3.7</b>	<b>0</b>	<b>0</b>	<b>15</b>
Gramoxone, May 27	0.6	6	9	2
2,4-D (2.4 qt) + glyphosate *, May 27	5.3	1	3	5
2,4-D *, May 27	22.1	41	75	2
*Treatment included AMS applied at 2.5% v/v				
All treatments included Induce (NIS) at .25%				
May 27 – applied glyphosate where listed due to reaching 30% weed cover by May 24.				

#### Fall herbicide options for special weed problems:

**Stinger** is an option for fall but it is best used in September, but has a 30 day PHI. Dr. Bernard Zandstra of Michigan State University, reports Stinger is effective against members of the Asteraceae family (composites), including heath aster, burdock, cocklebur, common groundsel, dandelion, goldenrod, horseweed (maretail), pineappleweed, sowthistle and Canada thistle generally in the rosette stage. It is also active against all legumes, including alfalfa, birdsfoot trefoil, clovers and vetch. It also controls members of the nightshade family, including eastern black nightshade, hairy nightshade and groundcherry. It stunts hosenettle, smartweeds including prostrate knotweed and plantains. Stinger has virtually no activity against other herbaceous or woody plants

but it can cause curling and twisting of leaves so it must not contact foliage of trees.

**Kerb** is also a good option applied in the fall post-harvest providing both pre- and post-emergent control of quackgrass, and other perennial grasses like tall fescue, as well as chickweed. For a broader spectrum of control, add another class like Chateau or Alion (if trees are established for 3 years). Kerb is an EPA “Restricted Use” herbicide.

#### Summary:

Pay attention to good coverage, timing related to the next rainfall to incorporate the herbicide in the weed seed germination zone, and restrictions for after harvest or the PHI.

## Fall Urea Sprays and Mowing to Reduce Scab Carryover

adapted for WNY by D. Breth

Fall is a good time to start next year’s management programs for apple scab using simple tactics of

running a flail mower through the orchard and/or applying foliar urea applications to reduce inoculum

carryover in leaf litter. Granted, these approaches will never achieve a 100% degradation of the leaf matter but the approaches can greatly reduce next year's spore load by 50% and even 80% from what it will otherwise be with an additive effect.

2014 has taken many growers by surprise at harvest with so much scab showing up late in the season. We had a lot of rainfall this summer resulting in a lot of disease pressure in general. There is no sign of scab control getting any easier with "magic" fungicides in the future.

Dave Rosenberger suggested that small scab spots "pinpoint scab" that show up just before harvest happens when growers stretched summer sprays and/or stopped spraying too soon. Fruit approaching maturity require three conditions to trigger fruit infections: A. Wetting periods of at least 24-hr duration and usually 48-hr duration for significant economic loss. (This is based on published work of Jones and Schwabe, but it may be slightly different for some of our newer cultivars.) B. An abundance of inoculum, which is probably becoming more common in orchards as DMIs and strobies are losing activity. Growers need to be retrained to recognize under leaf scab that can appear in September and that looks much different than early-season scab. Presence of underleaf scab should be a sign that trees will need to be resprayed in September unless they are harvested before the middle of Sept. C. The third required factor is absence of fungicide residues, which generally means that fruit have been exposed to more than 2 inches of rain since the last application. When all three conditions are met (A+B+C), then one can expect pinpoint scab to develop either before harvest or during storage.

To estimate the potential ascospore load for 2015, research by MacHardy and Gadoury showed that if less than 1% of terminal leaves have a scab lesion, the potential is for 800,000 ascospores per acre per year; if 4-10% of leaves with scab infection, 242 million ascospores; and if 20% of leaves infected, 6 billion ascospores to fight off for the season!

This inoculum reduction strategy also impacts on fungicide-resistant and fungicide-sensitive apple scab isolates equally; so you will be destroying

considerable numbers of scab isolates that are resistant either to strobilurin fungicides or sterol inhibitor fungicides as well as the sensitive ones. This article recaps how to best carry out one or all of the following inoculant-reduction practices:

- Late fall foliar urea applications
- Fall ground urea applications to fallen leaves
- Shredding of leaf litter with a flail mower

#### **Foliar Application to Leaves in Late Fall:**

MacHardy and Gadoury research illustrated the benefits of utilizing a 5 percent solution of urea spray or greenhouse grade urea to increase the breakdown of leaves. The urea is used at a rate of 40 lbs. in 100 gallons of water per acre. Dr. Dave Rosenberger of Cornell's Hudson Valley believes that if the amount of water/A was somewhat more or less than 100 gal/A this would be OK provided that the full rate of urea is applied per acre. Food-grade urea will dissolve more easily than fertilizer-grade urea, but either one will be effective against scab. Regardless of which urea is used, growers may need to dissolve the urea in hot water in 5-gal pails or other tubs before dumping it into the sprayer. As temps drop, the cold water in ponds will really reduce the ability of urea to dissolve quickly. A good YouTube video is available to watch the process of fall foliar urea applications. <http://youtu.be/8g0WyVi68GM>

One might think that good leaf condition and retention should give better uptake and effectiveness; not so. It turns out that if the leaves are still physiologically active at the time of a foliar application, and if they do not then drop within seven days, the tree's axial buds will draw off the nitrogen of the urea from the leaves. While this will not impair winter hardiness and it will serve to boost early spring bud development, it will deplete the nitrogen load in the leaves and hamper accelerated leaf degradation following detachment. It is more effective to wait until leaf-fall and to then apply the urea to the downed leaves rather than spraying the leaves while still on the trees.

Normal seasonal temperature changes do complicate the clear choice of options; outright hard fall freezes can of course complicate matters. In general, the longer one can delay the application, the more effective the urea action will be against

scab – though of course there are limits. Casual observation will demonstrate how fertilized and maintained orchards carry their foliage quite long relative to wild trees, and oftentimes, we have seen how an early hard freeze can prolong an apple leaf's attachment dramatically. Still, ambient ground temperature must be favorable, and of sufficient duration, to allow indigenous microbes and earthworms to be our agents of leaf destruction. While urea can soften leaves for easier ingestion by earthworms, if overlay cold conditions abruptly arrive the critters retreat into the soil and leaf ingestion ceases. So while optimal timing is uncertain, Dave suggests that you make your fall urea applications by – and no earlier than – late October (unless you think that more than 50% of leaves will be on the ground by that time). Ideally, one would like to have the applications made within 7-14 days of leaf drop.

What happens if you get busy and miss the pre- or post- leaf fall window? You're in luck – you get a second chance, a spring application!

#### **Spring ground applications of urea to leaf litter:**

The several uncertainties of fall application are the reasons some prefer to hold the ground urea applications to leaves until spring, when biological activity is rising, and the timing may be more effective in achieving leaf degradation and reduced spore counts. Also at that timing, the urea likely inhibits ascospore formation in surviving structures. But spring has liabilities too; as we know, snow and /or wet spring conditions can render spring timing less favorable than fall.

#### **Now, fall flail mowing of leaf litter:**

Shredding leaf litter in the fall carries some of the same uncertainty of timing as urea applications – and also can be done in the spring. Flail mowing increases microbial breakdown of leaves prior to winter as it provides more pieces that can be invaded and consumed by our biological friends. If left undisturbed, scab pseudothecia structures in leaf litter will eventually develop the following spring – and not before. All of these pseudothecia structures will be oriented in a vertical direction with openings facing up. When optimal conditions prevail, mature spores will be forcibly ejected out of

the top of the pseudothecium and into the air to be carried hither and yon.

Mowing in fall will not directly destroy pseudothecium but will prevent more leaf litter from surviving to host pseudothecium formation. Spring mowing will turn leaf litter topsy-turvy, so many leaf pieces containing a pseudothecium are more likely to be ejected into the soil rather than into the air, cutting the infection cycle potential of those particular leaf pieces. You do not get this reorientation benefit in the fall, because pseudothecia are not yet formed.

Your choice then: mow in the fall and facilitate leaf decomposition and greatly diminish the end numbers of potential pseudothecia; or mow in the spring when more pseudothecia will be present, but expect that physically reorienting a good percentage of the pseudothecia, along with leaf degradation from urea and heightened soil organisms action (with improving ground temperatures) will be a suitable strategy.

But as with spring urea applications, mowing will require suitable field conditions to be present, which will allow you to get in there to mow. In sum, it seems to me - if it can be done - that a combination of fall foliar applications and then flail mowing seem an approach with greater certainty of being carried out and thus the preferred approach.

#### **A few other points about mowing:**

- The mower must be set low enough to reach leaves low to the floor.
- The mower must also be offset to reach leaves beneath the trees.

(And a note here concerning any fallen leaf urea application in the spring: this nitrogen will add to the overall nitrogen fertilization of the affected trees so subsequent N fertilization rates should be adjusted accordingly. In late fall, most of the nitrogen not taken up in the fallen leaves will likely leach out of the soil profile).

What about copper application for scab control after harvest? According to Dave Rosenberger and Kerik Cox, there is no published data that shows any evidence that copper applied in the fall has any benefit for scab or fire blight control. Kerik Cox has

shown that a silver tip copper application does impact on scab and can reduce the DMI resistant scab population. Copper at 20% and 80% leaf fall has provided some help in controlling European canker (*Neonectria galligena*) in Europe (not very common in NY) since it releases spores in the fall. *Nectria cinnabarina* and *Botryosphaeria* canker are already releasing spores at this point to infect pruning cuts and will continue to infect defoliation scars after harvest. It is doubtful that 1 spray of copper after harvest in the fall will prevent infections by *Nectria cinnabarina* which is common in NY. Pruning trees in wet weather in the summer

and too early in the winter typically results in infection of pruning cuts by *Nectria cinnabarina*. We will try to follow up on *Nectria cinnabarina* in the next issue.

*Revision of "Late October Urea Sprays & Mowing to Decrease Scab Carryover", Iungerman, Northeast Tree Fruit, October 2013. Adapted from "Reduction of Overwintering Inoculum in Orchards with Apple Scab Cultural Controls: Reducing Apple Scab-Infected Leaf Litter Prepares the Orchard for More Effective Control Next Year", George W. Sundin, Amy Irish-Brown, Michigan State University Extension News for Agriculture, Sept. 9, 2011; and email information from Dr. Dave Rosenberger, Cornell NYSAES Hudson Valley Lab to Kevin Iungerman, 10/5/11.*

## A Few Fall Nutritional Reminders

M. Miranda Sazo and L. Cheng

Here are a few important reminders on soil sampling, potassium, lime, and gypsum needs of your orchards this fall.

**Soil sampling in the fall.** Taking a representative soil sample is needed to determine lime and fertilizer requirements and avoid costly over or under fertilization. Most soils should be sampled every 2 - 3 years; more often for sandy soils, or problem areas. Fall is generally considered to be the most reliable time to pull samples, especially when it comes to pH. Soil pH fluctuates and tends to be lower in the summer when temperatures are higher and soils are dryer. pH determination is more reliable in the fall when soil moisture is a bit higher. Use tools that are clean and free of rust. Avoid brass or galvanized tools or containers that can contaminate samples with zinc or copper. Stainless steel probes or augers are best because they collect a continuous core through the entire sampling depth with a minimum disturbance of the soil. Avoid shovels or trowels. Collect samples in a clean plastic bucket or plastic bag. Avoid collecting or shipping wet samples. Send soil samples and completed submission forms to Agro-One at Dairy One, 730 Warren Road, Ithaca NY 14850. Contact the Dairy One Customer Service Department at 1-800-344-2697 ext. 2172 for information on pick-up point locations and schedules.

**Potassium applied in the fall.** Please remember that apple fruits contain more potassium than any other nutrient, and apples require lots of potassium to mature the fruit. When apples are harvested, all the potassium contained in the fruit is permanently removed from the orchard. This is particularly important for high density orchards. For example, fruit yield of 1,500 bushels/acre removes about 83 lbs of potassium, which is equivalent to about 100 lbs of potash ( $K_2O$ ). In addition to regular leaf potassium analysis (optimal range: 1.35 to 1.85%), you should also pay attention to the relationship between potassium removal and fruit yield. If you anticipate a heavy crop next year, we suggest you still apply the regular maintenance rate (80-100 lbs of potash for a fruit yield of 1500 bushels per acre) if your soil potassium is on the low side. Now it's a good time to make the potassium application.

**Fall lime applications and Gypsum.** If your soil pH is right around the target value (6 to 6.5), we recommend a maintenance application of 1 to 2 tons of lime per acre every 2 years based on your soil analysis. The use of dolomitic lime is one of the cheapest options. If your soil pH is above 6.5, but the calcium level in your soil is still on the low side, you may consider the application of Gypsum at this time of the year. The amount you need to apply will depend on your soil calcium level.

## Variety Counts for High Quality Apple Cider

D. McIntyre, Wine Columnist, Washington Post, edited by M. Miranda Sazo

(Mario's note: Gov. Andrew Cuomo signed into law a measure designed to stimulate New York's hard-cider business. The farm cidery law set up a low-cost license for cider makers creating up to 150,000 gallons a year and using only New York-grown apples. It allows hard cider to be sold at more retail locations as well as fairs throughout the state. The law exempts cideries from collecting sales tax information, defines cider as up to 8.5 percent alcohol by volume, and allows the use of other related fruits such as pears for fermentation and flavor.)

The following article was modified from Dave's column in the Washington Post: "You just can't make great cider with Red Delicious or Granny Smith. Cider apples are more tannic and acidic than "eating" apples, and provide much more complexity to the finished cider. Just as fine wine shouldn't taste "grapey", artisan cider shouldn't taste "apple-y".

Most U.S. apple production long ago concentrated on eating apples. Diane Flynt (a cider producer of Foggy Ridge Cider located in Virginia) and other artisanal cider makers search for traditional English varieties or those planted during Colonial times and painstakingly plant new orchards. Foggy Ridge's orchard has varieties that today's supermarket shoppers likely have never heard of, such as

### At a Glance:

- (1) Cider is a fruit wine made entirely (except for sugar, water or added alcohol) from apples.
- (2) Hard cider is a type of cider specifically defined in the IRC (Internal Revenue Code) as a still wine derived primarily from apples or apple concentrate and water, containing no other fruit products.
- (3) Consumer interest in hard cider has motivated big beer companies to get in on the action.
- (4) According to Ian Merwin, industrial-style ciders manufactured by a beverage conglomerate and sold in beer-style packages are typically made from fruit concentrate, perhaps with alcohol from some other source and apple flavors added in the manufacturing process, quite unlike the craft cider made in small batches.
- (5) There is not always a match-up between quality wine grape regions and quality cider apple regions.

Drymock Red, Foxwhelp and Orange Pippin. Flynt obtained her original budwood for Hewe's Virginia Crab apples from Monticello, where Thomas Jefferson grew the variety to make cider. (Early America's most famous oenophile drank more cider than wine.) Flynt also buys Stayman and Newtown Pippin from nearby growers.

The brother-sister team of Chuck and Charlotte Shelton at Albemarle CiderWorks also works to revive traditional cider apple varieties. Their Vintage Virginia Apples Co. grows about 100 varieties, many of their heirloom, and serves as a nursery for startup growers and cider producers. They are especially fond of Harrison, a variety developed two centuries ago in New Jersey and thought extinct until it was rediscovered in the 1970s. Albemarle's Jupiter's Legacy is a full-bodied cider blended from 30 varieties of apples and named for Jefferson's slave who was responsible for cider production at Monticello.

For cider producers that don't already have their own orchards, a shortage of cider apples may be brewing. Already in limited supply, the amount of available cider apples will only get smaller as more producers enter the market. Even if higher prices resulting from increased demand compel U.S. farmers to plant more trees, it will take years for new orchards to be developed."

In my opinion, New York is an example of a state that successfully grows both!

(6) Hard cider contains at least 0.5% and less than 7% alcohol by volume.

(7) There is an artisan cider movement in Virginia that now reaches across the country. Cider producers even have their own trade show, CiderCON, which launched in 2011 and takes place each year in Chicago.

(8) This year horticulturalist Carol Miles from WSU presented her research results (mechanized harvest, characteristics of varietal ciders, juice quality) at the 2014 NY Expo in Syracuse. She can be reached at her website

<http://maritimefruit.wsu.edu>. For more information, check WSU Extension publication PNW621 *Hard Cider Production & Orchard Management in the Pacific Northwest* (<https://pubs.wsu.edu/>).

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

**Contents:**

- Fall Weed Control Options
- Fall Urea to reduce scab inoculum
- Fall fertilizer considerations
- Variety Counts for High Quality Apple Cider

---

**Mark your calendars for Winter Educational Opportunities and DEC credits:**

**Jan. 20-22, 2015 – Empire State Producers EXPO, Syracuse**

**Feb 2, 2015 – LOF Winter Fruit Schools, Lockport, NY**

**Feb 3, 2015 – LOF Winter Fruit School, Wayne County, NY**

**News for fire blight management:**

- Kasumin now has an EPA label for use in apples for fire blight. It is not yet registered in NY, but hopefully will be by 2015 growing season.
- This was the last season of use of streptomycin and other antibiotics in organic fruit production. Organic growers will need to rely on the biological control products and copper for fire blight control.