



## Berry News

### Spring Berry "To Do" List

Warm February followed by cold March. Weather continues to be one of the most challenging things about farming. Nevertheless, we should all be a lot happier about the season than at this time last year!

#### Blueberries

- *Finish pruning mature bushes* – Blueberries should be pruned before bud break, so most locations have a little more time.
- *Scout for mummyberry disease* – Mummyberries look like little tiny black pumpkins. They can be on the ground or still hanging on the plant. If you saw mummyberry strikes last year, then you should plan to spray for this disease as buds break, but physically disrupting the soil will help as will a dormant spray of lime sulfur. Ground sprays of urea have been shown to burn the developing apothecia as well.
- *Remove dead canes and look for canker*. Canker diseases can also be controlled with lime-sulfur sprays before bud-break or copper and other fungicides a bit later.
- *Look for scale insects*. Dormant oil will help control them as will Brigade, Triple Crown or Esteem when used as crawlers appear in early spring.
- *Inspect for Insect Stem Gall* – not a huge problem, but in specific instances has become a challenge especially in young plantings. Look for large bulbous galls form on the stems, often near the terminals. These are caused by the larvae of a tiny flightless wasp. The adults overwinter in the galls, emerge in early June, and crawl or hop to other stems to deposit eggs. Prune out the galls to control.
- *Apply sulfur if soil pH is higher than 5.2* – 200#/A is the maintenance rate that should be applied 1-2 times annually to prevent soil pH from creeping up. Remember that the target pH is 4.5.
- *Review foliar nutrient recommendations* and make sure your fertility plan is in line. Foliar sampling should be done in early August. Contact Jim or Laura if you've never done this and need some help.

#### Strawberries:

- *Remove straw mulch* - As weather warms, straw removal should correspond. Leaving straw on too late will slow the development of buds, but worse it could result in rot as the mulch warms. Mulch in most of the eastern NY region should be

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**The Haskaps are Budding** - The recent warm weather has pushed some bud growth on the Haskaps and it won't be long before they are in full bloom. Previous work by Jim O'Connell found that Haskaps can do well in Hudson Valley growing conditions. This year, Chris Pennings of Christopher Jacobs Winery in Pine Bush, NY is partnering with the CCE team to do some further evaluations of Haskaps. Stay tuned to future berry newsletters for information. *Photo J. O'Connell*

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removed at this point.

- **Consider strawberry pre-plant herbicide options.** Prowl H20 or Chateau are great options for pre-plant herbicides. But depending on your weed pests you may want to try Dual magnum or Goal 2XL. Both of them have limitations primarily in timing, so read the label carefully.

In annual and perennial strawberries, Dual Magnum may be applied before or after transplanting, and as a pre-emergent to **dormant** strawberry before emergence in the spring (this window has likely closed for most locations), post-emergence after spring emergence, post-emergence to row middles, or after renovation. Dual Magnum may be applied before laying plastic or after laying plastic to row middles. The application rate is 0.67 – 1.33 pints per acre. Use the lower rate on coarse soils. There is a 30-day pre-harvest interval.

Dual Magnum should not be incorporated; it should be applied to damp soil or followed by 0.25 inch of rain or irrigation for activation. Dual Magnum suppresses germination of most annual grasses, including barnyardgrass, large crabgrass, fall panicum and the foxtails. It provides fair control of annual bluegrass and field sandbur. Among broadleaves, it controls galinsoga, eastern black nightshade, spotted spurge, amaranths and pigweeds. It has good activity against yellow nutsedge. At the recommended rates it provides four to five weeks of weed control. It does not

provide season-long control of any weeds, so other herbicides usually are needed during the season.

Goal 2XL is another option for pre-plant control. It can be used alone or in tank mix combination with glyphosate. It provides preemergence and/or postemergence control of winter annual broadleaf weeds on land to be planted to strawberries. Goal 2XL is no longer herbicidally effective once the active layer in the soil surface is disrupted by soil incorporation. You can form the beds before you put the plastic down and that way not disturb the soil too much. You need to wait 30 days prior to planting. Depending on your planting schedule this requirement may eliminate Goal from your potential options.

**Brambles:**

- **Complete the necessary pruning:** After you finish blueberry pruning you can begin with brambles. Look for disease or insect issues as you prune. If you have questions about pruning, attend one of the bramble pruning workshops scheduled in your area.
- **Early season weed control:** Light mulch after pruning will help, but weed control in brambles is a challenge. Herbicide options are limited, but in early March 2017 NYS approved a NY label for Chateau. Get details about pre and post weed emergence application options later in this newsletter, or refer to the NYS DEC Pesticide Information portal to download the supplemental label. <http://www.dec.ny.gov/nyspad/?2>

## Using Predators to Control Mites in Tunnel Berries – FAQ's

Written by: Dr. Greg Loeb, Dept. of Entomology, Cornell University

**1. What species should I use for my production system?**

This will depend on what the target pest is and also, to some extent, on the crop and the specific production system. For two spotted spider mites (TSSM), the following species have been successfully used under high tunnel conditions for strawberries and raspberries.

1. *Phytoseiulus persimilis* (large, active, specializes on TSSM; prefers higher temperatures, up to 85 F, and RH over 75%).
2. *Neoseiulus fallacis* (prefers spider mites but can feed on prey & pollen; prefers cooler temps than *P. persimilis*).
3. *Neoseiulus californicus* (prefers spider mites but can feed on prey & pollen; can tolerate hot and dry conditions better than other species).

There could be benefits to combining two species, a fast feeder that is very active and specializes in eating spider mites (e.g. *Phytoseiulus persimilis*) with a species that can persist better at low prey densities than the specialist (e.g. *Neoseiulus fallacis* or *N. californicus*).

For biological control of thrips, different species are rec-

ommended, including predatory mites and nematodes. Combining a predatory mite that attacks thrips on the foliage (*Amblysius cucumeris*) with a soil inhabiting predatory mite like *Stratiolaelaps scimitus* works well. Alternatively, the insect-feeding nematode *Steinernema feltiae* that attacks soil dwelling life stage of thrips can be sprayed over the crop weekly.

1. *Amblysius cucumeris* (feeds on thrips larvae on the leaves)
2. *Stratiolaelaps scimitus* (feeds on thrips pupae in the soil)
3. *Orius insidiosus* (minute pirate bug, an insect that feeds on thrips on foliage but requires flowers, long days and warm temperatures to support its persistence in the greenhouse)
4. *Steinernema feltiae* (an example of an entomopathogenic nematode).

**2. How many predatory mites should I release?**

This will vary depending on the target pest species (and how abundant they are), the production system, predator mite species, and release method. To prevent TSSM, a rough rule of thumb is 1 to 10 predatory mites per square foot of crop with the lower density at the very first sign of

*Using Predators, continued from previous page*

spider mites. If there are obviously abundant spider mites plus plant damage, a corrective pesticide compatible with predatory mites should be used before the predators are released.

**3. What release method should I use?**

For high and low tunnel production of berry crops, probably the most common release method is shaking out mites uniformly over the plants using a mixture of corn grits or vermiculite as a carrier along with the predatory mites. Some species of predatory mites come in sachets in which the mites have some food resources within the sachets and come out slowly over a longer time period. These are used more for thrips in hanging baskets in glasshouses but may have potential for berries, but we need more research.

**4. When should I release predators and how frequently?**

There is a delay between release and pest control. Therefore, a good rule of thumb for protected culture production is that you should start releasing predatory mites at the first sign of the pest before you see pest damage. This is a preventative approach. Some predatory mites are released only once or twice per season, while others are released throughout the production season.

**5. Resources:**

-**IPM Labs**, <http://www.ipmlabs.com/>. Regional distributor of biological control agents, including predatory mites, beneficial insects, and beneficial nematodes. Includes helpful information on attributes of different predatory mites.

-**Greenhouse Scout app for phones**, <http://greenhouse-scout.pocketipm.com/>. App available at <https://play.google.com/store/apps/details?id=com.pocketipm.greenhousescout&hl=en>.

This app was developed by Betsy Lamb, NYS IPM coordinator for ornamental crops. It provides guidance on scouting greenhouse environments for pests, including information on different biological control options. The Information should be transferable to protected culture production of berry crops.



*Phytoseiulus persimilis feeding on two spotted spider mite on greenhouse raspberry.*

## Early Season Weed Control in Cane and Bushberries

By Debbie Breth, formerly of CCE Lake Ontario Fruit

One of the earliest herbicides that can be used is Casoron. Casuron has two different formulations: Casuron 4G (granular) can be used in bushberries, caneberries, and cranberries. The granular material should be applied before May 1<sup>st</sup> but the earlier the better. If you are applying it in April, make sure to apply before soil temperatures exceed 45 degree F and before any annual weed seeds germinate. Casoron CS (not labeled for Ribes) can be applied a bit later but still needs to be incorporated by rainfall before weed germination; it is labeled for 1 year old blueberries, as well as blackberry and raspberries if applied before new shoot emergence. Casoron controls annual grasses and broadleaves, as well as some perennial grasses. Follow Casoron with a post-emergent such as paraquat to kill pre emerged weeds or apply glyphosate when weeds are actively growing.

Another pre-emergent is Surflan AS or Surflan XL 2G. Surflan AS can be used in non-bearing and bearing brambles at a rate of 20-40 gallons per acre. To broaden the

spectrum of weed control, tank mix Gramaxone, Princep or Solicam. Irrigate product in to activate material. Surflan XL 2G can only be applied to non-bearing brambles.

Princep, Devrinol, Axex, Solicam or Sinbar can all be applied for pre-emergent weed control in brambles and blueberries. These herbicides generally do not do a great job on all weeds and need to be evaluated as to your weed population and which tool makes the most sense.

Sandea and Velpar are two products that are only labeled for blueberries. They can both be applied in early spring although Sandea's real strength is that it controls nutsedge. This can only be accomplished as a post-emergent directed spray.

Velpar can be applied to bushes that are 3 years or older. It should be applied before the foliage on the lower limbs break bud.



## Blueberry Consumption Set to Continue Climbing

With global blueberry production up 40 percent 2012-2016 and projected to reach 1.45 billion lbs. in 2017, the U.S. Highbush Blueberry Council (USHBC) is focused on driving demand upward on the same trajectory. U.S. per capita blueberry consumption grew 599 percent from 1994-2014 – more than any other fruit or vegetable studied – and the USHBC's newest research indicates further room for growth.

In late 2016, the USHBC issued an opportunity assessment study to examine which consumer and business segments are best suited to absorb the building volume of berries coming to market.

“We were pleased to find that, among the top fruits – including bananas, strawberries, apples, grapes and citrus – blueberries are the only one expecting increased consumption in 2017,” said Mark Villata, Executive Director of the USHBC. “The research also helped us refine and expand our consumer and business target audiences so we’re able to concentrate on those with the greatest growth potential.”

### Room for Growth

The study found that heavy and moderate blueberry users, who represent half of the U.S. population (25 percent each), show the most growth potential of all user segments.

Heavy users consume 19+ cups per year, are mainly ages 25-45, have children in the home and span all ethnicities. Of this group, 73 percent see blueberries as a part of their lifestyle; they will go out of their way to purchase blueberries, and take time to understand the nutritional composition of blueberry-containing foods. Fresh and frozen consumption among this segment is expected to increase by five percent in 2017.

Moderate users consume 6-18 cups per year, and span all ages and ethnicities. Blueberries are projected to go from moderate users' #6 preferred fruit to #3 in 2017. Among the moderate user segment, fresh and frozen consumption is expected to increase by 12 percent in 2017.

### Strategies for Growing Demand

These key findings have influenced the Council's latest strategies to grow demand, which include targeting marketing campaigns at moderate users, and engaging heavy users to influence moderate users' blueberry purchases.



#### Blueberry Pruning at Rose Hill Farm

Jim O'Connell held a workshop at Rose Hill Farm last year and demonstrated aggressive pruning to rejuvenate overgrown blueberries. The follow up session this year demonstrated how to prune blueberry bushes following that type of pruning. For detailed information to help guide your pruning this season, check out this [fact sheet](#) written by Dr. Marvin Pritts. You will find it at the Cornell Berry website: <http://www.fruit.cornell.edu>.

*Photo by J. O'Connell*

“Our summer campaign launching in mid-May will build on those strategies and others,” said Villata. “We’re developing new recipes and promoting them in a way to fit moderate users’ needs, from offering simple, visual recipe guides to partnering with individuals, food and fitness influencers who evoke trust and can aid in establishing blueberries as our target users’ favorite summer food.”

Source: Fresh Plaza <http://www.freshplaza.com/article/173740/Blueberry-consumption-set-to-continue-climbing>. For more information, contact: Mark Villata U.S. Highbush Blueberry Council, Tel: (916) 983-0111, [mvillata@blueberry.org](mailto:mvillata@blueberry.org). This work is supported by the Blueberry Promotion, Research and Information order.

# F Y I

[v=Sx1J1PsvWbo](https://www.youtube.com/watch?v=Sx1J1PsvWbo)

- **Add table grapes to your small fruit production plan** - Three part table grape webinar series – recordings on You Tube: these three sessions covered everything you need to know about table grape production, from Grape plant biology, site selection, pruning and training, business management considerations, pest management, cultivar selection, trellis construction etc. Each segment is approximately 90 minutes long. <https://www.youtube.com/watch?v=Sx1J1PsvWbo>

- **CHATEAU® HERBICIDE SW USE IN CANEBERRY - EPA Reg. No. 59639-99 - Approved for use in New York** - The supplemental label must be on your person during application. Get this and other labels from the NYS PAD <http://www.dec.ny.gov/nyspad/?2> website that has replaced the Cornell PIMS site.

## o Chateau Preemergence Application

Apply 6 to 12 oz (0.188 to 0.38 lb ai/A) (maximum 6 oz/A for caneberries) of Chateau Herbicide SW per broadcast acre as a preemergence application. Preemergence (to weed emergence) applications of Chateau Herbicide SW should be made to a weed-free soil surface. Preemergence applications of Chateau Herbicide SW must be completed prior to weed emergence. Moisture is necessary to activate Chateau Herbicide SW on soil for residual weed control. Dry weather following application of Chateau Herbicide SW may reduce effectiveness. However, when adequate moisture is received after dry conditions, Chateau Herbicide SW will control susceptible germinating weeds.

## o Chateau Postemergence Application

If weeds are emerged at the time of application, apply 6 to 12 oz (0.188 to 0.38 lb ai/A) (maximum 6 oz/A for caneberries) of Chateau Herbicide SW per broadcast acre plus an adjuvant (0.25% v/v non-ionic surfactant or 1 qt/A crop oil concentrate). The addition of an adjuvant enhances Chateau Herbicide SW activity on emerged weeds. Thorough spray coverage is necessary to maximize the postemergence activity of Chateau Herbicide SW. Chateau Herbicide SW will not control emerged weeds without the addition of a labeled burndown product.

- **ALERT! Bumblebee availability may be short**—Growers report that bumblebees supplied through at least one company (Koppert Biologicals) may take 2-3 weeks advance notice to get them delivered this season. Check with your supplier now to avoid delays with pollination.
- **Diagnostic surveys for strawberry root problems** will be continuing in the region this season. If you are having a problem with strawberries and think that the issue might be root health or plant nutrition related, please give Laura or Jim a call. Our contact information is at the end of this newsletter. Diagnostics test fees may be waived.
- **Deer Damage** has been horrible this year. Here are a few resources—if there is something there that you haven't tried maybe it will help. Fencing may be the only answer. NYS DEC are giving out nuisance permits at this time. <http://wildlifecontrol.info/> and <http://icwdm.org/>.

## Calendar of Events

### Blueberry Pruning Workshop

Saturday, April 15<sup>th</sup>

10:00 am – 12 noon

Gardenworks Farm

1055 Route 30, Salem, NY 12865



### Bramble Pruning Workshops

Focus will be on pruning to increase production and help control Spotted Wing Drosophila. General pest management and culture will also be discussed. There is no charge for these workshops, but we would like folks to register so that we know how to contact you. Please go on-line and register at: <https://enych.cce.cornell.edu/> or call Marcie at 518-272-4210.

**Tuesday, April 25<sup>th</sup>**

3:00-5:00 pm

Silamar Farm

5744 Route 22, Millerton NY, 12546.

**Thursday, May 4<sup>th</sup>**

3:00-5:00 pm

Rulf's Orchard

531 Bear Swamp Rd, Peru, NY 12972.

**Tuesday, May 9<sup>th</sup>**

3:00-5:00 pm

Cashin's Farm

225 Argersinger Rd,  
Fultonville, NY 12072

**Thursday, May 11<sup>th</sup>**

3:00 – 5:00 pm

Bowman's Orchard

141 Sugar Hill Rd., Rexford, New York 12148

**Tuesday, May 16**

3:00 – 5:00 pm

Story Farms

4640 NY-32, Catskill, NY 12414

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