FEBRUARY 2021

The Produce **PAGES**

Serving the fruit and vegetable growers of Eastern New York

Feature Farm Story

A Visit with Dan & Jacqui Heavens of Glorie Farms Orchard and Winery

Daniel J. Donahue, CCE ENYCHP

Introduction and History of Glorie Farms

Off Mountain Road and up on the ridge above the town of Marlboro in the Hudson Valley you will find a little piece of northern Italy, at least that was my first and lasting impression. The vineyard, the view, the stone walls, and position on the hill was a scenic replay of a drive a few years ago through the wine country of Piedmont, between Turin and the Ligurian coast of the Mediterranean Sea. Glorie Farms is that place, and it is closer than a drive to JFK, never mind the flight.

The original farm was established in the 1700's and one can still find signs of the intricate system of French drains below ground which were built hundreds of years ago. Doug Glorie purchased the farm in 1970 under the name of

A few of Glorie Farms in the idyllic Hudson Valley. Photo: D. Donahue

Cornell Cooperative Extension Eastern NY Commercial Horticulture Program



"Stoneside Farm". The old stone walls attest to the appropriateness of the name, which a few old apple bins still retain. Apple orchards were planted in the 1970's, vineyards in the 1980's, with the farm's animals being phased out in the 1990's. The farm was renamed "Glorie Farms" in 1979 as its focus changed to fruit production. Glorie Farm Winery was established in 2004 with a cidery added in 2020. Glorie Farms was purchased by Dan and Jacqui Heavens in 2020 who are fully engaged owner/operators of the business. Today the focus of Glorie Farms is the delivery of a memorable farm experience supported by quality wine and cider to visitors from all around the northeast.

The Produce Pages

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IN THIS ISSUE:

A Visit with Dan & Jacqui Heavens of Glorie Farms Orchard and Winery1
Onboarding Seasonal Farm Employees - Get Organized for 2021!
Is Your Farm Food Safety Plan Ready to Go for the 2021 Season?
The Least Wanted List: Updates on Some Troublesome Invasive Insects
Is Home Delivery the Right Option for your CSA?8
Show Me the [COVID-19] Money—PPP is Back9
Grapes 101: The Core Grape Genome and Cheap DNA Sequencing9
What's Up With Hemp?11
What's a Mesotunnel, and What's it Good For?
2020 Sweet Potato Variety Trial Report
Upcoming Events

The *Produce Pages* is a monthly publication of the Eastern New York Commercial Horticulture Program. For more information about the program, please visit our website at <u>http://enych.cce.cornell.edu/</u>.

Serving the Educational and Research Needs of the Commercial Small Fruit, Vegetable and Tree Fruit Industries in Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Putnam, Rensselaer, Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties.

(Continued from cover)

Why purchase a fruit farm in the Hudson Valley?

Dan and Jacqui first visited Glorie Farms as customers in 2006. Similar to my first impression, they were taken by the beauty of the scenery and the quality of the wine. Doug Glorie was their server at their first tasting. Dan was struck by the authenticity of the tasting room experience, delivered with the clear message that the quality of the wine was top priority. Visiting farm wineries was a hobby for the couple, and they visited many around the northeast in the ensuing years. Somehow, they always returned to Glorie Farms; it was their favorite. When a notice of the farm being for sale popped up on social media they jumped at the chance to follow their dream.

Dan grew up on Heavenly Acres farm in Harwinton, Connecticut which grew no fruit, but had a lot of cows, pigs, and goats. Jacqui grew up in the Bronx and lower Westchester, became a CPA, and was a successful finance executive. Between the two, they possess the skills needed to grow a successful farm and agritourism experience in today's world. Dan is very quick to point out that the business "wouldn't run without Jacqui".



Photo: Glorie Farms

About the Orchard

Glorie Farms currently grows a dozen or so varieties of apples including Northern Spy, Winesap, Gala, Macoun, Golden Delicious and Ginger Gold. Granny Smith is a late maturing variety, uncommon in the Hudson Valley, but they manage to get it to harvest. Golden Russet makes an excellent hard cider, their 2016 planting is now coming into bearing. Most of the current orchards are trained to the semi-dwarf tree form, using the EM.26 and EM.7 rootstocks. Recent high-density plantings are based on the more size -controlling Cornell-Geneva 11 and EM.9 rootstocks. New highdensity orchards are planned for 2021 with a focus on producing apples for hard cider. Varieties chosen include Ashmeade's Kernel. Yarlington Mills, Redfield, and a few crabapples. I understand there may be a few secrets in the plan as well, but Dan's not talking! C-G.11 and C-G.41 will be the rootstock of choice for the tall spindles systems, while C-G.210 will be more appropriate for a vertical axis system on a slightly wider spacing. Dan is planning on installing a 5-

wire trellis system for tree support.

About the Vineyard

Dan made it clear to me "really good wine is made in the vineyard". There are currently about a dozen varieties of grapes in the vineyard, split between vinifera and hybrids. Not to forget, there are also table grape varieties as well; Concord, Sheridan, and Niagara that are grown for fresh eating. Vinifera is where Dan's heart lies, and Glorie Farms is a member of the Hudson Valley Cabernet Franc Coalition. Today, there are five clones of Cabernet Franc in production at Glorie Farms in an effort to produce the highest quality Cabernet Franc as the unique qualities from each clone will typically shine through in the wine resulting in a better wine. Cabernet Franc grapes typically produce a medium bodied red wine which, while not overpowering, has the character to hold its own when paired with hearty dishes and is very versatile. Riesling and Chardonnay are also produced, the quality is excellent, but the vines are more sensitive to the cold of our New York State winters. Visiting the farm in early October of last year, I noticed netting draped over some of the vineyard. Turns out that birds, squirrels, and other animals enjoy the Riesling grape just as much as us, but they refuse to pay, making them less than ideal customers. The netting keeps the rascals out, all there are a few motivated enough to chew through! Dan and Jacqui are also looking into other old-world varieties from compatible climates that may have a home in the Hudson Valley.



Photo: D. Donahue

About the Winery and Cidery

The perfect Glorie Farms Riesling has a dry finish, more so than what you might expect. I found the sweet red "Quartet" to be excellent. Chardonnay is fermented in both stainless steel and oaked versions. If Glorie Farms needed a mission statement (I don't think they do), Dan's comment that "Wine should be an accessible pleasure" nails it in just a few words. The staff Wine Servers take the time to explain wines, contributing to a more intimate customer experience. At the end, customers leave with their wine glasses and cider mugs. Some have been known to later request Glorie Farms glasses be sent along

(Continued on page 4)

(Continued from page 3)

with their wine order! The pandemic forced wine tastings to be held outside for 2020, with unanticipated success. For 2021, when allowed to resume, Glorie Farms will offer both indoor and outdoor seating. The first hard cider was produced from the 2019 crop, to strong customer acceptance. The dry, unfiltered style cider was released for sale in the fall of 2020. Want more choices? Experiments are underway with fruit wines and fruit blends, stay tuned...

How about marketing strategy?

The Glorie Farms website is the focus of a multipronged e-marketing plan. Developed and managed entirely in-house by Jacqui, the website

tells the Glorie Farms story, describes the products offered, and supports the e-commerce platform. Monthly emails to their customer list are also important, although they are sensitive to the volume of email solicitation that everyone is receiving these days. While the Heavens' have not utilized outside marketing consultants, they are very enthusiastic about their relationship with the social media marketing company Synchronous Social Media to help manage their presence on the web. Dan and Jacqui believe it is essential to interact with their customers and take the time to respond to both positive and those rare less-than-positive customer reviews.

The goal is to provide an interesting, engaging, and relaxing customer experience with a subtle educational splash. The results are satisfied customers-for-life. New customer acquisition is the most expensive marketing task for any business. Once you have the customer's attention it becomes critical to delivery the best possible product or experience. It may be your only chance to deliver...

To date, the focus has been on digital marketing - radio or television has not been in the plan. Print media has been used in the past, but the pandemic contributed to a decline in print for 2020. Customers are encouraged to make reservations ahead of time. Reservations requests are managed in-house via the website. So far, third party table reservation sites have not been enlisted. Of course, telephone reservations are possible for those of us perfectly content to live (well) in the analog world.

The Glorie Farms Team

Dan manages the farm operations and delivers product to wholesale customers. Jacqui focuses on the financial and marketing responsibilities while also greeting customers at the winery. Kristop Brown is the winemaker of twenty years' experience. Kristop also grew up in Connecticut not far from Heavenly Acres. Kevin Lockhart is their long-serving farm foreman, and with assistance from the



Photos: Glorie Farms

assistant foreman Thomas Lockhart, they are credited by Dan for keeping the day-to-day farm operations running smoothly. Last but certainly not least, the founders Doug and Mary Ellen Glorie play a key consulting role in the business.

The Future of Hudson Valley Agritourism

Dan and Jacqui are bullish on the future of agritourism in the Hudson Valley. The sector is growing locally, driven in part by building interest in our history and agricultural education. Where does our food come from? Glorie Farms looks to Cornell Cooperative Extension (CCE) for practical advice and research on how to best grow a profitable crop. Dan enjoys the Tree Fruit E-Alerts and the Vineyard Reports. The Glorie Farms team have been active participants in fruit schools, webinars, and are looking at CCE business management and marketing resources as well. As a family, the Heavens' are looking forward to raising their children in a healthy farm environment. Everyone at Glorie Farms anticipates a return to normalcy and the opportunity to continue the history of Glorie Farms as a successful family farm business.

Acknowledgements

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

Mario Miranda Sazo and Terence Robinson, Cornell University

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 Lastly, we remind growers that to avoid biennial bearing of biennial be below or close to the target number and pruning is likely to varieties and to improve fruit size of annual varieties, precision remove too many. Floral bud identification at the dormant stage is pruning is essential. We suggest counting the total number of not easy without dissecting buds and viewing them under a flower buds on 5 representative trees and then through pruning the microscope. It can only be accomplished by a professional lab or by removal of extra flower buds leaving a precise number of buds. To a trained grower and/or employee. For this reason, it is helpful to accomplish this the first step of precision pruning is to determine delay pruning until the spring. We suggest that annual bearing the target number of final fruits at harvest which is a function of varieties (Gala, McIntosh, Empire, NY1, etc.) be pruned first and desired fruit size, yield and the potential of the trees. Secondly, the biennial bearing varieties last. There is a 3-4 week window calculate the number of buds to leave based on the recommended from green tip to bloom when it is easy to identify and count flower but load and thirdly, adjust the number of buds to be left after buds per tree and then prune to the target flower cluster number at pruning by the percentage of buds that are floral. The following is an 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 are planning to develop a training video on how to do this in the next few weeks.

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.

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	

Is Your Farm Food Safety Plan Ready to Go for the 2021 Season?

Elisabeth Hodgdon, CCE ENYCHP

For many growers, February is a time to finish up seed and supply orders, and take care of other paperwork and "desk jobs" before the start of the season. Winter is a great time to edit and polish your food safety plan, or write one if you haven't done so already. A farm food safety plan is a valuable tool for produce farms. Food safety practices such as cleaning and sanitation, water testing, and worker training are much easier to implement when a plan is in place rather than on the fly during the busy growing season.

Who needs a plan?

Regardless of whether your farm participates in third party audits (such as Good Agricultural Practices (GAPs)) or is covered by the Food Safety Modernization Act (FSMA), a farm food safety plan is a good idea. While a plan is not required for FSMA's Produce Safety Rule, it is required for GAPs, other audits, and some individual buyers.

What should be covered in my plan?

Your farm food safety plan should include all aspects of your production, including:

- Contact information for key personnel in case of an emergency
- Worker training
- Handwashing, hygiene, glove use, and worker sick policies
- Soil amendment application
- Chemical use and storage
- Wildlife and livestock management
- Water testing
- Cleaning and sanitation
- Pack house pest management
- Traceability procedures
- And more!

Supplemental material to be kept with your plan could include a map of the farm, pertinent standard operating procedures, recordkeeping templates, and training certificates for your farm food safety contacts. If you already have a farm food safety plan template written, it's a good idea to review it at least once annually. Rewrite or edit procedures outlined in your plan that require adjustment. It's normal for a food safety plan to be "living" document that changes as time goes on when your operation grows, changes, or when regulations are revised. Food safety plans are never "one-size-fitsall"; be sure to tailor it to your individual operation.

Are plan templates available?

Many templates are available so that you don't have to start writing your plan from scratch. Cornell has developed an excellent food safety plan template that includes color-coded guidance for different programs (GAPs, FSMA, etc.; see resources below).

The Produce Safety Alliance has compiled a list of farm food safety

plan templates available on their website from different universities, including Cornell's template.

If you would like assistance writing your plan, we are here to help! Contact Elisabeth Hodgdon at <u>eh528@cornell.edu</u> or 518-650-5323 to schedule an appointment to review your plan.

Resources

Farm Food Safety Plan Writing Resources, from the Produce Safety Alliance. Available from <u>https://producesafetyalliance.cornell.edu/</u> <u>resources/farm-food-safety-plan-writing-resources/</u>

Cornell University Farm Food Safety Plan Template, by Betsy Bihn, Robert Hadad, Craig Kahlke, Gretchen Wall, and Connie Fisk. Available from <u>https://gaps.cornell.edu/educational-materials/farm-food-safety-plan-template/</u>



A farm food safety plan template developed by Betsy Bihn, Robert Hadad, Craig Kahlke, Gretchen Wall, and Connie Fisk of Cornell University.

The Least Wanted List: Updates on Some Troublesome Invasive Insects

Dan Gilrein, Cornell Cooperative Extension of Suffolk County

Invasive species – insects in particular – are nothing new, but they are often newsworthy for the economic, environmental, and other damage they cause, to say nothing of the headaches for management. Gypsy moth, European elm bark beetle (which transmits Dutch elm disease), and European corn borer are among the more notorious familiar species. Besides the destruction and frustration, they often are responsible for increasing dependence on pesticides despite pressure to find alternatives. It can take decades – or longer – for biological controls to catch up, and in the meantime impacts may be, practically speaking, permanent. Following is a roundup of some more recent invaders in or approaching Suffolk County.

<u>Spotted lanternfly</u> was first sighted in Berks County, PA in 2014 and now this large (1") planthopper has spread to neighboring areas. Populations have been found in NY around Staten Is., in Port Jervis, Sloatsburg and Ithaca. Red maple, tree-of-heaven, and black walnut are among the preferred hosts, but they'll feed on most deciduous (and some herbaceous) plants. Besides the annoyance, high numbers can kill or severely damage grapevines and weaken landscape plants through feeding activity. They also produce honeydew which attracts yellowjackets and other annoying insects and is followed by sooty mold on vehicles, decks and other areas beneath. Eggs are laid on almost any surface. They or active stages can impact free movement of goods and vehicles in commerce. There are controls, but most are not very selective or require spraying, which won't be an option in some cases. This insect looks like it will be bad news when it does arrive in the next few years.

Emerald ash borer, now widespread around Suffolk County, was first sighted near Detroit in 2002. Locally, a suspect sample came in spring, 2018 from East Hampton, followed by confirmation in several trees around Southold Town the following January. There have since been reports from the towns of Brookhaven, Riverhead, Smithtown, Southampton and Huntington. Primarily a pest of ash (native fringe tree is also a host), which is mainly a shade or amenity tree on Long Island, it is expected to take out all unprotected ash trees in the next few years. This will be impact municipalities and homeowners responsible for tree removal, who should be aware that declining ash can be hazardous to work on due to unexpected branch failure. All valued trees in the County should be under protection with trunk injections or other treatments applied at the proper time; by the time symptoms of infestation (dieback, bark flailed off by woodpeckers seeking larvae, epicormic shoots) are observed it may be too late to save the tree.

Southern pine beetle, though native to the Southeast US, has been surging northwards from following large outbreaks in 1999 – 2002. A large expansion in NJ in 2011 may have precipitated the fall 2014 detection in Suffolk; characteristic galleries on sloughed-off bark of dead pines nearby suggest infestations were established before. Large areas of pitch pines have been killed and many infested trees cut to slow progress of the population. Some eastern white pines

and Norway spruces have also been killed, including landscape specimens. A few areas with active infestations remain, notably on the South Fork, but in most other areas infestations have subsided. It remains to be seen if and how Southern pine beetle will continue to impact our native pitch pine forests.

Despite their small size some ambrosia beetles, mostly smaller than a rice grain, can kill trees. The granulate ambrosia beetle, an Asian species, is one and has been established in the Southeast for years. It made its way to Long Island about a decade ago, where it was discovered attacking mostly landscape specimens. European beech and styrax are favorites, but the host range is wide and it has been a serious pest of several deciduous trees in southern nurseries. The beetles bore galleries into woody stems which are inoculated as they go with spores of fungi (the 'ambrosia') on which their larvae feed. Trees wall off the attacks and in the process cut off the water supply, leading to wilting and sometimes death. Trees exposed to flooding seem most prone, but even others not apparently under stress have been invaded. Attacks are mediated, at least in part, by ethanol produced in tissues of stressed trees that is highly attractive to the beetles (ethanol is a lure used in traps for these beetles). In 2013 a related species established on Long Island for many years (and an occasional troublemaker), the black stem borer, was newly found attacking



Lanternfly egg masses on grape trunk, PA. Egg masses are also laid on posts, rusty metal, trees, stone, cement, and other objects. Photo: E. Smyers, Penn State.



Emerald ash borer signs in ask. The wavy gallery under bark and 'blonding' from outer barn flailed away to reveal pale bark beneath are distinctive indications of infestation. Photo: D. Gilrein



Southern pine beetle gallery on inner bark of pitch pine. The sinuous shapes are characteristic for this insect. Photo: D. Gilrein

(Continued on page 8)

(Continued from page 7)

apparently healthy apple trees in Upstate NY orchards. So far attacks by either species in Suffolk County, though not entirely predictable, remain relatively uncommon though valuable specimens are still being occasionally affected.

In October, 2017 signs of <u>allium leafminer</u> (fly) were first found on Long Island, in Jamesport chives and onions. In October 2019 the insects were found in leeks also in the Jamesport area. The insect appears to have quickly spread from Pennsylvania, where it was first detected in Lancaster County December 2015. The adults are active around early to mid-spring and then again in early fall, when crops with green leaf tissue (especially leeks) are susceptible (crops growing at other times are not susceptible. The mining and damage by larvae can make crops unmarketable. It is difficult to assess whether and when treatment is needed, but given the history of damage in other areas it remains on our radar as a pest worth watching.

A 2010 *New York Times* photo of a Maryland couple sweeping buckets of insects off their home porch is one of the iconic images of <u>brown marmorated stink bug</u>. There was ominous news of its

progress since the insects were first collected in Allentown, PA in 1998 including serious reports of heavy crop damage (fruit, vegetables, soybeans) and annoying structure and vehicle invasions. We have been seeing them for at least a decade in Suffolk County, bracing for the predicted disaster that has not (yet) materialized. The local population remains at a low level with occasional complaints about insects moving indoors but has not become an economically important species in the area for the most part.

Lily leaf beetle is a European species that was first found this side of the pond (Montreal) in 1945, then detected in Cambridge, MA in 1992. A pest of true lilies and a few relatives (but not daylilies), the first report I received in Suffolk was from a Bohemia garden in 2013, possibly introduced with lilies brought back from a Vermont garden. The beetles are now found around the County. The bright red adults are unmistakable and the larvae, which cover themselves with their droppings, are sometimes overlooked until defoliation is well underway. Plants are often killed by the damage. We have introduced some natural enemies of the beetle to the area but time will tell if the beneficial insects are established and can eventually regulate the population.



From left to Right: Graduated ambrosia beetle. 'Toothpicks' of extruded chewed wood from the gallery. Brown marmorated stink bug nymph; white bands on the antenna and around the legs are distinctive for this species. Lily leaf beetle on lily. Photos: D. Gilrein

Is (or was) Home Delivery the Right Option for your CSA? The CSA Drop-off or Delivery Comparison Tool

Elizabeth Higgins, CCE ENYCHP

In 2020 we saw a huge influx in the number of CSA farms (and other farms) offering home delivery in our region. Many farms added this service on the fly. As we move into 2021, I suspect that home delivery may become more of a routine expectation for many consumers and, for many farms, a way of reaching customers who didn't come to markets or can't (or won't) drive to a CSA drop-off location.

But home delivery has its own set of costs. There are much higher packing costs, as the produce needs to be individually packed for customers and needs to be packaged in a way that the quality is maintained until the customer receives it. A scenario where produce is left outside in the summer in a brown paper bag and gets rained on and then sits in the sun is a good recipe for an unhappy customer.

To help you figure out under what scenarios you can be profitable doing home delivery I created a spreadsheet – focused on packing and delivery costs, that can help you change key assumptions like number of customers, travel time and distance, costs of packaging, cost of labor, to see if home delivery could be as or more profitable than a traditional CSA timed drop-off.

With some tweaks the spreadsheet could also be used to compare sales from a retail outlet to delivery. If this is useful or you have suggestions for improvement, please let me know <u>emh56@cornell.edu</u>. The spreadsheet can be accessed at <u>http://bit.ly/CSADelivery</u>

Show Me the [COVID-19] Money—PPP is Back

Elizabeth Higgins, CCE ENYCHP

Yes, I am back again from my vacation from the Paycheck Protection Program (PPP). As you many have heard, there is a new round of PPP available as of January 11th. This round has two categories:

First Draw Loans – for people who either:

- did NOT apply for or receive a PPP loan in 2020 or
- got a PPP loan, but did not get loan forgiveness by December 27, 2020 AND
 - previously returned some or all of their first allotment of PPP funds or
 - under certain circumstances can request to modify their first loan amount if they did not accept (in their first loan) the full amount they were eligible for.

Second Draw Loans – for businesses that got a PPP loan in 2020 AND

- Used the first loan for eligible uses
- Do not have more than 300 employees
- Can demonstrate at least a 25% reduction in gross receipts between comparable quarters in 2019 and 2020.

As you can see, if you did not get a PPP loan in 2020, the income reduction test does not seem to apply (you are basically getting the same deal that folks who got their loan in 2020 got) BUT if you already got a PPP loan, getting a 2nd loan will depend on having had demonstrable losses in 2020. For folks who got large CFAP checks or otherwise did well, this might be a big barrier.

One significant change in this round that apply to everyone (first and second round loans). First, the eligible uses of the PPP loan has expanded. You still need to use 60% of the funds on payroll to get full loan forgiveness, but you can use the balance for mortgage interest, rent, utilities, worker protection costs related to COVID, uninsured property damage costs related to looting and vandalism in 2020 and certain supplier costs and expenses for operations. The items in italics are new. This could make PPP appealing to farms that

have significant expenses in keeping their employees safe from COVID and anticipate that they will have these costs in 2021 as well.

There have been recent changes to the CFAP program too! For example, if you received a crop insurance indemnity in 2019, you may be eligible for an increase in your CFAP 2 payment. You need to apply for modifications by February 26th !!! See <u>https://www.farmers.gov/</u> <u>cfap</u> for more information.

I am holding a webinar on PPP and other programs in collaboration with other CCE ag business educators on January 26th. This program is free and will be recorded.

PPP / EIDL Loan Advance / Expansion of CFAP TUESDAY, JANUARY 26, 2021 AT 6:30 PM EST - 8 PM EST

Join Liz Higgins (Eastern NY Hort Team Ag Business Specialist), Myron Thurston (CCE Madison AED & Marketing Specialist) and Nicole Tommell (Farm Business Specialist, CNYDLFC) for an update on the Paycheck Protection Program 2 as well as the EIDL advance grant for small businesses that opened on 1/17/2021. Additionally, the new extension and expansion of CFAP 1&2 payments will be discussed.

Please register by clicking http://bit.ly/3p7oveZ

Grapes 101: The Core Grape Genome and Cheap DNA Sequencing;

A New Roadmap for Grape Breeders

Tim Martinson and Bruce Reisch, Cornell's School of Integrative Plant Sciences

Those who are familiar with the Cornell grape breeding program realize that it has been very productive in releasing new varieties. Since Bruce Reisch released "Horizon" in 1982 (a sibling of Cayuga White), there have been several successes, including Traminette, Geneva Red (GR7), Corot noir, Noiret, Valvin Muscat, Aromella, and Arandell. It's fair to say that these were the 'needles in the haystack' that resulted from continuing cycling of new accessions (around 3,000 seedlings per year) through a 15-20 year process of evaluation.

But understanding the underlying genetic traits that produce disease-resistant, high quality table and wine grapes has lagged. Grapes are expensive to grow, and until recently, extracting the underlying genetic basis of desirable traits such as disease resistance and cold-hardiness was time-consuming and tedious. Corn breeders have been able to produce thousands of seedlings each year and evaluate them at the end of a single growing season. This (and a few other tricks like inbred breeding lines) allowed them to learn a lot about traits and

(Continued from page 9)



Figure 1. Breeders at Cornell and elsewhere have identified several powdery mildew genes that they

are incorporating in new varieties that will require

fewer fungicide sprays. DNA markers allow them

to know which vines have which resistance genes

by testing leaf tissue at the seedling stage. Photo

by Lance Cadle-Davidson

their inheritance starting in the early 1920s. Corn yields have quintupled (5x) since the 1930s as a result.

Grape breeders can only screen around 2,000 seedlings annually, and have to continually winnow them down to a handful of 'advanced selections' they retain for several years of evaluation. Low

evaluation. Low numbers, slow turnaround, and high cost to retain seedlings are three factors that handicapped grape geneticists and breeders in determining inheritance of traits and the genes responsible for them.

Cheap DNA Sequencing is a Game Changer

Inexpensive DNA sequencing and the "Polymerase Chain Reaction" or PCR reaction has changed the landscape. Since 2007, according to the National Health Institute, the cost of sequencing a human genome has dropped from \$10 Million to \$1,000. Its 10,000 times less expensive now than it was ten years ago. To sequence one million DNA base pairs now costs around 1.2 cents – down from \$500 in 2007.

This opened up the possibilities for grape breeders to map the grapevine genome and discover DNA markers that were related to traits such as disease resistance. By 2010, European researchers published the first complete genome of an inbred Pinot noir line called "PN40024" – a major accomplishment, and the result of a research investment of millions, and several years of effort.

It worked well with *Vitis vinifera* genetics – but less well when it came to North American *Vitis* species that are the source of many disease resistance and cold-hardiness traits in breeding programs. Simply put, markers from PN40024 were not informative for North American *Vitis* species used in many breeding programs.

One of the reasons for this is the fact that European Vitis vinifera diverged from North American Vitis around 20 million years ago. Twenty million years is a lot of time for the European species to diverge from the North American species. The ~20 North American species and the European Vitis are all recognizable as grapevines and nearly all make fertile hybrids with V. vinifera – but their genomes have structurally rearranged themselves in the meantime.

Core Genome and Transferable Markers

Avi Karn, along with USDA researchers Lance Cadle-Davidson and Jason Londo to sequence nine North American *Vitis* genomes and try to align the 'core genome' (i.e. the genes coding for what makes a grapevine a grapevine) that all of the species shared in common with the existing reference PN40024 genome.

The result is that there was about 10% commonality among all species. By using the 'core genome' sequences, the team was able to come up with DNA markers that spanned the 19 chromosomes (good coverage) and worked just as well with *Vitis riparia* and *Vitis cinerea* as they did with the *Vitis vinifera* PN40024 genome. See (Grape Breeders Search for Reliable DNA Markers: Why the Pinot noir PN40024 Reference Genome is Not Enough).

Current situation

Now, breeders have access to a suite of 2,000 DNA markers, more or less evenly spaced throughout the 19 grape chromosomes, that work



Figure 2. Powdery and downy mildew resistance DNA markers discovered since 2000. These markers, designated with a three-letter abbreviation and a number, are now available to grape breeders for marker-assisted selection.

across the diverse *Vitis* genus. This marker platform allows them to look at families of siblings called *mapping populations* and determine which combination of markers each vine has. Like human brothers and sisters, these siblings of two different parents harbor different combinations of traits from each parent. Researchers can then find out from these siblings where in the genome the genetic trait is located. And do so at a reasonable cost of about \$10 per vine.

Disease resistance markers and their use

Since 2000, several DNA markers for powdery mildew (10) and downy mildew (27) have been identified (see Figure 2). These markers – designated by a three letter code involving the scientific name of the pathogen and a number (for example Ren2 = Resistance to *Erysiphe necator* 2 for powdery mildew) – are easily identified with simple DNA tests. In practical terms, it allows the breeders to test each seedling they generate every year – and to learn which

This led Cornell genetics researchers Qi Sun, Cheng Zou and postdoc

(Continued from page 10)

resistance genes the seedling contains.

Instead of planting them out in the field and looking for natural powdery mildew infections, breeders can test tissue and discard those that don't contain the genes they want. This process, called *Marker Assisted Selection* is allowing breeding programs to stock the pipeline with vines that have known characteristics – and save time, space, and money. As these new selections build up within the breeder's plantings over years, the investment in testing they are making now will pay increasing dividends in the future.

Bruce Reisch's program already has several selections with known powdery mildew and downy mildew disease resistance in his program. For example, (Figure 3), a new selection called **4427075**, with two powdery mildew (Run1 and Ren2) and one downy mildew (Rpv1) marker, produced in 2014, is currently being evaluated by the program.

Incorporating disease resistance genes into new varieties will pay dividends for grape growers worldwide. Instead of needing to spray a variety like 'Chardonnay' 10 to 14 times, the disease-resistant varieties offer the prospect of reducing the number of spray applications down to two to three. The economic, environmental, and social benefits of a potential 80% reduction in fungicide sprays as these new varieties are planted will be substantial.

The *Vitis*Gen2 project, led by Reisch and USDA scientist Lance Cadle-Davidson, is a nationwide project funded by the USDA's Specialty Crops Research Initiative involving researchers in California, Minnesota, Missouri, North Dakota, South Dakota, and New York. Its aim is to discover DNA markers, and particularly those associated with powdery mildew resistance and fruit quality, that breeders can use for *marker-assisted selection* of new varieties. To date, the project and its predecessor (*Vitisgen1*) have discovered over 70 DNA markers for desirable traits. These DNA markers provide grape

breeders with a roadmap for producing a new generation of more sustainable and resilient grapes of the future.

Tim Martinson is senior extension associate and Bruce Reisch is professor of grape breeding and genetics in the horticulture section of Cornell's School of Integrative Plant Sciences. Both are based at Cornell AgriTech in Geneva, NY.



Figure 3. This numbered selection called 4427075 is a new wine selection in the Cornell-Geneva grape breeding program. It has two genes for powdery mildew resistance (Run1 and Ren2), and one for downy mildew resistance (Rpv1). The cross was made in 2014, and though we have no wine results yet, the flavors of the fresh fruit reflect a lack of wild grape offflavors, and presence of pleasing fruity flavors. Fruit ripens mid-season.

What's Up with Hemp?

Maire Ullrich, CCE ENYCHP

The Fall of '20 brought a lot of questions and confusion in terms of hemp permitting. At first, NYS was going to relinquish permitting to USDA as the rules for the 2018 Farm Bill implementation were released. Many of the regulations, particularly the numbers of samples per producer/field being required by USDA to satisfy the regulation were more than could be feasible for NYSDAM, given the number of farmers. There were other concerns that NYSDAM had with meeting the requirements of the rule, should they be the permitting agency for NYS. Because of these concerns, NYSDAM would have been by-passed and producers would be permitted and inspected by USDA, directly.

Then, at what felt like the 11th hour in October 2020, Congress acted and allowed states to continue to operate under the 2014 Farm Bill for another year to end on October 1, 2021. New York agreed that it would maintain permitting for 2021 under this extension and producers who have a current permit will have contracts lengthened for the '21 season. New producers should get permitted under NYSDAM if you want to grow in '21. Everything thus far has been about grain, fiber and CBD production. Grain and fiber processing is also permitted/overseen by NYSDAM.

The CBD processing story has been similarly rocky over the past couple of years. As NYS has considered recreational/adult use marijuana, the oversight plans for CBD have changed. At first, NYSDAM was the agency who accepted and approved CBD processing permits, with input from NYS Department of Health. About 2 years ago, the discussion of an "Office of Cannabis Management" that would encompass medical marijuana, CBD, and recreational/adult use marijuana began. But, the stars have not yet aligned for that agency to be developed. In the meantime, legislation has placed the management for CBD processing and retailing with the Department of Health. And, this Fall, they released the draft rules for processing and retail sales. There are still some fine-points to be clarified, most notably the controls on the sale of whole-flower, but they are nearing a set of final regulations. Yes, it has been confusing and a bit of a nail-biter with hemp production and processing.

If you have questions or want permitting for growing hemp and/or processing grain or fiber you should visit here: <u>https://agriculture.ny.gov/industrial-hemp</u>. I am also happy to take calls to help potential producers/processors work through the system to help them be property permitted for what they want to do. 845-344-1234 x256.

What's a Mesotunnel, and What's it Good For?

Mark Gleason, Department of Plant Pathology and Microbiology, Iowa State University

Sarah Pethybridge's EVADE lab at Cornell AgriTech (Geneva) is a collaborator involved in the Organic Research and Extension Initiative project looking at practical applications of mesotunnels detailed in the following article. Both Elisabeth and Crystal are also involved in this project. Elisabeth trialed mesotunnels with Adam Hainer at Juniper Hill Farm, and Crystal trialed them at Phila Farm with acorn squash.

Our focus in New York is to understand how this season long row cover will work in the North Eastern region of the United States. Our aim is to address questions regarding the feasibility, efficacy against major pest, and assess marketability of the fruit in the system for the organic growers in this state.

If you're a vegetable grower, you're probably familiar with high tunnels and low tunnels. But what are *mesotunnels*?

All three of these tunnel types are used to create some sort of protective barrier between crops and the environment. "Meso" means "middle," so mesotunnels are medium-size tunnels – taller than low tunnels and shorter than high tunnels. But mesotunnels fit into a niche that's different from either of the other types.

If tunnel types were cousins, mesotunnels would be first cousins to low tunnels and maybe third cousins to high tunnels. Mesotunnels and low tunnels are similar in that they are set up and taken down in the same growing season. High tunnels are long-term structures that stay in the same place year after year – or if they move, they do not move much.

Despite being first cousins, low tunnels differ from mesotunnels in form and function when it comes to cucurbit crops. There are many variations, but typical low tunnels are about 18 inches high. They are covered with a spunbonded polypropylene fabric (for example, Reemay or Agribon) that is supported on wire hoops. They have many uses. But for cucurbit crops in the field, the most common function is to protect the crop early in the season – from cold, high wind, hail, and insect pests. Warming inside the low tunnel can speed up plant growth. With low-tunnel protection, it's possible to plant earlier in the spring and get earlier yield.

Mesotunnels are different. For one thing, they are a lot taller than low tunnels – about 36-42 inches. The covering is also different: a breathable nylon-mesh fabric (brand names include ProtekNet, ExcludeNet and others) that resembles window screen. Mesotunnels have a different set of advantages compared to low tunnels. Their larger scale and more breathable covering (which prevents overheating even in midsummer) mean that mesotunnels can potentially be used throughout the growing season. This type of protection is different from low tunnels, which have to be removed when flowering starts in order to avoid overheating and overcrowding the plants.

Full-season crop protection by mesotunnels could be a key advantage in organic cucurbit production, especially where pest insects and the pathogens they carry can cause disease creating problems all season. Organic insecticides are not very effective for the control of major cucurbit pests like cucumber beetles, squash



Mesotunnels at ISU's Horticulture Research Station. Photo: Jose Gonzelez

bugs, and squash vine borers. To make matters worse, cucumber beetles carry the bacterial wilt pathogen, *Erwinia tracheiphila*, and squash bugs carry the cucurbit yellow vine disease (CYVD) pathogen, *Serratia marcescens*. Strong pest pressure and poor efficacy insecticides are reasons why many organic growers already use some form of tunnels.

Since mesotunnels don't hold much heat, they probably won't help much with encouraging early yields. But like low tunnels, mesotunnels can protect against damage from hail and high winds. Mesotunnels have additional flexibility in that you can spray pesticides through the nylon-mesh fabric of mesotunnels, but not through the spunbonded polypropylene of low tunnels.

Small-plot field trials with mesotunnels in Iowa showed that they increased marketable yield in organic muskmelon and acorn squash compared to low tunnels – sometimes dramatically. But how will this play out at a commercial scale? We are doing more trials to answer that question in Iowa, Kentucky, and New York.

There are at least three important practical questions inside that last question. These need to be solved to make mesotunnels a viable alternative for cucurbit growers. First, how will pollination be done? Second, how will weeds be controlled? Third, under what scenarios

would mesotunnels make sense economically?

The next couple of blogs in our series will drill deeper into these questions and explain how we hope to answer them over the next few years.

This research is funded through the USDA-NIFA Organic Research and Extension Initiative led by Iowa State University. Sarah Pethybridge and Kellie Damann (Cornell AgriTech, Geneva) are the New York collaborators on this project. More details on the New York research can be found by contacting Sarah (<u>sip277@cornell.edu</u>); (315)744-5359 [cell] or Kellie (kcd48@cornell.edu); (585)233-6779 [cell].

Interested in learning more? Please visit our project's website and follow us on Twitter to stay up to date on all the latest mesotunnel news. The Current Cucurbit Project: <u>https://</u>www.cucurbit.plantpath.iastate.edu/

2020 Sweet Potato Variety Trial Report

Chuck Bornt, Ethan Grundberg, & Natasha Field, CCE ENYCHP

Following up with our successful trial work from 2019, the CCE ENYCHP embarked on several more sweet potato trials including a second year of variety trialing on both mineral and muck soils. I thought we would try to sum the variety trial results up in this article and set the stage for the Sweet Potato webinar that is planned for February 17, 2021. located in Bailey, North Carolina and planted into raised beds with black plastic mulch (6.5 foot centers) and drip tape on June 3, 2020. Plants were planted in both single rows down the middle of the bed at 12" or double staggered rows 18" apart with 12" spacing between plants in the row. Weed management included a pre-plant directed application of Tuscany (flumioxazin) plus Command (clomazone) and

Variety Trial: Samascott Orchards (mineral soils)

As with our 2019 variety trials, the 2020 trials were hosted by Samascott Orchards located in Kinderhook, NY (Columbia County). Samascott's produce about 6 acres of conventional sweet potatoes on mineral soils that are marketed through retail outlets including their farm store and multiple NYC Green Markets. They predominantly grow Covington, Bellevue and Murasaki for those markets and are always on the lookout for a new variety. In 2020 we evaluated 8 commercially available varieties and 1 experimental. All slips were purchased from Jones Family Farms

All slips were purchased from Jones Family Farms. Planted on 6.5 foot centers on black plastic. One row was planted just off center of the bed, 12 inch in-row spacing. Two rows were planted 18 inches apart staggered, 12 inch in-row spacing. Planted 6/3/20 Harvested 9/25/20 Table 1. Variety Information and Overall Yield Per Acre in Columbia County (Highest to Lowest Marketable Yield)

(ingliest to cowest marketable field)					
			-	Marketable	Avg Weight
			Total Yield	Yield	Marketable
Variety	Skin/Flesh Colors	# of Rows	(Pounds/acre)	(Pounds/acre	Root (oz)
Bayou Belle	Dark red/dark orange	1	49,279	49,232	12.3
Burgundy	Dark red/dark orange	1	47,952	47,932	11.7
Beauregard	Red/orange	1	43,309	43,289	13.3
Beauregard	Red/orange	2	42,813	42,800	19.8
Bellevue	Orange/orange	1	41,453	41,312	11.4
Bellevue	Orange/orange	2	39,523	39,409	12.9
Bayou Belle	Dark red/dark orange	2	39,175	39,135	15.8
Burgundy	Dark red/dark orange	2	35,892	35,858	14.0
Orleans	Red/light orange	1	34,525	34,505	16.6
Averre	Red/orange	1	33,473	33,433	11.4
Orleans	Red/light orange	2	32,743	32,676	20.0
Covington	Red/orange	1	31,108	31,021	8.2
Averre	Red/orange	2	30,827	29,641	17,7
Covington	Red/orange	2	27,577	26,150	10.9
Murasaki	Purple/white	2	24,971	24,971	13.1
Murasaki	Purple/white	1	23,035	22,988	11.4
NC531	Red/orange	2	21,855	21,728	12.5
NC531	Red/orange	1	19973	19919	7.6
NC531	Red/orange	1	19973	19919	7.6

(Continued on page 14)

(Continued from page 13)

one hand weeding. At bedding through the bed shaper, 300 pounds per acre of a granular fertilizer with the analysis 9.7-20.8-21 was applied to the beds. Beds were irrigated as needed via a single row of drip tape under the plastic.

Roots were lifted on September 25, 2020 and harvested into crates and placed in the curing barn with the rest of the Samascott's roots. They were then graded by size and quality in early October. Size categories were 'Jumbo' = 32 ounces or greater; 'Large' = 14-32 ounces; 'Small' = 4-14 ounces and 'Fingerling' = 1-4 ounces. Unmarketable roots which were usually due to shape or size were also calculated. Table 1 below has the total and marketable yield for each of the varieties in the trial.

Single row treatments of Bayou Belle produced the highest marketable yields per acre (49,232 lbs) followed by single row Burgundy (47,932 lbs), single row Beauregard (43,309), double row Beauregard (42,800 lbs), single row Bellevue (41,312 lbs) and double row Bellevue (39,409 lbs). NC 531 was the lowest yielding variety, averaging approximately 20,000 lbs per acre for the two planting configurations. Double rows of Burgundy resulted in the highest number of marketable roots with over 65,000 roots per acre. Next, double rows of Bayou Belle, Covington and Bellevue all produced nearly 60,000 marketable roots per acre.

When it comes to marketable sweet potato roots in my opinion, you want a root ideally somewhere in the ³/₄ to 1.0 pound range. Bigger than a pound and they become almost too big for one serving. When reviewing this data for average size of roots, two-row Bayou Belle again leads this category with an average overall size of 0.8 lbs, with 26,000 pounds and 21,000 roots per acre. Beauregard and Orleans all have an average root size of over 1 pound and that is because these varieties in particular tended to produce very large roots, many of which weighed over 3 pounds. For many of our markets that is not the most desirable unless you have a market for processing type sweet potatoes where they are making sweet potato

fries or using them for casseroles etc. They make for great displays and draw people in to look, but are almost too big for many customers to handle.

Variety Trial 2: Morgiewicz Produce (muck soils)

Our second trial was completed on muck or high organic soils at Morgiewicz Produce in Goshen, NY (Orange County). Morgiewicz's have tried producing sweet potatoes in the past and after seeing the results of last year's variety trial on their own farm, were more encouraged to try up to nearly an acre of Covington, all of which are direct marketed to consumers at NYC Green Markets. Producing sweet potatoes on organic soils, you think would be a dream with deep, loose, naturally nutrient rich media but has proven to be somewhat difficult. There are a number of reason for this, but mostly it is due to the natural fertility, especially nitrogen, that is released by these soils. Sweet potatoes on average require about 60 pounds of nitrogen per acre to produce a marketable crop. Rates higher than that can cause roots to split and increase the number of miss-shaped roots. Not to mention higher nitrogen can cause more vegetative vine growth requiring more labor to remove and also can result in delayed root development. For those reasons, it has been slightly more difficult to grow sweet potatoes, but not impossible! Newer varieties seem to be able to handle the higher nitrogen levels while still producing quality roots.

In 2020 we evaluated the same 8 commercially available varieties planted at Samascotts and 1 experimental. The slips used for this trial were the same slips used for the above trial planted a day later (June 4, 2020). These slips were planted into flat beds of black plastic mulch on 6.5 foot centers with drip tape. Only the double staggered row planting configuration, 18" apart with 12" spacing between plants in the row was used for this trial. Gramoxone and Dual were applied to row middles as a post plant shield spray application for weed control. No additional fertility was added and irrigation was performed by our host grower. Roots were dug by hand on September 24, 2020 into plastic totes and placed in the

storage area for curing. Roots
were graded individually in late
October for size ('Jumbo' = 32
ounces or greater; 'Large' = 14-32
ounces; 'Small' = 4-14 ounces and
'Fingerling' = 1-4 ounces) and
marketability. Unmarketable roots
which were usually due to shape or
size were also calculated. Table 2
below has the total and
marketable yield for each of the
varieties in the trial More

All slips were purchased from Jones Family Farms. Planted 6/4/20. Planted on 6.5 foot centers on black plastic. Slips were planted in 2 rows per bed, approximately 18 inches apart, 12 inch spacing in-row. Harvested 9/24/20

(Continued on page 15)

Table 2. Variety Information and Overall Yield Per Acrein Orange County (Highest to Lowest Marketable Yield)

			Total Marketable	Avg Weight
		Total Yield	Yield	Marketable
Variety	Skin/Flesh Color	(Pounds/acre)	(Pounds/acre)	Root (oz)
Averre	Red/orange	49,272	47,532	8.9
Covington	Red/orange	46,587	45,051	8.1
Beauregard	Red/orange	41,779	41,441	9.0
Burgundy	Dark red/dark orange	40,640	39,520	10.4
Bellevue	Orange/orange	39,114	38,408	7.6
Bayou Belle	Dark red/dark orange	38,291	37,519	9.5
Orleans	Red/light orange	31,631	31,062	6.9
NC-531	Red/orange	20,108	19,597	7.4
Murasaki	Purple/white	18,111	17,562	5.1

inclusive tables including total marketable weight, number of marketable roots, and distribution of roots by size and number and percentages of roots by size and number can be found on our website by clicking this link: <u>https://enych.cce.cornell.edu/submission.php?</u> id=748&crumb=crops|crops|potatoes|crop*24

For the Morgiewicz trial, it is important to remember that all the varieties were only planted in the double staggered row configuration (no single rows) with Averre producing the highest marketable yield with 47,532 pounds of marketable roots per acre and an average root size of 8.9 ounces. Covington came in a close second at 45,051 pounds per acre with an 8.1 ounce average root size. Beauregard rounded the top 3 producers at 41,441 pounds per acre with an average root size of 9.0. When it came to the number of marketable roots, Covington was on top with 89, 500 roots produced per acre

followed by Averre (85,760) and Bellevue(80,735). Burgundy and Orleans produced the largest roots with an average of 10 ounces per root. Averre also had the highest yield by weight of 'Large' roots and tied for the highest number of roots in this category with Burgundy.

Overall Comments and Discussion:

Yields and size is important, but for there are other factors that we like to consider that you cannot necessarily put a value on. These include characteristics such as overall shape, color, harvestability etc. Although Bayou Belle was the top in yields and root numbers in the mineral soil trial, in my opinion, some of the roots are long and slender and sometimes very crooked, but not enough to make it unmarketable. That said the a high percentage of roots are very attractive with a slightly reddish purple skin and beautiful dark orange flesh that eats very well.

However, I would not discount Bellevue as one to try, especially for mechanical harvesting. This variety is unique looking with a much brighter lite orange colored skin that does not tend to skin or scuff up as bad compared to the darker red/marron skinned varieties. This variety is also known for its ability to store for long periods and gets better tasting the longer it stores. It also yields well and although it does tend to produce some jumbo roots, it produces many nice sized and traditionally shaped bulbous roots.

Murasaki is also different as this variety is reddish purple skinned, but white fleshed. In my opinion, it also offers some of the best eating quality in a sweet potato that I have had. However, it is somewhat difficult to grow as it produces a huge vine, with lots of small, long cylindrical roots that are somewhat late maturing compared to these other varieties. You would also need a specialized market as certain ethnic populations favor these white fleshed, drier textured varieties. Covington continues to provide us with good yields and probably some of the nicest quality roots with its uniformity in size and shape and excellent eating quality whether grown in muck or mineral soils. Burgundy is another variety that is well suited for our mineral soils and environment and in years when



other varieties are short, would be one to consider.

Although Averre did very well in the muck site, we have had difficulties on mineral soils getting the slips to establish and usually end up with 30-40% stand loses. However with muck soils, this does not seem to be as much of an issue and Averre in my opinion produces a very attractive shaped root (typical bulbous sweet potato shape) and ranks in my top 5 for eating quality and may just be well suited to muck production. We were again disappointed in NC 531 as a variety I think it has some interesting qualities. First, it is reported to have wireworm resistance, which can be a problematic pest of sweet potatoes. Second, it tends to have a very upright growth habit and tends not to vine out like most typical varieties, making it in my opinion a bit easier to harvest. I also like the shape of these roots, but with the lower yields and potential for "veiny" roots (Coolong et. al, 2018); I do not think will make it a good choice for production here in NY at this time.

Please visit our website where you will find detailed information for both trials including pictures and additional tables: <u>https://</u> <u>enych.cce.cornell.edu/submission.php?</u> <u>id=748&crumb=crops|crops|potatoes|crop*24</u>

If you would like to receive a hardcopy of the result, please contact Chuck Bornt at <u>cdb13@cornell.edu</u> or call 518-859-6213.

Coolong, T, Boyhan, G, McGregor, C, Rine, C, Edenfield, J, Shirley, A, Tyson, C, and Earls, C. *Sweetpotato Variety Evaluation in Georgia*, University of Georgia Dept. of Horticulture. <u>https://site.extension.uga.edu/tattnall/files/2018/03/sweet-potato-trial.pdf</u>

Upcoming Events

2021 ENY Fruit & vegetable Conference

The CCE Eastern NY Commercial Horticulture Team is happy to invite vegetable and berry growers to our virtual series of production and business management webinars held this February!

Conference Agenda:

Feb 1, 12-2pm: Developing an Onboarding Plan for Seasonal Workers
Feb 5, 12-2:30pm: Show Me the Money (Funding Opportunities)
Feb 9, 10-11am: Food Safety Best Practices for Pick-Your-Own Fruit Farms
Feb 11, 9-10:30am: Virtual Farm Stand Tour
Feb 16, 10am-12pm: Listeria in the Apple Packing Environment
Feb 17, 9:45-11:45am: Sweet Potato Webinar
Feb 19, 12:45-2:15pm: Vegetable Transplant Troubleshooter
Feb 23, 7:45-9:30am: Strawberry Pest Management Workshop
Feb 24, 7:45-9:30am: Raspberry/Blackberry Production Workshop
Feb 25, 7:45-9:30am: Managing Blueberry Pests
Feb 26, 12:30-2:30pm: Sweet Corn Webinar

Register Here: https://cce-enychp.teachable.com/

2021 NYS Tree Fruit Conference

February 2-4, 2021

The Cornell Cooperative Extension Eastern New York Commercial Horticulture Program and the Lake Ontario Fruit Program will be cooperatively hosting the 2021 Cornell NYS Tree Fruit Conference online from Feb 2-4. Due to COVID-19 limitations on live meetings, this program replaces CCE-LOF's Winter Fruit Schools and CCE-ENYCHP's Fruit & Vegetable Conference (tree fruit section).

Full details are available now at the NYS Tree Fruit Conference website at: <u>http://blogs.cornell.edu/nystreefruitconference/</u>

There you'll find all the information, including full session descriptions, registration, sponsorship, and what you need to know to receive DEC credits.

(eh528@cornell.edu / 518-650-5323) for more details.

Venison Donation Coalition, Inc. (www.venisondonation.com)

How Venison is Donated

Hunters and farmers are able to donate an entire deer or a portion of their deer to the Venison Donation Coalition. Click on Find a Processor to locate one near you. CALL AHEAD to make sure the processor is open and accepting deer. Once you have your deer properly field dressed and legally tagged, you can bring it to one of our processors near your home or where you hunt. Whole deer donations are greatly appreciated but not required. There is NO COST TO THE HUNTER/FARMER for the processing fees of donated venison.

How Venison is Distributed

The Venison Donation Coalition, Inc. distributes venison through the eight regional food banks serving the different counties throughout New York State. Without the Food Banks, the Venison Donation Program would have a difficult time getting the venison to those in need. The food banks pick up the venison from the participating processors and distribute it through its member agencies (soup kitchens, food pantries, churches, senior living, etc.) to those in need.





Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

The Label is the Law. Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any product is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension.

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.