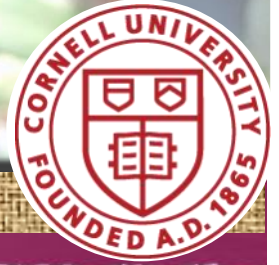


# Berry News

VOLUME 6, ISSUE 2 - APRIL 26, 2018



## Spring Berry "To Do" List

All berries can be pruned if the buds have yet to open. Early season herbicides can be applied if you know your soil temps are still cool enough to prevent crop damage. Many areas still are measuring soil temps less than 45 degrees. Rabbit and vole damage abound. Growers need to be sure to keep fields and surrounding areas clean and well trimmed – well into the fall and early winter as these pests tend to get worse with each passing season.

### —Blueberries—

- **Blueberry buds are swelling in all areas with bud break in most locations south of Albany.** In all plantings where I've checked the buds look healthy and no winter damage. There is some minor tip burn in a few locations, but in general the plants look good.
- **Pruning still possible in some locations** – see article in this issue for some tips.
- **Rabbit damage is profound** - It seems like every year I see more and more rabbit damage. To keep rabbits under control farmers must make sure that the growth around the plantings is well trimmed before the winter. I suspect that warmer autumns has encouraged growth much longer than we realize.



*This photo of rabbit damage is from the  
[Cornell Berry Diagnostic Tool](#)*

The following must be done regularly to discourage nesting sites:

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- Remove brush piles.
- Trim shrubs and fencerows.
- Keep paths around fields closely mowed.
- Clean up overgrown ditches or stream banks that are near crops
- **Spray for mummyberry disease** – Mummyberries look like tiny black pumpkins. They can be on the ground or still hanging on the plant. If you saw mummyberry last year, you can control by raking off and/or removing the ground cover – including the sod. Then re-mulch over the top. This works better than any fungicide spray. Manure or urea sprays on the mummies will also help. There are a number of sprays including lime-sulfur, Serenade, Double Nickel, Switch Tilt, Captain, etc. Indar is a great material – but you need to wait until berries are blooming to apply.
- Remove dead canes and **look for evidence of canker**. Canker diseases can also be controlled with lime-sulfur sprays before bud-break.
- **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 past years foliar nutrient recommendations**



Scale on blueberry shoots



Cyclamen mites causing distortion, unthrifty growth. Photo courtesy of OMAFRA

**and make sure your fertility plan is in line.** If you have never done foliar sampling, add a reminder to your phone that this should be done in early August.

### —Strawberries—

- **Remove straw from June bearing strawberries NOW!!** The longer the plant is covered in straw – and thus kept away from light – the less carbohydrates the crown has available to support flower and berry production. If you were able to remove straw earlier – then cover with two rows of heavy row cover – the plant could get light but still be kept warm during this protracted spring. Studies have shown that delaying the removal of winter straw

mulch results in a yield decrease of as much as 27% mostly in terms of total berry numbers, not individual berry size. The decrease in loss caused by delay of straw mulch removal can be as much as the loss

caused by winter injury if you had never mulched them at all. Work done by Marvin Pritts (Pritts, M. P., K. A. Worden and M. Eames-Sheavly. 1988. *Rowcover material and time of application and removal affect ripening and yield of strawberry*. Jour. Amer. Soc. Hort. Sci. 114:531-536) indicated that the best results were from treatments where the straw mulch was applied later in the winter (Dec. to February!) and then removed at the earliest possible time – in the case of this study at the end of February. This consistently yielded best winter survival and best overall productivity likely because it allowed plants to get access to light early.

- **Low level Nitrogen for some berries might help them recover** - If your June bearers look particularly bad after the mulch has been removed, you could add small amounts of nitrogen – preferably through drip as nitrogen moves readily in water to plant roots, but you can also broadcast in the row. The rate should be about 5# actual N/acre for each fertigation event, use Calcium nitrate (nitrate form is better because it's easier for plant to take up – especially in cold soils). Plant uptake will improve as

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air temperatures increase and plant transpiration occurs. You can keep fertigrating throughout the spring putting on a total of 10-20# actual N prior to fruiting. The tipping point is 30# of N – spring applications of 30# of actual N have been repeatedly shown to result in too much vegetative growth and less fruit. Plus the excess nitrogen encourages fruit rot. So be conservative if you are adding Nitrogen in the spring.

- **Keep eye out for overwintering pests – like cyclamen mite!** Cyclamen mites are much harder to detect, but cause leaves to be stunted and malformed as they emerge from the crown. It's difficult to control these mites – so removing obviously infested plants is a good management practice.
- **Plan for frost protection** – inspect irrigation equipment and row cover. Make sure you have some type of adequate temperature detection system at the field level.
- **Spider mites seen in DN strawberries already** – although it's been cold and seemingly drizzly, the air has actually been pretty dry and overwintering mites are active. Add predators to fields early to control these pests.

### —Brambles—

- **Florican raspberries breaking bud in the lower Hudson Valley.** Some tip burn and rabbit or vole damage but mostly they look good.
- **Primocane raspberries have been slow to emerge** – but some of these plantings are starting to stir now.
- **Complete the necessary Pruning:** After you finish blueberry pruning you can begin with brambles. Remember to keep cane density at no more than 4 canes per square foot. There may be some winter injury so look for that and prune it out.
- **Look for disease or insect issues as you prune.**

### —Ribes—

- **If you still haven't done it - Prune bushes now** – gooseberries and currants do well if 4-5 year old wood is removed. Canes should be removed from the crown.
- **Inspect for pest issues while pruning.**

## Get into eCommerce with FreshFoodNY

***Are you concerned that your farmers' market sales are flat? Have you thought of trying to bump up interest in current and prospective customers?***

The Farmers' Market Federation of NY has found an excellent on-line app that will help you access the ecommerce marketplace. The technical support is high and the company, Crave Foods, is motivated.

This online farmers market, FreshFoodNY, supports convenience in shopping that shoppers want and combines that with the traditions of farmers markets. Shopping for local food is conveniently done through the FreshFoodNY app and is open 24/7. Farmers receive customer orders and brings the product to their farmers market for pick up. Of course, while at the market to pick up their prepaid orders, consumers are encouraged to shop the rest of the market.

Watch this video to learn more about FreshFoodNY, how it supports local farmers and food producers, while encouraging consumers to visit their local farms markets.

FreshFoodNY – Webinar Introduction

(<http://www.nyfarmersmarket.com/freshfoodny-introduction/>)

Participation of farmers and vendors is free, courtesy of the Farmers Market Federation of NY. This project also allows farmers that are not farmers market vendors to participate – it's an awesome opportunity for direct market farmers across the state!



## Blueberries: Is Supply Developing More Rapidly than Demand?

Written by Kristen Park<sup>a</sup> and Roberta Cook<sup>b</sup>



Berries fit global preferences for healthful eating, convenience, and flavor. They are easy to consume and the many different uses for snacks, salads, and baking favor the growing demand.

Strawberries are the leading berry globally but other berries are rapidly gaining shelf-space in supermarkets led by blueberries.

North America, including the U.S.,

Canada, and Mexico, has the most developed fresh blueberry market in the world with year-round availability from blueberry domestic production, exports, and imports (Figure 1). Approximately 573.5 million pounds of blueberries are consumed in the U.S. market.

U.S. blueberry consumption was given a boost in the mid '00's as imports from Chile and Argentina rose to supply consumers in the winter months, enabling retailers to dedicate year-round shelf-space to the berry category. Chile is the leading importer of blueberries to the U.S.

With so much growth in production and consumption in the last 10 years, the industry should be ready for changes. According to Roberta Cook in a recent presentation at the New York Produce Show, Global Symposium in December 2017, the U.S. tends to focus more on the domestic market than they do on exports. Because demand is increasing in other parts of the

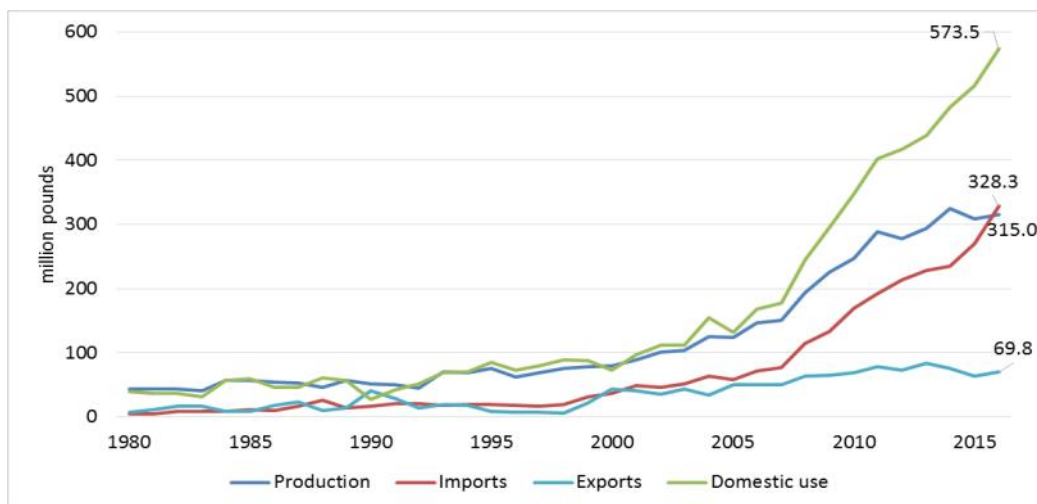
world, one would think there might be opportunity for U.S. exporters. For example, European retail chains are seeking more supplies. But Europe is quickly developing its own sources of supply, closer to market. Another question is, is supply developing more rapidly than demand? Cook has the following insights and recommendations:

- Blueberry production is expanding rapidly, increasing global competition throughout the year. In the next five years, firms need to focus on quality and on providing services to customers to be competitive.
- Firms that are successful will be thinking globally. Fortunately, there are companies in the berry industry that are visionary, and firms on the retail side can invest in the berry category quite confidently.
- Blueberries are much lesser known in Europe and may require more investment in marketing.
- U.S. blueberry demand has grown rapidly but growth rates are slowing as the market matures. This may contribute to supply-side consolidation in the North American market.

<sup>a</sup>Dyson School of Applied Economics and Management, Cornell University;

<sup>b</sup>Fresh Produce Marketing Consulting, Dixon, California and Cooperative Extension Marketing Economist Emerita, [Department of Agricultural and Resource Economics](http://www.davis.edu/departments/agricultural-and-resource-economics/) University of California, Davis

Figure 1. U.S. Blueberry Production and Consumption, 1980-2016



<sup>1</sup> Beginning in 1993, includes wild blueberry fresh-market production.

Source: USDA, ERS, 2017 Fruit and Tree Yearbook, Supply and Utilization tables. February 1, 2018.

“Smart Marketing” is a marketing newsletter for extension publication in local newsletters and for placement in local media. It reviews elements critical to successful marketing in the food and agricultural industry. Please cite or acknowledge when using this material. Past articles are available at <http://dyson.cornell.edu/outreach/smart-marketing-newsletter>.

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

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.

- *Phytoseiulus persimilis* (large, active, specializes on TSSM; prefers higher temperatures, up to 85 F, and RH over 75%).
- *Neoseiulus fallacis* (prefers spider mites but can feed on prey & pollen; prefers cooler temps than *P. persimilis*).
- *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 recommended, 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.

- *Amblysius cucumeris* (feeds on thrips larvae on the leaves)
- *Stratiolaelaps scimitus* (feeds on thrips pupae in the soil)
- *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)
- *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 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

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



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 transferrable to protected culture production of berry crops.

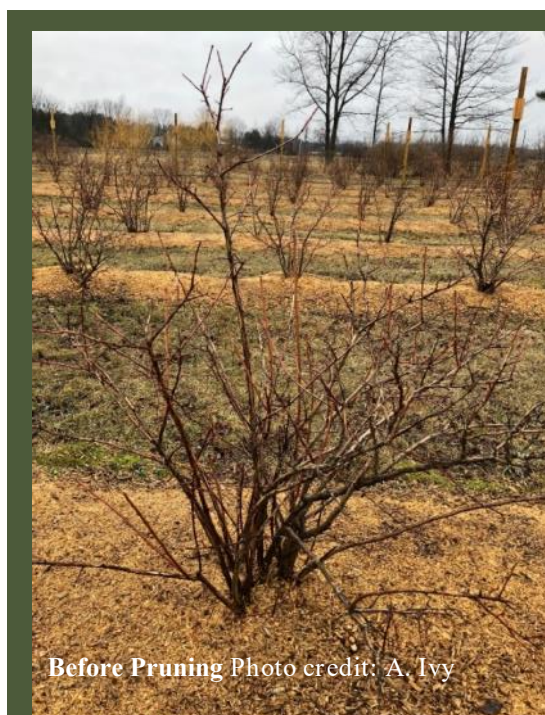
## Last Call for Pruning Blueberries

Amy Ivy, CCE ENYCHP

The biggest mistake new blueberry growers make (and plenty of experienced growers as well!) is to not prune hard enough. It seems counter-intuitive that removing the largest canes will invigorate the plants, but it does. Really. No really, it does.

Those larger canes dominate, and yes, they do produce some berries, but they also inhibit new canes from emerging. The best way to manage a highbush blueberry crop is through regular renewal. This keeps the plants vigorous and productive. You will have larger berries, and a greater yield from vigorous plants. To accomplish this, remove a couple of the oldest canes each year and thin out the new canes that emerge. Ideally you'd like to have 2 canes from each year for the last 6-8 years. Each subsequent year you remove the 2 oldest canes and allow only the best 2 of the new canes to remain.

Another important tip is to pull back the mulch from the base of the plant and make your cuts as low as possible. Too many growers cut just above the mulch which leaves unproductive stubs. You want the new canes to grow from the roots, not from lower down on the older canes. Remove the entire older canes to divert the plant's energy to producing vigorous, new canes.



Before Pruning Photo credit: A. Ivy



After Pruning Photo credit: A. Ivy

The pictures in this article are from a planting about 6 years old that has been heavily browsed by deer, causing a loss of flowers and excessive branching at the tips. Deer fencing is being installed this year.

In the first picture there are too many canes of the same age. The canes leaning off low to the left and right are unproductive. The larger canes in the center are dominating and inhibiting new vigorous canes to emerge.

When faced with plants that need heavy pruning it can be hard to know when to stop. Ideally, try to remove no more than 30% of growth. This means you may need to leave a couple of canes for removal next year.

The second picture is of a plant after being pruned. Notice how much more open it is, even though the pruning cuts were only made at the base of the plant. It takes a while to get used to this look, which can seem downright bare when you're hoping for a bushy, productive plant. But this much pruning is an investment in future year's production. Getting the plants into a cycle of renewal pruning will keep your plants productive for years to come.



[newa.cornell.edu](http://newa.cornell.edu) | [support@newa.zendesk.com](mailto:support@newa.zendesk.com)

## NEWA weather station buying guide

Always contact your NEWA state coordinator before purchasing a weather station. They are listed on the back side of this document and can provide additional guidance.

Company	Specifications
<b>Rainwise, Inc.</b> <a href="http://www.rainwise.com">www.rainwise.com</a>  <b>Sales</b> Lonnie White 800-762-5723 (preferred) <a href="mailto:lonnie.white@rainwise.com">lonnie.white@rainwise.com</a>  <b>Service</b> 800-762-5723  <ul style="list-style-type: none"> <li>• 2-year warranty</li> <li>• 6-year manufacturer suggested lifespan</li> <li>• 2-year calibration cycle (\$150 per service, shipping extra)</li> <li>• Rainwise.net access</li> </ul>	<b><a href="#">NEWA AgroMET MKIII SP1-LR</a></b> <b>\$1890.00 (2018 pricing)</b>  <b>Station data transmission</b> <ul style="list-style-type: none"> <li>• 2.4Ghz radio transmitter</li> </ul> <b>Data receiver</b> <ul style="list-style-type: none"> <li>• Wireless high speed internet (IP100 receiver, 2.4Ghz)</li> <li>• Cellular service (extra cost)</li> </ul> <b>Power</b> <ul style="list-style-type: none"> <li>• Solar panels, battery power</li> </ul> <b>Sensors</b> <ul style="list-style-type: none"> <li>• Temperature</li> <li>• Relative humidity</li> <li>• Precipitation (unheated)</li> <li>• Wind speed</li> <li>• Wind direction</li> <li>• Barometric pressure</li> <li>• Solar radiation</li> <li>• Leaf wetness</li> <li>• Soil moisture (extra cost)</li> <li>• Soil temperature (extra cost)</li> </ul> <b>Memory</b> <ul style="list-style-type: none"> <li>• Non-volatile RAM (data is retained during power loss)</li> </ul> <b>Optional mounting hardware</b> <ul style="list-style-type: none"> <li>• Monomount</li> <li>• Mounting brackets</li> <li>• Tripod</li> </ul> <b>Optional transmission hardware</b> <ul style="list-style-type: none"> <li>• High gain antenna</li> <li>• Radio repeater</li> </ul>



The Rainwise MKIII SP1-LR weather station, located on a Cornell AgriTech @ NYSAES research farm in Geneva, NY. Photo credit: Nicole Mattoon, NYS IPM Program.





[newa.cornell.edu](http://newa.cornell.edu) | [support@newa.zendesk.com](mailto:support@newa.zendesk.com)

## Connect to NEWA

Weather data have greater value when shared. NEWA provides a means for growers to share data resources and crop management information with their community.

### Benefits of owning a weather station

- Site-specific recommendations from any NEWA tool or resource at [newa.cornell.edu](http://newa.cornell.edu).
- Precise NEWA recommendations.
- Automated station outage notification emails.
- A dedicated NEWA weather station page with links to all tools and resources.
- Customized hourly and monthly weather summaries that are location specific.
- NEWA website assistance and technical support.

### Grower perspectives

A 2007 survey found that NEWA users in New York saved \$19500 in spray costs per year, on average. Prevented per crop loss was valued at \$264K annually by growers as a direct result of using NEWA IPM tools and resources.

*"The orchard was largely scab free for the first time in several years. The orchard manager depended heavily on NEWA and could see significant differences when using recommendations coming from an on-site weather station compared to a more remote location."*

*"I use the NEWA site almost every day during the growing season."*



The Rainwise MKIII SP1-LR weather station, located on a Cornell AgriTech @ NYSAES research farm in Geneva, NY. Photo credit: Nicole Mattoon, NYS IPM Program.



**Cornell Cooperative Extension**

Updated 23 March 2018



## For Your Information:

### *NEWA – Berry Pest Models Tested in 2018*

This season a number of eastern NY farms, along with farms throughout the eastern US, will be testing some berry pest models that will be posted on the [NEWA site](http://newa.cornell.edu/). <http://newa.cornell.edu/>. We will keep you posted in this newsletter about how that work is proceeding. Check the site through the link above to find blueberry phenology, local weather information etc. If you are interested in owning your own weather station, information is in this newsletter. (Pages 7 and 8)

## Calendar of Events

### May 5, 2018, Mushroom Growing Workshop

Lovejoy Building, 25 East Main Street, Cambridge, NY 12816 (The red two-story structure located behind Hubbard Hall.) Parking is available in the Village Parking Lot on Washington Street, behind Hubbard Hall. 2:00 – 5:00 PM

Registration at ASA website: <http://www.agstewardship.org> or call the ASA office at 518-692-7285. \$15.00 fee for this hands-on workshop. Each participant will bring home an inoculated log.

Most of us are familiar with the white button, crimini and portabello mushrooms which are now widely available in grocery stores, but there are other kinds of tasty mushrooms that you can grow at home, or for income generation. This workshop will introduce you to cultivation of shiitake, oyster, lion's mane and wine cap stropharia mushrooms. The emphasis will be on shiitake which are grown on fresh cut logs. During the hands-on workshop you will inoculate a log to take home, and learn the how, when and where of shiitake mushroom cultivation.

### July 12, 2018 – FSMA Training

Cornell Cooperative Extension, Albany County – Voorheesville, NY. More information to follow. Questions? Call Laura McDermott, 518-746-2562

### August 14, 15, 2018 NASGA Summer Tour

Watsonville, California

[www.nasga.org](http://www.nasga.org)

This year's summer tour will take place in northern California. We plan to visit progressive growers and marketers in the Watsonville area as well touring low elevation nurseries near Manteca and Turlock. Along the way we will take in other agriculture ventures. In California the options are endless.

### November 6-9, 2018 NASGA European Tour

Amsterdam, Netherlands

[www.nasga.org](http://www.nasga.org)

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