

Cornell University Cooperative Extension

Eastern NY Commercial Horticulture Program

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Berry News





Immature mummyberry apothecium in blueberry planting. *Courtesy A. Schilder, MSU*

Insect Stem Gall. Source: Cornell Berry Diagnostic Tool: <u>http://www.fruit.cornell.edu/berrytool/blueberry/</u> <u>canesstems/BBabnormal.htm</u>

In this issue of Berry News:

\diamond	Evaluating Cold Injury in Blueberries	2
\diamond	Blueberry Pruning –FAQs	3
\diamond	Pruning Details for Brambles	4-5
\diamond	Blueberry Health Research	6
\diamond	Witches' Broom in Highbush Blueberries	7

Spring Berry "To Do" List

Blueberries:

Finish pruning mature bushes

Blueberries should be pruned before bud break, so most locations have a little more time. See article on Pruning in this newsletter.

Scout for mummyberry disease

Mummyberries look like little tiny black pumpkins. The fruiting body (apothecia) begin to germinate at about this time and look like fingers coming up from the soil near the mummied berry. 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. For more information on scouting for mummyberry: http://msue.anr.msu.edu/news/

scouting_and_management_of_mummy_berry_in_blueberries

Scout for Scale Insects that feed on the twigs and can reduce plant vigor. Scale look exactly like their name implies, so they are relatively easy to see while pruning. Brigade, Triple Crown or Esteem can be used when crawlers appear in early spring on a warm day or spray oil (6 gal/A) after the bud scales start to expand, but before the first leaf stands out from the cluster). Thorough coverage is essential for good results. Apply in 250-300 gal of water/A, at a pressure of 300-400 psi.

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.

Strawberries:

As cool weather continues, try to resist urge to remove

straw. It's still only March so unless your berries are really growing under the straw I would try to wait until April 1st to remove mulch. And then only if the weather is pushing growth.

Brambles:

Complete the necessary Pruning: After you finish blueberry pruning you can begin with brambles. This has been a great year to get these chores done – and is especially needed as some folks were not able to complete pruning with last years' late winter. See article in this newsletter.

Look for disease or insect issues as you prune.

VOLUME 4, ISSUEI

Evaluating Cold Injury in Blueberries

Editors' note: This article appeared last winter – and then it had much more application. I don't believe we have suffered any major winter injury so far this year. But I'm still getting calls from concerned growers. If you want to cut some buds yourself to help ease your worries, this article will help guide you.

Not all of the tissues of a blueberry plant attain the same degree of cold hardiness. In fully dormant plants, the wood is normally somewhat hardier than the buds, and the roots do not develop any great degree of cold hardiness. Mulching with bark or sawdust can help moderate root zone temperatures and minimize root freezing injuries. The basal tissue that connects the flower bud to the shoot is the part of the bud that is most easily injured during the dormant period. Following a freeze, florets in a bud may show no injury even though the basal tissue is injured. The amount of growth of a new shoot or flower cluster depends on the extent of injury at the base of the bud. If injury restricts the flow of nutrients and water, growth of the shoot or flower cluster is slow or stunted, or completely inhibited.

Injury to the basal tissue can be determined by slicing longitudinally through a bud from the tip through the bud base with a sharp razor blade. Freeze-injured tissues will have a brown, water-soaked appearance, while healthy tissues will be green or white. For best results, wrap tissues to be tested in a plastic bag and hold at room temperature for several days before slicing and examining for browning. Winter injury to the vascular cambium (thin layer of tissue beneath the bark) of the cane or roots interferes with the movement of water and nutrients to the buds and, later,



Blueberry shoot (above) injured by winter desiccation. Blueberry bud (right) on left showing winter injury – healthy bud at the right. Both photos by Carlos Garcia-Salazar, Michigan State University

shoots. Depending on which tissues have been injured and the degree of injury, symptoms of "delayed winter injury" may not appear until late spring or early summer. Shoots may bloom, leaf out, and even begin setting fruit before suddenly collapsing and dying over a 1- or 2-day period. Sudden collapse is usually related to the onset of hot weather, which increases the demand for water by the developing shoots and fruit. Injured vascular tissues are unable to supply the needed water and nutrients and the shoot collapses. Often, injury to vascular tissue can be determined by scraping away the bark a healthy vascular cambium is bright green, whereas one injured by cold is brown.

Source: Winter Acclimation and Cold Hardiness of Blueberry, Northwest Berry and Grape Information Network, <u>http://berrygrape.org/winter-acclimation-and-cold</u> -hardiness-of-blueberry/

Attention Strawberry and Blueberry Growers!

Cornell Cooperative Extension and Dr. Elson Shields of Cornell University's Entomology Department are looking for farms that may have an infestation of Strawberry Root Weevil or Black Vine Weevil. This insect is very difficult to see as the most damaging form is underground feeding on root systems. You may occasionally see notching of leaves, but primarily will notice unthrifty growth in certain areas of the field. These insects prefer lighter, even sandy soil and may be more prevalent in fields where ornamental nursery plants have been grown or sold nearby.

If you have any thought that your small fruit fields may be underperforming we would very much like to take a look.

Please contact Laura McDermott (<u>lgm4@cornell.edu</u>, 518-791-5038) or Jim O'Connell (<u>jm098@cornell.edu</u> or 845-943-9814).



root weevil larvae (at right). Photo above from J. O'Connell and photo at right from Cornell

Photo above from J. O'Connell and photo at right from Cornell Berry Diagnostic Tool <u>http://www.fruit.cornell.edu/b</u> errytool/index.html



Blueberry Pruning – Commonly Asked Questions

Laura McDermott, ENYCHP

Do I have to prune every

year? Pruning blueberry bushes regularly helps reduce the overall size of the mature plant but it will also reduce the annual overall yield. However, the benefits to the plant over the long term significantly outweigh the short term loss of yield. If you ignore pruning you will drastically reduce the vigor of the planting and the number of years that you



will be able to fruit the plants. Annual pruning, done efficiently, is the very best approach to managing the crop canopy.

Does pruning result in larger fruit?

Reducing the number of fruit buds on the bush can result in an increase in the size of the remaining individual berries. Improving irrigation, plant nutrition, pest management and cultivar selection will have similar positive effects on berry size.

How does pruning make my plants healthier?

Pruning invigorates plants to initiate more growth. Blueberry buds are initiated on wood produced the previous season - one-year-old wood. Annual pruning regulates the fruiting potential of the following season's crop. You are striving to invigorate the plant to produce enough new wood that you will have a good crop in two summers. By removing the oldest, unproductive wood, you are lengthening the overall life of the plant and increase the number of crops that those plants will bear.

When do I prune?

Blueberries should be pruned during the winter while the bushes are dormant. By mid-January you can see flower buds on one-year-old wood. This winter could be a major challenge given the snow pack that exists throughout the state.

What tools do I need?

Use a good quality bypass (scissor action) hand pruner and/or lopper. The lopper should be capable of cutting branches 2 to 3 inches in diameter. For larger plantings, pneumatic pruners can be really helpful. I also think that pneumatic pruners can be VERY helpful as farmers' age or if time is tight and pruning needs to be done especially quickly. This may be the case this year. Pneumatic pruners require an air compressor and can cost nearly \$2000.

When I look at the bush, what do I remove first?

This depends on the age of the plant. Well-rooted two year old plants do not need to be cut back except to remove fruit buds shortly after planting. In the second year a moderate pruning will help to stimulate new growth. Continue to remove fruit buds on plants younger than three years of age in order to encourage bearing wood development. During the establishment phase (plants are 3-8 years old, prune to develop good plant architecture. Remove all low-spreading branches and the oldest canes if they are weak, particularly if in the center of the plant. "Head back" the strongest upright shoots to

the desired height to keep the bush from growing too tall. These shoots will be your primary bearing wood for the next few seasons. Thin out the shorter, thin shoots and leave only those shoots that have enough vigor to bear a crop. Each variety will have a different ability to renew itself while it bears - some varieties send out very few renewal shoots - others you can't prune enough! For a mature plant at least 8 years of age, simplify the process and focus on the crown of the plant. Remove diseased or broken shoots first. Then remove shoots that are poorly placed, i.e. if they are flopping into the alley. Remove 1-2 of the oldest canes. Then step back and look for small canes that will not grow quickly enough to actually bear fruit in 2 seasons. If they are smaller than the diameter of a pencil, they are not going to perform and should be removed. After all of this pruning, you should have about 16 canes, 2 from each year (2 eight year old canes, 2 seven year old canes, 2 six year old canes etc.). If you still need to remove canes, make sure to prune canes that look crowded.

When blueberries are 8-10 years old, they are at their productive peak, but this is when new cane development starts to slow. In order to prolong the productive life of the planting the blueberry grower needs to plan to revitalize the plant now. Weak or badly diseased canes should be removed entirely. If the varieties don't readily produce new canes from the crown, it could be helpful to cut back to a strong lateral which is located in the right spot.

How can I make pruning go faster?

Most growers that I talk with estimate that pruning a wellmanaged blueberry planting will usually take 3-5 minutes per bush. That works out to be 250 to 417 man-hours to prune 5000 plants; 6-10 people working for 40 hours – which adds up to a lot of money and time. Pneumatic pruners can help speed up a slow process. This equipment can be costly, but if you can afford to streamline the process and possibly hire fewer workers or have them complete the task in fewer hours, you can move closer to making the investment in a \$2000+ pruner and compressor system really pay for itself.

Pruning Details for Brambles

Marvin Pritts, Cornell University

Red Raspberries

Floricane (summer fruiting) red-raspberry productivity is most closely related to the number of canes. Fruit size decreases as cane numbers increase. In general, 3-5 large canes per linear foot of row is the optimal range with a plant row width of 12-18 inches.

On summer-fruiting raspberries, buds at the top of a cane often winter kill because they are less mature and less hardy than buds lower on the cane. Spring pruning should be delayed until winter injury on canes can be identified, usually by mid-March. Canes should be topped as high as the trellis and harvest operations will permit, but below the point of winter injury. Severe topping will increase fruit size but will greatly reduce yield. To prevent a loss in yield, no more than the top one-fourth of a cane should be

found to increase yield by as much a three-fold. However, it also delays harvest slightly. In the Northeast, the growing season is sufficiently short that blackberry fruit may not ripen, and any delay is detrimental. We will be studying ways to manage primocane-fruiting blackberries, including fruiting them under a high tunnel to extend the growing season. At this point we do not have good recommendations for pruning them.

Black Raspberries

In contrast to red raspberries, black raspberries respond well to primocane tipping. Many more fruiting buds are produced on black raspberry lateral branches than on the main cane, so primocanes are pinched back at a height of 28 inches to stimulate lateral branching from the main cane. At least 4 inches of tip should be removed during pinching. Several passes through the field



Before (left) and after (right) floricane raspberries have been pruned. Photos by Ann Stratton.

removed.

Growers may choose any of the five general pruning methods described for summer-fruiting raspberries. Each method will produce different effects on yield and productivity. After pruning, canes are tied loosely to the trellis wire to prevent wind damage of laterals after bud break. Canes should be spaced evenly along the trellis wire, or equally divided and spread between sides of a V-trellis.

Tipping (pinching off the tips) of red raspberry primocanes during the growing season to promote lateral growth is not recommended in the Northeast. This procedure slows cane development, does not stimulate much branching, and makes the plant susceptible to winter injury.

Primocane-fruiting raspberries (fall bearing) should be mowed to a height of 4-6". This will force the crown to send new shoots. For best results, primocanes should be thinned when they are 8-10" high. Small diameter canes should be removed first. These plants can be managed as ever-bearers, or can be cropped on alternate years – depending on labor and market demands.

Primocane-fruiting blackberries

Summer tipping of primocane-fruiting blackberries (prior to flower bud formation when canes are about 3 feet tall) has been

may be required since canes grow at different rates. Ideally, primocanes should be tipped just above a bud so very little dead wood is left between the pruning wound and the bud. Dead wood can be a site for cane blight infection, especially if wet weather follows tipping.

Some growers tip black raspberries mechanically by shortening fruiting canes to a height of 22 inches in early spring. Later in the spring, several passes are made with a sickle bar mower at 24 inches. Although this method is less labor intensive than tipping, primocanes will be more susceptible to cane blight infection since there is little control over wound size or the amount of dead wood between the cut and first bud.

At the end of the first year, black raspberry primocanes are branched with long laterals. These lateral branches should be supported by trellis wires before October since wet snow tends to break them off the main cane. Also, canes are more flexible in early autumn than in late autumn and are less prone to breaking from the crown during trellising.

A large portion of the lateral branches may be killed during the winter since black raspberries generally are not as hardy as red raspberries. Black raspberries could be pinched higher, but shorter laterals would result and the winter damage would be greater. If the whole lateral is permitted to fruit, smaller berry

VOLUME 3, ISSUE12

Pruning Details for Brambles, continued from previous page

size will result. Laterals are shortened (headed back) in early spring to remove winter damaged wood and to maintain berry size. Some growers shorten laterals to less than 10 inches. The choice of lateral length depends on cultivar vigor and the relationship between crop size and fruit size. The relationships among productivity, fruit size, and lateral length are not well known.

Whatever general pruning method is chosen, leaving 4-6 canes per crown should give most growers acceptable yields of large fruit. Black raspberries will respond well to partial primocane suppression. Full suppression is not recommended because black raspberries produce few primocanes.

Purple Raspberries

Purple raspberries perform best if pruned similarly to red raspberries. Purple raspberry primocanes may be tipped, like black raspberries, but wounds are often an entry site for cane diseases which kill part of the cane.

If a grower chooses not to tip purple raspberries, the canes will grow very tall, and the trellis should be able to support such vigorous growth. Primocane suppression can be used to control this vigor with good results. Some natural branching will occur near the base of primocanes when growing conditions are favorable. These canes may be removed or allowed to fruit. If primocanes are tipped to keep the plant short and compact, it should be done when primocanes reach a height of 32 inches. At least 4 inches of tip must be removed. Many lateral buds will break near the the top of the cane, and fewer near the base. Lateral branches should be shortened below any winter damage in early spring.



Haskaps Break Bud!

Laura McDermott and Jim O'Connell, Eastern NY Berry Educators have been evaluating a new berry, Haskap (*Lonicera caerulea*) in Hudson Valley growing conditions. Six cultivars at four sites in Columbian, Dutchess, Ulster, and Orange Counties were planted in the summer of 2015. Bud break occurred within the past two weeks, possibly brought on by the sudden

> warm temperatures. Flower buds have emerged on at least one plant in Ulster County. Laura and Jim will continue to evaluate these plants through 2016.

Tipped plantings without cane diseases will generally produce higher yields, but berries on the long laterals are more difficult to harvest. Also, long lateral branch or cane length generally results in smaller fruit size. Larger fruit can be obtained by shortening canes or lateral branches in early spring, but at the expense of yield.

Pruning methods that leave 3-4 fruiting canes per linear foot of row produce acceptable yield and quality of fruit. Purple raspberries respond favorably to primocane suppression but do not respond well to mowing.

Thorny Blackberries

Thorny blackberry primocanes are tipped when 3-4 feet high to stiffen canes and cause lateral branching. The laterals are shortened to 12-16 inches in early spring, and canes are thinned to two per linear foot of row. Longer lateral branches will produce more but smaller fruit than will shortened laterals. Growers may choose alternate year mowing methods to avoid the difficult task of pruning the thorny canes.

Thornless Blackberries

For two years after planting, thornless blackberry primocanes tend to grow along the ground, like a vine. Growers may have to move trailing canes in the direction of the row to allow room for cultivation. After two years, however, canes become more erect and are naturally branched. Thornless blackberry canes are thicker and more flexible than raspberry canes. Because of the poor hardiness of thornless blackberries, northern growers must take special precautions to protect canes during winter. Although canes are somewhat flexible,

they will not bend to the ground after the third year to be covered with mulch or straw. Some growers tip thornless blackberry primocanes when they reach a height of 24 inches so that low growing laterals are more easily protected during winter.

In spring, the canes should be tied at least 3 feet above the ground to trellis wires. Fruiting canes are either shortened to the top trellis wire or woven around the wire. Woven canes should overlap no more than two or three feet with an adjacent plant. Lateral branches are shortened to approximately 18 inches, and laterals on the lower two feet of cane are removed. Thinning canes to 6-8 per hill will maintain acceptable production. Partial primocane suppression is recommended for thornless blackberries. Thornless blackberries have been grown successfully using a variety of trellising systems which are required to hold canes above the ground. The double curtain V-trellis has been very successful. Fruiting canes are tied to one side of the V and primocanes to the other. Primocanes and floricanes alternate sides of rows across the field, so each row middle is bordered by canes of the same age. This pattern makes spraying and harvesting easier.

U.S Highbush Blueberry Council Invests in Blueberry Health Research

Editors' note: In 2001, growers from throughout the USA voted to approve the Blueberry Promotion, Research, and Information Order. If you grow highbush blueberries, you are part of the U.S. Highbush Blueberry Council. This order requires payment of \$12/ton from growers who produce or import more than 2,000 lbs of blueberries annually. USHBC invests in promotions and market development of highbush blueberries. For more information, take a look at the annual report: <u>http://www.blueberry.org/</u> <u>ushbc/organization/Annual%20Reports/2014-</u> 2015%20USHBC%20Annual%20Report.pdf



Photo: http://www.blueberrycouncil.org/healthy-living/blueberry-nutrition/

The U.S. Highbush Blueberry Council (USHBC) has been no stranger to health research funding in recent years and 2016 will be no exception.

Speaking with www.freshfruitportal.com,

USHBC executive director Mark Villata said the choice of studies would likely be decided in May, with almost all projects dedicated to human trials."We're moving up a step from the test tube type of studies to actual human studies which will give us a lot more information and a much stronger story," Villata said.

The USHBC spent close to US\$700,000 on health research related to the antioxidant-rich fruit last year. "We actually sent out requests this year for health research proposals and we've received 32," he said. "It's pretty exciting – we'll be spending over US\$1 million this coming year on health research, so it's a very important part of our program. They're still in the process of being reviewed so I can't give details, but a lot of them deal with metabolic syndrome and diabetes, and gut health is another area that's getting more interest so we've got that in there as well."

According to IRI FreshLook, U.S. fresh blueberry retail sales rose 7% last year to reach US\$1.5 billion, while for frozen product the figure rose 4.2% to US\$189.6 million. "I think [we'll see] something along the same lines. The demand continues to be strong, consumer interest is as keen as it ever has been," Villata said. "Right now it looks like a normal set-up to the year, I haven't heard of any issues with the winter causing any concerns. It seems like everything's running at a normal pace," he added when asked about conditions for the upcoming campaign. Villata highlighted a range of marketing initiatives coming up this year, including a "boot camp" at the Culinary Institute of America in Napa, California. Designed as a way for chefs to learn about how to use blueberries, there will also be a session for foodservice directors from schools, now in the second year running. "One factor is we're

celebrating the 100th anniversary of blueberries this year so we'll be doing some activities in the summertime, some radio work and such to pump up the message about that," he said.

"Our basic consumer program is continuing with the health message – the little changes that can make a difference to your health, incorporating blueberries into those little changes.

"Also working on foodservice is an important part of the program – we're looking at doing some promotions with some chain restaurants in the coming year," he said, adding the USHBC had worked with the chains Wendy's and Black Angus last year.

Export will also be an important focus, in fresh, frozen and processed blueberries.

"There will be a little bit more work on the export markets as well, primarily Japan and South Korea, trying to encourage more blueberry consumption in those markets," Villata said. "In Japan it's fresh and frozen. In Korea it's just a limited amount of fresh because it's just Oregon that ships fresh into Korea, but Korea is becoming a very big frozen market," he said, adding these two countries' per capita consumption was probably half that of U.S. levels. And with the International Blueberry Organization (IBO) Summit set to take place in Argentina and Uruguay this year, Villata was positive the forecast production increases from both countries - due to plantings of more productive varieties - would be able to find markets. "Even with the increases that we've seen in blueberry consumption, we're still below a lot of other fruits so if we can get a bigger share of that stomach, and I think it can be done, I think there's room to grow all the way round. "There is not a lot of per capita consumption in international markets so a lot of the work we do overseas will take up a lot of that production as well."

Source: www.freshfruitportal.com

Have you been wondering about what separates a home processor from a commercial processing operation? And how you can gear up?

Processing Workshop

Berry Processing Workshop

April 1st, 2016 10:00 am to 2:00 pm

Micosta Enterprises 3007 County Route 20 Stottville, NY 12172 http://www.emicosta.com/

Workshop description:

Berry growers and prospective food processors will learn about becoming a small scale food processor. Basic standards for commercial kitchens, food safety considerations, standard hot pack methodology and equipment necessary will be covered. Hands on activities will be included.

Who should participate?

Growers, food processors, and those interested in value added products.

Workshop facilitators:

Topics to be covered:

Cornell University Cooperative Extension

Home Processing Exemption vs.
Commercial Processing

Eastern New York Commercial Horticulture

- Basic Standards Small Scale Food Processing Facilities
- Food Safety
- Market evaluation

Participants will receive:

- Lunch and breaks
- Hands-on activity
- Resources and information

Register early space is limited!

Cost is \$30 and pre-registration by <u>March 30th, 2016</u> is required!

To pre-register contact CCE ENYCHP:

Abigail Henderson (518) 7462553

Or register on-line at: http://enych.cce.cornell.edu/

- Steven McKay Owner of Micosta Enterprises and retired Hudson Valley CCE Small Fruit Specialist
- Laura McDermott Regional Specialist, CCE ENYCHP

Witches' Broom in Highbush Blueberries

Jim O'Connell, ENYCHP



This time of the, as you are finishing pruning, you may come across an unusual number of broom-like, swollen, cracked shoots arising from lateral buds. These shoots are commonly referred to as Witches' Broom. This disease is a relatively minor occurrence in New York State.

The causal agent of Witches' Broom is a rust fungus (*Pucciniastrum goeppertianum*). It is a systemic disease, which will remain in the plants for the duration of their existence. Rust fungi require a secondary host to complete their lifecycle. In the case of Witches' Broom, this host is fir trees. Avoid new blueberry plantings within 1000 feet of fir trees. Unlike similar rust diseases (e.g. late leaf rust in brambles), which can suppressed with fungicides, the only way to manage Witches' Broom is to remove secondary hosts within a 1000 feet of the planting, and

remove and destroy infected blueberry bushes. Infected bushes left in the planting will only serve as an inoculum source to infect new blueberry bushes.

Images from UMaine Extension: <u>https://extension.umaine.edu/ipm/ipddl/plant-disease-images/</u> <u>blueberry-witches-broom-images/</u>

Temperature and Rain to date for March (3/1/2016 - 3/13/2016)						
Locations	Avg Temp (F)	Max Temp (F)	Min Temp (F)	Total Rain (in)		
Chazy	30.5	67.5	0.2	0.47		
Peru	31.8	68.7	3.6	0.57		
Crown Point	32.3	71.7	4.6	0.02		
Clifton Park	38.4	79	14.9	0.33		
Hudson	41.3	81	18	0.28		
Highland HVRL	43.6	78.9	19.1	0.36		
Marlboro	42.8	78	15.1	0.3		
Riverhead	45.9	75.9	27.1	0.42		

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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 possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide. This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension. Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator

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