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# Fruit Notes

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Cornell Cooperative Extension  
Lake Ontario Fruit Program

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## Basics of Precision Pruning for Honeycrisp in 2021

Terence Robinson and Mario Miranda Sazo

Precision pruning is a strategy to reduce the flower bud number per tree to a pre-defined flower bud number through pruning. It begins with counting the number of flower buds on a few representative trees per orchard. In the past, the lack of uniformity of semi-dwarf trees and the massive number of buds on a tree made accurately counting buds impractical if not impossible. However, with adoption of the “machine/robot ready” Tall Spindle growing system (3x11ft), which utilizes ~1320 trees per acre, it becomes practical to count the number of flower buds on representative trees in each orchard.

Knowing the number of flower buds per tree allows us to reduce initial flower bud numbers by pruning off excess fruit buds and only keep those needed to set an adequate crop. In addition, we have the ability to select individual buds through selective pruning retaining only those that are of the highest quality. By pruning to a specified bud number, we can start the process of fruit thinning to better target the specific fruit sizes of the highest value fruit. Reducing the number of fruit buds on the tree early through pruning can reduce competition among flower and fruitlets resulting in increased resources for the remaining fruit and improved fruit size and quality. Making accurate fruiting bud counts requires an investment in time, but this is a practice which can provide an immediate return on the investment of time. **Next week we will be entering an early time window from pink to bloom when it will be easy to identify and count Honeycrisp flower buds per tree.** Then you will be able to prune to the target flower cluster number at that time.

Determining the “target” bud numbers per tree depends on the desired yield and fruit size and also on the level of risk the grower is willing to accept. Although it is possible to use pruning to reduce fruiting buds to nearly the exact number required to set one fruit per spur for a full crop, we suggest that additional buds be retained to account for natural factors that cause buds not to set, such as frost or freeze, poor pollination, and poor flower viability. The number of additional buds required to provide “insurance” will depend on the variety. For example, early blooming varieties may be more at risk for frost damage and you may want to keep more buds, whereas varieties that bloom late have a lower risk of fruitlet loss. Thus, the number of buds to leave after pruning is based on the target number of fruits, adjusted by a bud load factor that will provide some insurance buds.

### How many flowering spurs to leave for a Honeycrisp tree in 2021?

Based on the most recent Honeycrisp pruning research, we are currently suggesting that growers prune using a bud load factor of **1.8 flower buds for each final fruit number for Honeycrisp in 2021.**



<b>Bud load factors for Honeycrisp</b> (pruning ratio that reflects a severity of pruning)	<b>Target Final Fruit Number</b>		
	<b>65 fruit per tree</b>	<b>73 fruit per tree</b>	<b>80 fruit per tree</b>
1 bud per final fruit number	65 flowering spurs	73 flowering spurs	80 flowering spurs
1.5 buds per final fruit number	98 flowering spurs	110 flowering spurs	120 flowering spurs
<b>1.8 buds per final fruit number (recommendation for 2021)</b>	<b>117 flowering spurs</b>	<b>131 flowering spurs</b>	<b>144 flowering spurs</b>
2 buds per final fruit number	130 flowering spurs	146 flowering spurs	160 flowering spurs
3 buds per final fruit number	195 flowering spurs	219 flowering spurs	240 flowering spurs
4 buds per final fruit number	260 flowering spurs	292 flowering spurs	320 flowering spurs

This is the time of the year to **conduct precision pruning of Honeycrisp trees by imposing 1.8 flower buds per final target fruit number per tree** (you can also use **1.8 for Fuji and EverCrisp trees** and **1.5 for Gala and NY-1 trees**). We hope many of you will be counting flower buds of Honeycrisp in the next two weeks this year!

### Stay Tuned for our Virtual Pink Meeting

Craig Kahlke

We are planning for a virtual pink meeting (Zoom) in the coming weeks, timed to pink in the Hudson Valley (and likely WNY at the current phenology). It will be statewide with info on precision crop load

management and pest management. Look for a “Save the Date” in future email announcements and Fruit Facts from LOF.

### Frost, Critical Temperatures, and Frost Protection

Robert Crassweller, Penn State University

Click on the link below for a great, comprehensive article on frost protection in tree fruit.

<https://extension.psu.edu/frost-critical-temperatures-and-frost-protection>

### 2021 Outlook on Powdery Mildew

David Strickland and Kerik Cox, Cornell University

#### The 2021 Season so Far...

Apple powdery mildew is a disease intricately linked to host phenological stage, and is likely to be of concern this year due to the mild winter we’ve experienced since November 2020 and the (so far) warm early spring weather promoting early bud break. *Podosphaera leucotricha*, the causal agent of apple powdery mildew, overwinters within bud tissue. In cold winters, host buds die off when trees are exposed to sustained temperatures below -11.2°F. However, according to the Northeast Regional Climate Center (<https://www.nrcc.cornell.edu/>), the northeast US

has experienced a warm winter, with average temperatures regionwide far above this “kill” threshold (Nov 2020: 43.1°F; Dec 2020: 31.2°F, Jan 2021: 27.1°F, Feb 2021: 24.9°F), indicating that *P. leucotricha* will probably have overwintered successfully.

With the onset of spring, trees began pushing buds and generating new tissues that *P. leucotricha* will colonize to establish primary infections (Fig. 1). A prolonged period of cooler days would help to slow tree growth, and subsequently, the start of powdery mildew symptoms. However, if April proves to be warm enough to significantly promote

host growth, expect that powdery mildew primary infections will appear with greater frequency.

Warmer temperatures are not the only factor influencing whether powdery mildew will be present in the early season. Precipitation has an impact on powdery mildew disease incidence. The spores of *P. leucotricha* (called conidia) cannot colonize host tissues covered in free water, a major difference from the wetness requirements for other foliar apple fungal pathogens such as *Gymnosporangium juniperi-virginianae* (cedar apple rust) and *Venturia inaequalis* (apple scab). In the early season, *P. leucotricha* conidia are produced from primary infections and spread by wind to colonize new tissues and form secondary

perpetuate secondary infections, producing exponentially increasing numbers of conidia for the remainder of the season, which are the focus of chemical management programs into the summer months.

Should the next month or so be particularly wet due to frequent rainfall, powdery mildew may not be of concern in this year's early season. However, we note here the importance of keeping a vigilant eye out for powdery mildew development in your orchards. Extended warm periods without rainfall, typically a boon to growers as apple scab is not developing quickly in these conditions, would be very conducive to powdery mildew disease development and spread.



Figure 1. Primary infection of apple powdery mildew. Photo: K. Cox.



Figure 2. Secondary infection of apple powdery mildew. Photo: D. Strickland.

infections (Fig. 2). These secondary infections will

### Management Options for Powdery Mildew

Management of powdery mildew relies primarily on a fungicide program, as pruning visibly infected shoots of overwintered fungal mycelium (primary infections) is usually too labor intensive. In New York, powdery mildew is typically managed with the same fungicide program as apple scab since most NY springs are wet and cool, necessitating a focus on the latter disease. Should this spring

prove to follow the above trend, expect that powdery mildew will be well managed with your current apple scab chemical management program. **Should the weather this spring instead become unseasonably warm with little precipitation, do not ease up on your fungicide application programs if you have a historical prevalence of powdery mildew in your orchards** (e.g., along Lake Ontario).

A fungicide management program focused primarily on powdery mildew would start at **tight cluster** with applications of protectant fungicides such as sulfur or phosphorus acid. Note that for phosphorous acid-containing products listed for use in apple, such as Rampart, avoid application to plants treated with copper-based compounds at less than 20-day intervals to prevent phytotoxic effects. As bloom arrives, applications of single-site fungicides (e.g. Rhyme, Luna Sensation, Merivon) may be used to manage primary infections to reduce the amount of disease inoculum (conidia) that would otherwise spread elsewhere in the orchard. Alternating single-site fungicides with sulfur into the late spring/early summer months should provide adequate disease control. However, take care with sulfur applications during hot days (>85°F) as it may cause fruit russetting in warm wet conditions. Given concerns for fungicide resistance development, be sure to alternate fungicide modes of action when you select applications of single-site fungicides. Proper fungicide rotation will help maintain the efficacy of those limited commercial products registered for use in New York. In 2020, we received no reports of powdery mildew control failures in conventionally managed orchards.

For growers interested in using **organic**-approved chemical management programs, there are several OMRI listed products registered for use in New York to combat apple powdery mildew. Consider products such as Microthiol Disperss, Serenade Opti, and Double Nickel LC. In our experimental trials we have observed Rampart to also be successful, but note that it is not OMRI listed. These products often perform well under scenarios of low disease pressure. Severe disease pressure may not be adequately controlled in your orchard solely with biopesticides, so remain vigilant.

#### Ongoing Research at Cornell AgriTech

In 2021, we are evaluating the efficacy of several conventional fungicides, as well as additional OMRI listed products to provide better information and commercial options to growers augmenting their disease management programs. We are also exploring application programs rotating conventional fungicides with biopesticides to harness the benefits of both chemistries. This work, supported by a NESARE grant, will be made readily available in future communications, so stay tuned!

## COVID-19 Relief Funding Continues into 2021 – Key Points for LOF Growers

Mark Wiltberger

COVID-19 relief funding continues into 2021. Even if you applied for funding in 2020, there are some changes to the rules that may make you eligible for additional funds. The article elsewhere in this issue by Elizabeth Higgins, Eastern NY Commercial Horticulture Program, (***CFAP, Extended PPP and additional Grant \$\$\$***) nicely explains these opportunities. Talking with growers the past few weeks, I have some bullet points about the funding that in particular applies to fruit growers in the LOF region:

- The main change for CFAP is that producers are now allowed to include certain government payments for crop insurance proceeds, NAP, and WHIP+ payments for calculating total income for 2019. This number better reflects the crop revenue that should have been

generated by the farm and increases the amount of CFAP payment the farm should be eligible for.

(<https://www.farmers.gov/cfap2/specialty>)

- In one county I spoke to, the local FSA office has been proactive to contact farms in their system that may have received government payments for the 2019 crop.
- Check your records and contact your local FSA office about eligibility for applying for additional funding from CFAP.
- The big change for PPP is that businesses filing taxes with Schedule F or Schedule C that have a small eligible payroll can use gross income as part of the calculation of the eligible amount of the loan. Farms that may not have qualified for much money in the past may qualify for substantially more, making it attractive to apply.



- The deadline for application was March 31<sup>st</sup>, however, the PPP Extension Act was signed into law on March 31<sup>st</sup>, extending the deadline to May 31<sup>st</sup>. In March, I spoke to growers who had difficulty reaching someone at a bank to talk to about applying. With the extension of the application period, banks may be easier to contact now that they are not in a time crunch to process applications.
- The bank that processes the loan application does not need to be an Ag lender. Ask the bank if they process PPP loans. You can reach out to a bank you haven't worked with before, or you may find success if you contact a bank with which you already have a relationship.
- Pace's Food and Beverage Law Clinic recently updated their [COVID-19 Relief FAQ](https://law.pace.edu/sites/default/files/fblc/Corrected%20Updated%20COVID%2019%20FAQ%20-%202022-03-2021.pdf) (<https://law.pace.edu/sites/default/files/fblc/Corrected%20Updated%20COVID%2019%20FAQ%20-%202022-03-2021.pdf>) to highlight some of the most important recent changes that impact small and mid-sized farms and other businesses.
- More details on PPP for farmers can also be found in a [recent COVID-19 update](https://smallfarms.cornell.edu/2021/03/covid-19-update-on-paycheck-protection-program-access-for-small-farms/) (<https://smallfarms.cornell.edu/2021/03/covid-19-update-on-paycheck-protection-program-access-for-small-farms/>) shared by the Cornell Small Farms Program.

## **More COVID Relief Funding is Available - CFAP, Extended PPP and additional Grant \$\$\$**

Elizabeth Higgins, Eastern NY Commercial Horticulture Program

The Biden Administration is releasing new COVID-19 stimulus funding. If you didn't take advantage of some of these programs last year, like PPP or CFAP, you are in luck!

### **Are you regretting your decision to not apply for CFAP 2 last year? You have another chance!**

CFAP 2 provides payments based on 2019 sales to specialty crop growers. The application is simple, and the funds have arrived quickly. There really is no reason to not apply to this program. The program will accept applications starting on April 5th and should run until at least the end of June. U.S. Secretary of Agriculture Tom Vilsack announced an expansion of the Coronavirus Food Assistance Program (CFAP) on March 24, 2021. CFAP updates include reopening of Coronavirus Food Assistance Program 2 (CFAP 2) for farmers who did not apply last year and they will also process the payments for certain applications filed as part of CFAP Additional Assistance.

Commodities eligible for the current Coronavirus Food Assistance Program signup period include those that were originally eligible for CFAP 2 and CFAP Additional Assistance – which is pretty much everything. A full list of eligible crops is located: CFAP 2: Eligible and Ineligible Commodities | Farmers.gov (<https://www.farmers.gov/cfap2/commodities>)

For specialty crops the application is very simple – payments are based on sales in 2019 as well as crop insurance, WHIP+ or NAP indemnities you received for crop year 2019. To apply to the Coronavirus Food Assistance Program, go to Farmers.gov (<https://www.farmers.gov/pandemic-assistance/cfap>) or call your local USDA FSA office.

### **PPP deadline extension**

If you missed the deadline to apply for a first or second draw Paycheck Protection Program “loan”, the deadline was extended to May 31st. If you never received a Paycheck Protection Program grant, you would be eligible for a “first draw” loan. If you received a Paycheck Protection Program grant, but your income declined by more than 25% in 2020 (CFAP funding would count as income) then you can apply for another PPP loan.

There are a few changes that make the program more attractive.

1. PPP loans/grants do not count as taxable income.
2. You can deduct business expenses paid for with PPP loans/grants from your taxes. Some farms turned down PPP because of the possible tax implications.

3. If you file a schedule F or schedule C for your farm business you now use gross income not net income to base the salary of the owner for PPP payments – this can be a HUGE benefit to some farms.
4. You can now use PPP funds to cover costs of COVID-19 protections for workers and customers.

### **Value Added Producer Grant – It's a Good Year to Apply**

USDA added an additional \$35 million in COVID relief funds so \$76 million is available for VAPG this year. The VAPG usually requires a 1-1 match (for every grant dollar you need to provide a dollar of cash or in-kind match). This year the match requirement has been reduced to 10 percent for the grants that are funded with COVID funding. These will be the highest ranked projects. The rest will require the standard 1-1 match. You can apply for the grant assuming only a 10 percent match but may be required to provide a 100% match if you are a lower ranked project. You are not required to show that your business was impacted by COVID in order to be eligible for the COVID funding. It is just based on project quality/priority ranking.

This year they also removed the preference for cash match over in-kind match for scoring proposals.

### **Other Funds?**

The recent COVID-relief package has definitely increased funding to the Local Foods Promotion Program and the Farmers Market Promotion Programs. These programs generally are available in the spring and farmers can apply for them. They could help with things like on-line sales and marketing, home delivery and other changes you may be making to your operation. Go to Grants & Opportunities - Agricultural Marketing Service ([usda.gov](https://www.usda.gov))

(<https://www.ams.usda.gov/services/grants>)

There will likely be additional opportunities, especially in local foods, assistance in providing PPE and protective measures for farm workers, increased farm to school funding and food donation support, assistance for organic certification and specialty crops – according to the announcement. But what these will look like is yet to be determined....

## **Federal Farm Labor Law Compliance**

Rich Stup, Cornell Ag Workforce Development, Cornell University

With Spring just around the corner, farms are gearing up for the 2021 growing season, meanwhile the U.S. Department of Labor's Wage and Hour Division is gearing up for increased enforcement activities in agriculture according to a [March 25th press release](https://www.dol.gov/newsroom/releases/whd/whd20210325) (<https://www.dol.gov/newsroom/releases/whd/whd20210325>). The Division is planning to conduct direct outreach to farm workers and advocacy groups in order to identify complaints against employers. Compliance with federal laws surrounding migrant and seasonal labor can be tricky, a [press release from March 30th](https://www.dol.gov/newsroom/releases/whd/whd20210330) (<https://www.dol.gov/newsroom/releases/whd/whd20210330>) details the penalties that a tomato grower in Maine is facing for H-2A violations.

The Wage and Hour division assists with employer education and outreach, check out the [Agriculture Compliance Assistance Toolkit](https://www.dol.gov/agencies/whd/compliance-assistance/toolkits/agriculture) (<https://www.dol.gov/agencies/whd/compliance-assistance/toolkits/agriculture>) on the

Division's website. Here you can find factsheets, posters, and other materials that will help you stay in compliance with federal laws, especially the [Migrant and Seasonal Agricultural Worker Protection Act](https://www.dhs.gov/migration/migrant-and-seasonal-agricultural-worker-protection-act) (MSPA)

(<https://www.dol.gov/agencies/whd/agriculture/mspa>), and [H-2A](https://www.dhs.gov/migration/migrant-and-seasonal-agricultural-worker-protection-act) (<https://www.dhs.gov/migration/migrant-and-seasonal-agricultural-worker-protection-act>), the temporary agricultural foreign guest worker program. [Cultivating Compliance: An Agricultural Guide to Federal Law](https://www.dhs.gov/migration/migrant-and-seasonal-agricultural-worker-protection-act) (<https://www.dhs.gov/migration/migrant-and-seasonal-agricultural-worker-protection-act>) is a particularly helpful and readable publication. It's worthwhile for every farm employer to review this publication with all their managers and supervisors each year just to refresh key points about compliance.

Remember that state laws are often more restrictive than federal laws. When this occurs, state law supersedes the federal law. For example, the federal minimum wage is still \$7.25 per hour

and this is clearly stated in the required [federal poster](https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh1386Agrcltr.pdf) (<https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh1386Agrcltr.pdf>). New York [minimum wage](https://www.ny.gov/new-york-states-minimum-wage/new-york-states-minimum-wage) (<https://www.ny.gov/new-york-states-minimum-wage/new-york-states-minimum-wage>), however, is much higher at \$12.50 for much of the state, and H-2A wage is at \$14.99 in New York.

The post [Paid Leave Required for COVID Vaccinations](https://agworkforce.cals.cornell.edu/?p=2168) (<https://agworkforce.cals.cornell.edu/?p=2168>) appeared first in [The Ag Workforce Journal](https://agworkforce.cals.cornell.edu/) (<https://agworkforce.cals.cornell.edu/>)

## Summer Job Announcement – Receive Training in Fruit Crop Scouting

Lake Ontario Ag Consulting, LLC and agr.assistance are both looking for motivated people to be summer orchard scouts. Qualified people can be college or high school aged (Jr/Sr) or any other motivated person looking for seasonal summer work. All training is provided so no previous scouting experience is needed.

If you may be interested in this position, email any questions, or a resume and one letter of recommendation to [lindsaylamora@agrassistance.com](mailto:lindsaylamora@agrassistance.com) and [vaughng@lakeontarioagconsulting.com](mailto:vaughng@lakeontarioagconsulting.com)

## Mark Your Calendars

<b>Meeting Title</b>	<b>Mating Disruption Informational Meeting</b>
Dates	April 23 <sup>rd</sup> , Friday
Time	Meeting options 1 <sup>st</sup> meeting: 9-10am 2 <sup>nd</sup> meeting: 2-3pm
Location	Meeting options 1 <sup>st</sup> meeting: Doyle Farms, 10979 Ridge Rd., Wolcott NY 14590 2 <sup>nd</sup> meeting: Partyka Farms, 1420 Countyline Rd, Kendall NY 14476
Brief Description of Meeting	<b>Are you interested in learning more about mating disruption, or if you are deciding if it would be good fit for your operation? There will be an informational meeting open to all tree fruit growers in the Lake Ontario area, organized by Trece Inc. and Peck Babcock.</b>
Registration/Contact	RSVP is required by Monday April 19 <sup>th</sup> . Please contact Kaley Catlin ( <a href="mailto:KCatlin@trece.com">KCatlin@trece.com</a> ; (918-530-2161) or Janet van Zoeren ( <a href="mailto:jev67@cornell.edu">jev67@cornell.edu</a> ; (585-797-8368)
<b>Meeting Title</b>	<b>Wayne Co Respirator Fit Test</b>
Dates	April 26 & 27
Time	12:30 – 5:00 PM, both days
Location	Wayne County Cornell Cooperative Extension, 1581 Rt. 88N, Newark, NY 14513-9739
Brief Description of Meeting	Cornell Cooperative Extension Wayne and the Wayne County Farm Bureau are collaborating again to offer in person respirator fit test training on Monday and Tuesday April 26 and 27th at the Pultneyville Lodge. Slots are limited this year and each slot can only accommodate 1 farm, due to COVID. All sanitation procedures will be followed. Masks are required upon entry.
Cost	\$90/person
Registration/Contact	Register by calling Beth Claypoole at the CCE office at 315-331-8415 ext. 102. Space is limited, so get in touch now!

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# ***Fruit Notes***

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## **Fruit Specialists**



**Craig Kahlke** | 585-735-5448 | [cjk37@cornell.edu](mailto: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](mailto: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](mailto: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](mailto: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](http://lof.cce.cornell.edu)**