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Fruit Notes

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Cornell Cooperative Extension
Lake Ontario Fruit Program

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Intentional Delay of Dormant Pruning for 'Honeycrisp' and Other Important Biennial Cultivars (Fuji)

Terence Robinson and Mario Miranda Sazo

Note: There will be two pruning workshops with Dr. Robinson to discuss final pruning approaches and severities based on targeted crop loads/tree on **Thursday, March 10 (Wayne County)** and **Wednesday, March 16 (Orleans County)** – review Mark Your Calendars!

When pruning a Honeycrisp block without knowing the floral bud percentage (% of floral buds in a 100 bud sample of spurs from randomly selected shoots in a Honeycrisp block), you are risking removing too many of the flower buds if return bloom is low. If the previous crop load was too high then flower bud numbers will likely be below or close to the target number and pruning is likely to remove too many. Floral bud identification at the dormant stage is not easy without dissecting buds and viewing them under a microscope. It can only be accomplished by a professional lab or by a trained grower and/or employee. For this reason, it is helpful to delay pruning until the spring. **We suggest that annual bearing varieties (Gala, McIntosh, Empire, NY-1, etc.) be pruned first and the biennial bearing varieties last.** There is a 3-4 week window from green tip to bloom when it is easy to identify and count flower buds per tree and then prune to the target flower cluster number at that time.

However, many growers who have significant acreages of Honeycrisp (or other biennial bearing varieties) cannot wait to prune all of their trees in the spring. If you must begin pruning biennial varieties during the winter, we suggest two approaches you could consider.

1. Before pruning determine the number of flower buds per tree by sampling 10 branches (3/4-1 inch in diameter) from 5 representative trees in the orchard and dissecting all the spurs on the branches and examining the dissected buds under a

microscope to determine what percentage of the spurs are floral. Then, adjust pruning intensity to ensure that the target number of flower buds are left on the tree. Few growers are prepared or trained to sample branches, dissect, and examine buds with a microscope. To help growers with this task, we will soon post a new precision pruning video in our LOF YouTube channel – stay tuned!

2. Another approach is to lightly prune Honeycrisp during the winter by only removing 1-3 large limbs (remember to always leave a longer stub with Honeycrisp, 2-3 fingers length to secure shoot renewal). Then between green tip and full bloom **'touch up' the trees which have too many flower buds by removing additional whole limbs and by spur pruning.**

Lastly, we remind growers that to avoid biennial bearing of biennial varieties and to improve fruit size of annual varieties, precision pruning is essential. We suggest counting the total number of flower buds on 5 representative trees and then through pruning the removal of extra flower buds leaving a precise number of buds. To accomplish this the first step of precision pruning is to determine the target number of final fruits at harvest which is a function of desired fruit size, yield and the potential of the trees. Secondly, calculate the number of buds to leave based on the recommended but load and thirdly, adjust the number of buds to be left after pruning by the percentage of buds that are floral. The following is an example of a final fruit number target and the calculated spur number to leave after pruning on Tall Spindle Honeycrisp trees planted at 3X11 ft. spacing (1320 trees/acre).

Target yield=900 bu/ac * target fruit size(72 count @260gr) / tree planting density (1,320 trees/acre) = 50 fruits /tree. Remember we suggest leaving a few



extra flower buds as insurance against frost or poor set. Based on the most recent Cornell Honeycrisp pruning research we are currently suggesting that growers leave 80% more flower buds than the target fruit number as insurance. In the example where we need 50 final fruits/tree we suggest

increasing that number by 1.8=90 flowering spurs. Lastly, if only 50% of the spurs are floral then the number of spurs to leave after pruning would be double that number (180 spurs). The table below gives bud load factors and target final flowering spur numbers for annual and biennial bearing cultivars.

Bud load factors for annual and biennial bearing varieties	Target Final Flowering Spur Number			
	60 fruit per tree	80 fruit per tree	100 fruits per tree	120 fruits per tree
1.5 buds per final fruit number for annual bearing varieties	90 flowering spurs	120 flowering spurs	150 flowering spurs	180 flowering spurs
1.8 buds per final fruit number for biennial bearing varieties	108 flowering spurs	144 flowering spurs	180 flowering spurs	216 flowering spurs

Blueberry Scouting in the Winter

Anya Osatuke, Harvest NY

Pruning is a good time to scout for diseases in blueberries.

Make sure your pruning instruments are sanitized before you begin. Lysol is considered the best sanitizer for pruners, as it kills fungi, viruses, and bacteria, and doesn’t corrode metals. A solution of 10% bleach in 90% water is as effective as Lysol, but will corrode metals over time. Alcohol will work well to kill bacteria and viruses, but isn’t very effective against fungal spores.

Fusicoccum Canker: Reddish spots on canes, often near the ground near a leaf scar. Spots 1 inch and larger develop a bull’s eye pattern.



Fusicoccum canker with bull’s eye pattern. Cut this away.



Dead wood from Phomopsis tip blight. Cut this away.



This wood is infected by a fungal canker. Prune it down until all the wood is green.

Phomopsis canker and twig blight: Phomopsis is a fast-moving fungus that usually enters blueberries through the tips of the canes. Cut away any cane tips that look black and dead. Watch for dead wood in pruning cuts. If possible, prune down until the wood is all green.

Stem gall wasp: Stem galls can be caused by a small wasp that lays its eggs in the blueberry cane.

If the stem galls do not have holes, remove and burn them.

Witches' Broom: A rust fungus that dwells on white firs can cause witches' brooms in blueberries, an unproductive overgrowth of branches. Cut affected canes out at the base of the plant.



Old blue-gray stem gall with exit holes. The wasps have already left from it.



Fresh stem galls. Remove and burn them.



Witches' broom growth on a blueberry bush.



Apple R2F Webinar on Rootstock & Nutrition

March 1, 2022 — 11:00am—4:00pm Eastern Time

The Cornell Fruit Team is pleased to announce a nationwide SCRI Apple Root to Fruit (R2F) webinar for apple growers, extension educators, and crop consultants on Tuesday March 1st, 2022, 11am-4pm (Eastern Time). This free webinar will provide an opportunity to learn new findings on rootstock and nutrition for managing 'Honeycrisp' and other high value varieties in the Pacific Northwest and Eastern U.S.

Register now:

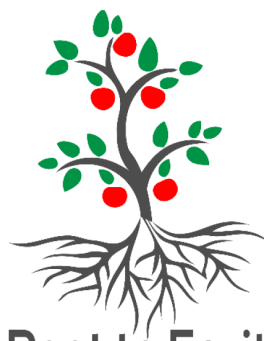
https://cornell.zoom.us/webinar/register/WN_uyec5ZIBQxCu5Pf31GKwQg

This webinar will be a one-day intensive workshop focusing on the new advances in nutrition and rootstock research and the applications of new designer rootstocks suited for specific climates, soils, cultivars, and planting systems in the U.S.

Webinar Agenda

- **11:00 am EST** Webinar begins
- **11:00-11:40 am** Apple rootstock performance - an eastern perspective. Terence Robinson, Cornell University
- **11:40-12:20 pm** Honeycrisp nutrient requirement and mitigation of bitter pit. Lailiang Cheng, CU
- **12:20-1:00 pm** Apple rootstock performance - a western perspective. Stefano Musacchi, Washington State University
- **1:00- 1:30 pm** Break
- **1:30-2:10 pm** Role of rootstock and abiotic environment in tree nutrition. Lee Kalcsits, WSU
- **2:10-2:30 pm** Rootstock effects on fruit quality and storability of Honeycrisp and Fuji. Essie Fallahi, University of Idaho
- **2:30-2:50 pm** What we learned from rootstock trials in Michigan? Greg Lang, Michigan State University
- **2:50-3:30 pm** Rootstock genotype and the root microbiome: implications for the control of replant disease. Tracy Somera, USDA ARS
- **3:30-3:50 pm** New apple rootstocks on the horizon. Gennaro Fazio, CU and Terence Robinson, CU
- **4:00 pm** Adjourn

**This webinar is facilitated by
the CCE Lake Ontario Fruit Program and
the CCE Eastern NY Commercial Fruit Program.**



Root to Fruit

**Cornell
Cooperative
Extension**

Please contact Mario Miranda Sazo with any questions: 315 719 1318 | mrm67@cornell.edu

Please Consider Commenting on the Proposed Water Rule as part of FSMA and attending the informational Webinar on March 11

Craig Kahlke

As many of you have likely seen, the FDA has proposed new regulations for the *Agricultural Water Rule* as part of the “Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption Relating to Agricultural Water”. On Friday March 11th at 11am we invite you to attend a webinar co-hosted by NYS Department of Agriculture & Markets and NASDA where FDA will provide an overview of the **proposed** rule and answer any questions you might have. The zoom link information is below. There is no need to register to attend, simply click on the link when it's time.

Northeast Regional Webinar on Proposed Agricultural Water Rule

Date/Time: Friday, March 11, 2022, 11:00 AM – 12:00 PM ET

Join Zoom Meeting

<https://us06web.zoom.us/j/82993921762?pwd=K241ZzRQZEhiaG1tK0lGT1BQk5Xdz09>

Meeting ID: 829 9392 1762

Passcode: 996005

Linked here is the [Agricultural Water Proposed Rule Fact Sheet](#) (<https://www.fda.gov/media/154334/download>), which has summarized the information nicely, so you can read ahead of time to prepare for the FDA's presentation. Please bring all your questions so they can continue to understand any potential challenges here in NYS to adoption/implementation of the rule.

Background

On December 6, 2021, the FDA announced proposed changes to the Food Safety Modernization Act (FSMA) specifically, the **preharvest** water provision within the Produce Safety Rule (PSR). The link to the overview of the proposed rule and as it appears in the docket are here: [FSMA Proposed Rule on Agricultural Water](#) (<https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-proposed-rule-agricultural-water>). The changes are meant to address stakeholder concerns (previous comments submitted to FDA) about FSMA water testing requirements. The proposed changes would require comprehensive Agricultural Water Assessments (AWA), which would include surrounding land use, weather events, and topography, to identify any potential contamination risks to the water sources used on farms.

These proposed changes are open to public comment until April 5th, 2022. Stakeholder and growers are strongly urged to comment during this time to make the voices of New York's growers and related industry heard, ensuring that your unique challenges in your tree fruit or small fruit operation will be addressed.

Effective comments on the change, whether for, or against, should be factual, succinct, clearly demonstrate section being addressed, and clearly supported with examples or evidence. It is also important to offer reasonable and achievable alternatives to what is currently proposed.

Start by leading off with an introduction to demonstrate that you have stake in the game. This does not need to be more than a job title, farm, or business. This will show that proposed changes will have a direct impact on you.

Second, identify clearly what part of the rule adversely affects you. To make sure the reader knows exactly what provision you are talking about, specifically address them by title or number. Without the use of sections and subsections the message may not come across as strong, or the reader may not understand what subpart is being referenced.

Next, demonstrate why or how the provision adversely affects you. Explain why the proposed rule may be unattainable, may cost you too much time, or may otherwise be bad for your farm.

Effective Comments need to be factual and to the point. Just calling the rule stupid or telling them to throw the whole thing away is not going to go far. Keep emotions and name-calling out of your comments and focus on exactly how your farm will be impacted. Keep comments short and to the point, but support arguments with real examples.

Remember, to make the most out of the comment stay factual, to the point, and specifically call out subsections being referenced. Lead in with background demonstrating that this will affect you, identify subsections being referenced, briefly explain why this provision does or does not work, and finish with how or what may work with you.

Comments can be written and faxed to the FDA at 301-827-6870 or mailed to:

Division of Dockets Management (HFA-305)
Food and Drug Administration
5630 Fishers Lane, Room 1061
Rockville, MD 20852

To read more about the rule or if you would like to comment on the proposed rule, you may do so at [FSMA Proposed Rule on Agricultural Water](https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-proposed-rule-agricultural-water) (<https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-proposed-rule-agricultural-water>)

Comments must be submitted by April 5, 2022.

NOTE: Contact Craig at 585-735-5448 or cjk37@cornell.edu to discuss specifics to your farm or any general questions or concerns you may have. This proposed rule as compared to the current one in place is more open-ended (Agricultural Water Assessment) and less specific (compared to the required water testing in the current rule). A suggested plan of action would be to read the factsheet and key parts of the rule and think about

how an AWA would look on your farm, and the potentials challenges to your operation. Make a point to bring these questions to me or FDA/NYS Ag & Mkts when attending the March 11 webinar. Again, the comment period ends on April 5. FDA then has to read and respond to every comment. For now, the current water-testing requirements are under enforcement discretion as in the PSR (<https://www.fda.gov/food/cfsan-constituent-updates/fda-announces-enforcement-discretion-policy-certain-fsma-regulations>). Many of you already to water testing as required by most 3rd-party GAPs audits. We urge you to continue this testing.

Additional Resources:

Phil Tocco, a food safety educator with MSU Extension, recently put out an excellent Podcast “Understanding FDA’s New Proposed Water Rule” with Annalisa Hultberg, a food safety educator with the University of Minnesota. I urge folks to listen to it here: <https://www.buzzsprout.com/936625/9993253>

Mark Your Calendars

Meeting Title	IFTA Annual Conference
Date	Feb 12 – 15
Time	All day
Location	Hershey, PA
Cost	\$450-850
Contact for Info/Registration	See link below.
Brief Description of Meeting	Information about the organization and the event can be found at https://www.ifruittree.org/event/ifta-2022-annual-conference/ .

Meeting Title	2022 Eastern NY Fruit & Vegetable Conference
Date	Feb 15 – 17
Time	Varies by day
Location	Virtual
Cost	\$40-\$60
Contact for Info/Registration	See link below.
Brief Description of Meeting	Information about the event can be found at: https://cce-enychp.teachable.com/p/2022-eny-fruit-vegetable-conference-sessions .

Meeting Title	Northeast Extension Fruit Consortium, Winter Webinar series
Date	Tuesdays, Feb 22 – March 29
Time	12:00 pm noon
Location	Virtual
Cost	Free
Contact for Info/Registration	Register for each separately, see link below.
Brief Description of Meeting	Information about the series can be found at: https://ag.umass.edu/fruit/news-events/northeast-extension-fruit-consortium . Join on Feb 22 for the “Precision Crop Load Management of ‘Honeycrisp’” talk with Dr. Robinson. He will share results from his extensive ‘Honeycrisp’ crop load management trials at Cornell AgriTech and on-farm trials. 1 DEC credit is available for this talk.

Meeting Title	USDA SCRI – Root to Fruit (R2F) webinar
Date	Tuesday, March 1
Time	11am-4pm (EST)
Location	Virtual (nationwide)
Cost	Free
Contact for Info/Registration	Mario Miranda Sazo (cell 315-719-1318; mrm67@cornell.edu); https://cornell.zoom.us/webinar/register/WN_uyec5ZlBQxCu5Pf31GKwQg
Brief Description of Meeting	This free webinar will provide an opportunity to learn new findings on rootstock and nutrition for managing ‘Honeycrisp’ and other high value varieties in the Pacific Northwest and Eastern U.S. It will be a one-day intensive workshop focusing on the new advances in nutrition and rootstock research and the applications of new designer rootstocks suited for specific climates, soils, cultivars, and planting systems in the U.S. Facilitated by the CCE Lake Ontario Fruit Program and the CCE Eastern NY Commercial Fruit Program.

Meeting Title	2 Precision Pruning Workshops for ‘Honeycrisp’ and other Important Apple Cultivars in WNY
Date/Time	Thursday, March 10, 2022 (10:30-noon) – Wayne County Wednesday, March 16, 2022 (10:30-noon) – Orleans County
Location	Grower hosts/farm names/directions will be announced next week – stay tuned!
Cost	Free
Contact for Info/Registration	Mario Miranda Sazo (cell 315-719-1318; mrm67@cornell.edu)
Brief Description of Meeting	Dr. Robinson will show modern pruning techniques and share results from his extensive ‘Honeycrisp’ precision pruning trials at Cornell AgriTech and on-farm trials.

Meeting Title	Biological Orchard IPM Tactics Webinar
Date	Monday, March 14
Time	1:30 pm – 3:00 pm
Location	Virtual
Cost	Free
Contact for Info/Registration	Register online at: https://cornell.zoom.us/meeting/register/tJlvdu2urD4uGtOMmoJdXq3CxncyTd5CDxdN .
Brief Description of Meeting	Cornell Cooperative Extension ENYCHP and LOFP are presenting a webinar on biological orchard IPM tactics. Julianna Wilson of MSU Extension will present on mating disruption and biological insecticide options , while Dr. Kerik Cox will review some efficacy data for new and old biofungicides .

Meeting Title	What’s New in Crop Load Management
Date	Friday, March 18
Time	1:30 pm – 4:45 pm
Location	Virtual
Cost	Free
Contact for Info/Registration	Register online at: https://cornell.zoom.us/meeting/register/tJYuc-6hqzspGtdsp3VFnf7sQKDgO1wGQg5S .
Brief Description of Meeting	Information about the event can be found at: https://enych.cce.cornell.edu/event.php?id=1613 .

Cornell Cooperative Extension

Lake Ontario Fruit Program

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Fruit Notes

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Fruit Specialists



Craig Kahlke | 585-735-5448 | cjk37@cornell.edu
Team Leader, Fruit Quality Management

Areas of Interest: Fruit Quality and factors that affect fruit quality before, during, and after storage,
Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Cherries, Nectarines, Peaches, Pears, Plums



Mario Miranda Sazo | 315-719-1318 | mrm67@cornell.edu
Cultural Practices

Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants,
Gooseberries, Nectarines, Peaches, Pears, Plums



Janet van Zoeren | 585-797-8368 | jev67@cornell.edu
Integrated Pest Management (IPM)

Areas of Interest: IPM of tree fruit and berry pests, biological control, and pollinators.
Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants,
Nectarines, Peaches, Pears, Plum



Mark Wiltberger | 315-272-8530 | mw883@cornell.edu
Business Management

Crops: Apples, Cherries, Nectarines, Peaches, Pears, Plums

For more information about our program visit us at lof.cce.cornell.edu