The Produce Pages

Serving the fruit and vegetable growers of Eastern New York

March 2017

Tips for the BEST Transplants

TERESA RUSINEK, ENYCHP

Attention to detail during transplant production will reward you with quality transplants and optimal results in the field.

Seeds

Pathogens -There are numerous diseases that can impact your crop, and a good number of these can be seed borne. A first line of defense is to ensure you are planting clean seed. Buy disease indexed seeds when available. To reduce bacterial seed borne diseases in crops such as tomatoes, peppers, and brassicas, seeds can be hot water treated. Chlorine treatment can also be useful on some seeds as a surface treatment but will not kill pathogens inside the seed.

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Cornell University
Cooperative Extension
Eastern New York Commercial Horticulture

The Produce Pages

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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 http://enych.cce.cornell.edu/.

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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

Go to this factsheet for more details: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/HotWaterSeedTreatment.html
Storage – The optimal temperature for seed storage is 34-40 °F with a relative humidity of less than 40%. A refrigerator can be a good storage place. Viability of seed will decrease over time; and after 1 year germination may not be as uniform. Pelleted seed may be primed for quick, uniform germination, but shortens storage life.

Leftover seeds- Do a germination test if using seed from last year. You can do this yourself by placing a specific number of seeds on a moistened paper towel, folding the towel over the seeds and placing it in a plastic bag in a warm place. Inspect seeds twice a day and spray with water as needed to maintain moisture. Count how many seeds have germinated after the usual days to germination for that variety.

There are commercial labs offering germination and other seed tests. See right column for info. on NYS Seed testing lab.

NEW YORK STATE OF OPPORTUNITY. Agriculture & Markets

SEED TESTING

Remember! The NYS Seed Testing lab moved to Albany. It's not in Geneva anymore.

New York State Seed Testing Laboratory
6 Harriman Campus Road
Albany, NY 12206

https://www.agriculture.ny.gov/PI/nysseedlab/NYSSTL_Fee_Schedule.pdf

Greenhouse Clean Up

The greenhouse can be another point source of disease in transplant production. Bacterial spot, bacterial speck, bacterial canker, gummy stem blight, and tomato spotted wilt virus, are just a few that can start in the greenhouse and be carried to the field. Bacteria, fungal spores and viruses from previous crops can persist on bench surfaces, pots, trays, and equipment. Plant residues from previous crops and weeds in the greenhouse can also carry over disease. Overwintering insects such as thrips can spread virus to transplants. Pull weeds and remove from greenhouse, weeds harbor disease and insects. Sweep and vacuum debris from greenhouse surfaces and containers before sanitizing. Organic matter will decrease the sanitizing power of products such as sodium hypochlorite (bleach).
Sanitize benches, floors, and tools. If you reuse any plant containers (not recommended) they should be disinfected. Repeated use of chlorine solutions may be harmful to plastics or metals.
There are several different types of disinfectants that are currently used in the greenhouse for plant pathogen and algae control. They are quaternary ammonium compounds (Green-Shield®, Physan 20®, and KleenGrow™), hydrogen dioxide (ZeroTol® 2.0, Oxidate® 2.0), hydrogen peroxide & peroxyacetic acid (Sanidate®), hydrogen peroxide, peroxyacetic acid and octanoic acid (X™-3),sodium carbonate peroxyhydrate (GreenClean Pro Granular Algicide) and chlorine bleach. Bleach contains sodium and chloride. Excess chlorine can be toxic to some plants. Objects to be sanitized with chlorine require 30 minutes of soaking and then should be rinsed with water.
For more detailed information on greenhouse clean up and disinfectants see: http://ag.umass.edu/greenhouse-floriculture/fact-sheets/cleaning-disinfecting-greenhouse

Media

Start with clean fresh media free of of insects, pathogens, nematodes and weed seeds. Old media, 8 months or older, can be difficult to wet. Keep growing media in a clean area and covered. Select media that is appropriate for germination. It should have finer shredded peat particles, as well as smaller grade vermiculite and perlite. Media should drain well

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and provide good aeration but still have moderate water-holding capacity, and an appropriate nutrient starter charge for seedlings. The electro-conductivity (EC) reading measuring nutrient salts should be between 0.26 to 0.75 mS/cm using the 1:2 extraction method.

Fertilizer

Nutrient starter charge in media (if there is any) can be depleted anywhere between 2- 6 weeks after seeding. Monitor soil EC and initiate a fertility program before plants show signs of deficiency.

As a guideline, a dilute fertilizer program ~25 ppm N is normally started at the opening of the cotyledons and the rate of application is gradually increased as the seedlings grow larger and approach transplanting. For seedlings with 2 true leaves, provide constant fertilization at 50 ppm Nitrogen or 100 ppm Nitrogen 2-3 times per week. Adjust your fertility program to the nutrient starter charge in media and crop demands. Tomato, pepper and cole crops tend to be heavier feeders, cucurbits crops and basil are lighter feeders.

Cool, wet conditions typical in early spring can lead to ammonium toxicity, use fertilizers with low or no ammonium nitrogen. Media should not be waterlogged. Media with compost tends to be heavier and hold more water.

Avoid high phosphorus fertilizers during transplant production. Phosphorus promotes stretch as do ammonium forms of nitrogen.

Do not over fertilize, check your proportioner and calibrate! http://www.greenhouse.cornell.edu/crops/factsheets/FertilizerInjector.pdf

http://www.greenhouse.cornell.edu/crops/factsheets/AmmoniumToxicity.pdf

Water Quality

Test irrigation water, highly alkaline water source (greater than 200 ppm CaCO3) will raise media pH and result in iron deficiencies, especially in peppers. If you have highly alkaline water you should consider treating water with sulfuric acid or citric acid for organic production. If your alkalinity is moderate (between 120- 200 ppm CaCO3) using an acidifying fertilizer. Fertilizers with a higher proportion of ammonium and Urea Nitrogen cause an acidifying reaction while fertilizers with high nitrate forms of nitrogen cause a basic reaction. Purchase a pH and Electro Conductivity (EC) Meter to monitor media.

http://www.greenhouse.cornell.edu/crops/factsheets/pHGreenhouseCrops.pdf

The root tips of these pepper plants are damaged due to fertilizer salts accumulating in media at bottom of container. Leaching salts through the media and out the bottom of the container during irrigations will help avoid this problem.

T. Rusinek

T. Rusinek

Checking the EC of the water coming out of the hose after the proportioner is a simple way to determine if you are mixing fertilizer correctly and that your proportioner is functioning as it should. Check the fertilizer bag or container for a table of EC readings for target ppm of N at various proportioner settings. The meter in the photo on the right can be used to monitor pH and EC of water and media. *T. Rusinek*

Temperature

Reducing the day-night temperature difference, or reversing it, can greatly reduce stem elongation. In most heating programs, a greenhouse will be much warmer in the daytime than nighttime. The greater this difference, the more potential for stretch. http://agdev.anr.udel.edu/weeklycropupdate/?p=2671

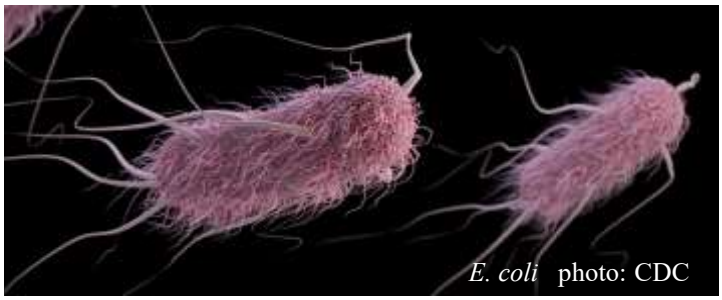
Light

Most vegetable seeds germinate in light or dark conditions (lettuce needs light), to avoid stretching of seedlings and "leggy" transplants provide higher intensity light right after germination. After germination, stretching can occur if seeds are left in dark or low intensity light. Be careful if moving seedlings from germination chambers to high intensity light situations you may need to provide some shading for a few days while seedlings adjust. http://content.ces.ncsu.edu/starting-plants-from-seeds.pdf

Other resources on transplant production

The UGA extension publication "Commercial Production of Vegetable Transplants **(B 1144)"** contains lots of useful information especially for those who are relatively new to transplant production. **You can download the PDF of this publication at** http://extension.uga.edu/publications/detail.cfm?number=B1144#

Below is a link to a power point by Dr. Ajay Nair, from Iowa State, it's almost 20 MB, so it will take a bit to download, but it has useful information and visuals.
http://www.ifvga.org/documents/filelibrary/ifvga_2013_powerpoint_presentations/Ajay_Nair__Transplant_production_IF_8B3476E62446C.pdf



Careful Timing Needed for Manure Applications

AMY IVY, ENYCHP

If you're planning on adding manure this spring, check your calendar carefully. The recommendations for fresh manure are a minimum of 120 days before harvesting a crop that comes in contact with the soil and 90 days before harvesting a crop that has no contact with the soil. The site also explains the process to follow for producing composted manure. It takes more than just letting a pile of manure sit undisturbed over the winter. For more information visit this link to the GAPs new decision tree on soil amendments: http://www.gaps.cornell.edu/dt-soil.html

Early Season Garlic Fertility

CRYSTAL STEWART, ENYCHP

The unseasonably warm weather we are having at the end of this winter is slowly increasing soil temperatures, and may mean that garlic will start to grow earlier than usual. The most important time to make nitrogen available to a garlic plant in order to increase yield is shortly after leaf emergence from the ground. Success in providing optimal nitrogen will depend on the nitrogen source you are using and some well-timed assistance from soil biology.

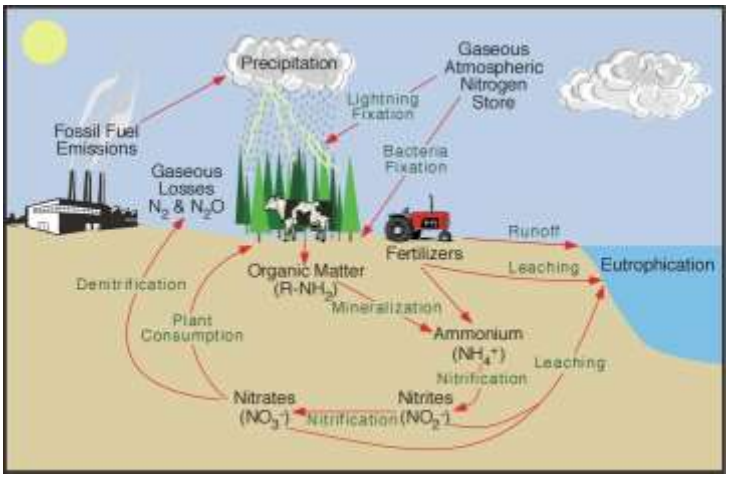


Figure 2: Nitrogen cycling, including organic and inorganic forms.

Many organic growers as well as some conventional growers mulching with straw are opting to put down all of their fertility in the fall, leaving the garlic's cover undisturbed in the spring. This is a fine approach as long as the behavior of your nitrogen source is taken into account. First, if making a fall application of N, make sure that the source is not a nitrate form (for example, ammonium nitrate is 51% nitrate nitrogen, while ammonium sulfate is 0% nitrate nitrogen). Waiting until soil temperatures are below 50 degrees to apply fall fertility will prevent most fall nitrification of both ammonium sulfate and organic nitrogen sources such as pelletized chicken manure. You want to keep your N in the ammonium form because it will not leach. Once it is converted to nitrate, nitrogen moves readily in water.

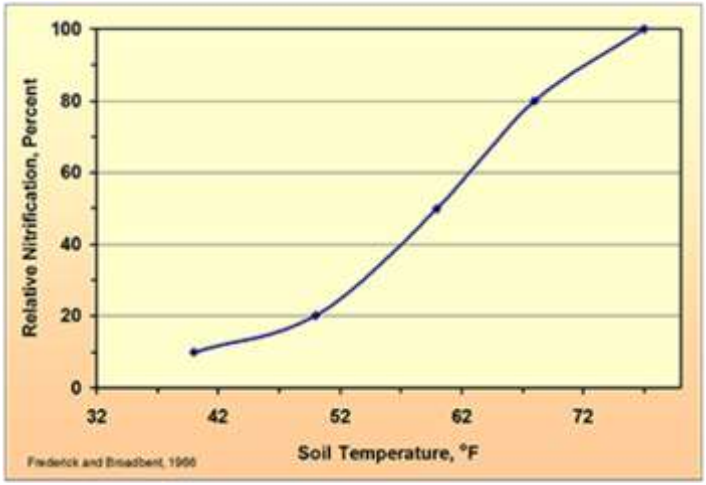


Figure 1: relationship of nitrification to soil temperature. As temperatures climb, nitrifying bacteria more quickly convert ammonia forms of N to nitrate forms, which are more plant available but also more prone to leaching.

Second, remember that the nitrogen cycle is driven by biology, and biology is driven by temperature (and soil health!). Organic matter is decomposed partially into ammonium by a suite of microbes before nitrification (see Figure 1 for a handy visual). You want to make sure that your fall applied N source contains enough ammonium/urea nitrogen to provide adequate nutrition in the spring, because garlic starts growing and using N earlier than any other vegetable. As the soil warms, N that is bound in organic matter (slow release N) will be made available, and ammonium nitrogen will turn to nitrate nitrogen (Figure 2), which is easily taken up by plants.

Bare ground garlic growers can apply their nitrogen in the spring using a variety of sources including nitrate-nitrogen forms. Side-dressing as soon as the ground is dry enough to work with either all or half of the needed nitrogen is best. If using half, come back 2-3 weeks later to apply the rest. The recommendation created by Cornell recommends numerous applications, but research has not supported the need to divide the application into more than two (Figure 3).
Nitrogen applied later in the growing cycle of garlic (after approximately May 1st) has very little if any effect on the final bulb size. The good news is we can spend less time fertilizing and more time on weed control!

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Figure 3

Garlic	Nitrogen (N) Lbs/ A	Phosphorus (P2O5) Lbs/A					Potassium (K2O) Lbs/A				
Soil Test Results		**Very low <3lbs/A**	**Low 3-6**	**Medium 7-13**	**High 14-40**	**Very High >40**	**Very low <50**	**Low 51-100**	**Medium 101-200**	**High 201-300**	**Very High >300**
Incorporate at planting	0	200	150	100	50	0	200	150	100	50	0
Sidedress before emergence	25-50	0	0	0	0	0	0	0	0	0	0
Sidedress 2-3 times, 3-4 weeks apart	25-50 divided among sidedressings	0	0	0	0	0	0	0	0	0	0
TOTAL	50-100	150	100	75	50	0	150	100	75	50	0

Source: Cornell Recommendations for garlic, used by Agro-One Soil Lab. Based on use of a Morgan extract.

Is Your Farm's On-Line Presence Hurting Your Business?

ELIZABETH HIGGINS, ENYCHP

I have been spending a lot of time looking at farm websites, Facebook pages and other social media and on-line advertising and it is very clear to me that a lot of farms in our region are far overdue for a tune up on their on-line presence. Are you one of them? Here are five things that you should fix right now.

1. Out of date content on websites. Are you still advertising shares for your 2016 summer CSA? Now is the time when people are shopping for 2017 shares. Get old content off your site. When you have dated information, some customers will think that you might not be in business this year or will select a farm who has current sales information available. Yes, they could call you, but many won't. Best practice for websites – limit the amount of time dated information that is on your site and make that what is there is up to date and current.

2. Calendar of events with no events. This is related to #1. If you aren't going to keep a calendar updated, or you don't actually have many events, don't put a calendar of events on your website. Just don't.

3. Orphan listings – I see a lot of farms that have joined on-line marketing channels, like Local Harvest, USDA's CSA list or Market Maker but have never gone back and updated their information. I have a lot more confidence that a farm that updated their site in 2017 is actively in business than a farm that last updated its information in 2008. Make it a point to annually go and update all of your listings.

4. Abandoned Facebook sites and farm blogs. There seem to be a lot of farms out there that thought they *should* be on Facebook or have a blog, but their heart just isn't in it. If your last posting on the site was two years ago, either post stuff or take the site down. It just looks lonely. You are better off with a simple website that has good, clear information. If you don't know how to put the site out of its misery email me (emh56@cornell.edu) and I will walk you through it.

5. Your webpage is not "mobile friendly". Increasingly people are using phones to find information. It is very important that your web content is easy to read on a cell phone. If you have an older site, this might not be the case, and it may be time for an upgrade. Fortunately, there are some really good services, Wix, Weebly, and Squarespace – are three examples – that will allow you to very easily create a modern, mobile friendly website, even if you do not have a background in web design.

If you are really pressed for time, and don't have a lot of time or interest in social media – focus on having a clear, professional, mobile friendly webpage. Keep your content current and update your on-line listings so people know you are still in business. Also check out the Capital District's Direct Marketing Conference on March 16, 2017 in Troy, which will feature presentations on using social media effectively on your farm. To find out more and register for this program, see their website https://blogs.cornell.edu/capitalareaagandhortprogram/2016/12/16/capital-district-direct-marketing-conference/.

Monitoring Bud Hardiness in Grapes.

JIM O'CONNELL, ENYCHP

Bud injury from winter low temperatures is a major concern for grape growers in New York State. In *vinifera* wine grapes for example, temperatures of -5°f in midwinter are enough to cause injury. Hybrid grapes are generally hardier and tolerate temperatures lower than -5°F. Temperatures, however, of -10°F and -15°F can cause high bud mortality in both *vinifera* and hybrids, or even vine death in the case of *vinifera*. Bud hardiness changes throughout the dormant season and responds to daily changes in temperature. There are methods available for assessing bud damage. One method is a bud mortality assessment. Growers will collect fruiting canes and will allow them to acclimate to room temperature for 24-48hrs. After the acclimation period, buds are cut open and examined for mortality a video of this process can be seen here: https://www.youtube.com/watch?v=eWtr0jzI2Dk). Percent mortality (see picture #2) is recorded and the grower then adjusts how much is pruned in the vineyard by retaining more buds in proportion to the injury. While this method is effective, it is typically done just before pruning, after any damaging low temperature event.

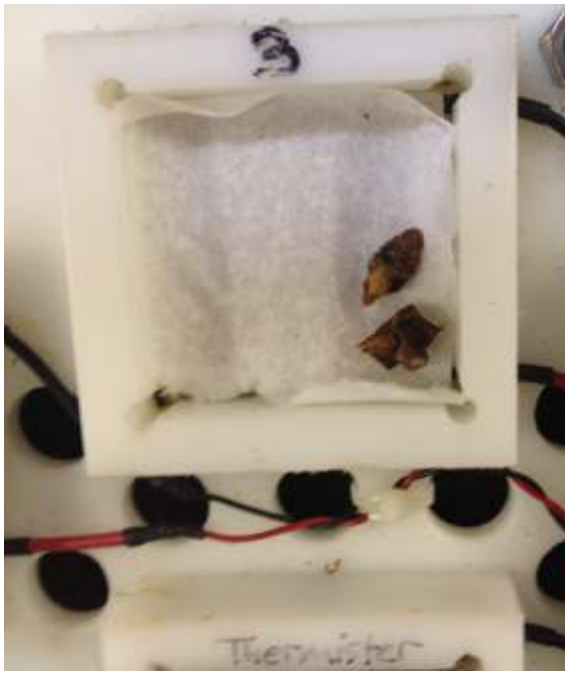
Cornell University and other institutions with a grape research program have a way to monitor the current state of the buds throughout the season. Through a procedure called differential thermal analysis, grape buds can be measured for their relative hardiness at varying points in the dormant season. In New York State, samples are collected from Geneva, The Finger Lakes, Hudson Valley, and Lake Erie between mid-winter and March.

This process involves collecting fruiting canes and removing the buds from the canes. These buds are then placed into individual cells on a tray and placed in an environmental chamber. They are then exposed to increasingly low temperatures, emulating what occurs in an actual vineyard during winter. Each cell is connected to a thermocouple. As the temperature decreases and the buds freeze, the thermocouple records the heat given off during this process. These data points are graphed in relation to the daily low temperature for the specific region and placed on the Cornell Viticulture and Enology website for easy access.

This method can allow growers to track the relative hardiness (or lack thereof) of particular varieties in select regions across the state. Therefore, when it comes time to prune, growers using this tool already have a sense of the potential bud mortality in their region. This winter, temperatures have been mild and little injury is expected. Without winter injury, typical bud mortality ranges between 5-10 percent.

photos by Jim O'Connell

#1—removing bud



#3—buds in cell

Spring High Tunnel Nutrition

AMY IVY, ENYCHP

Spring arrives early in high tunnels so it's time to get ready. For a few years now Teresa, Crystal and I have been collaborating with Jud Reid on some high tunnel soil health and fertility projects. One of the most striking things we've seen is the rapid rise of nutrient levels in high tunnel soils. Because it never rains in high tunnels excess nutrients are not leached away, and because the space is high value and confined, it is easy to over apply amendments and nutrients. If you needed to apply just 40 pounds of a product that comes in a 50 pound bag, it's tempting to just finish up the bag and use it all. Or if you're applying a half inch of compost over the surface and you know compost is good stuff, it's tempting to put down a nice, thick layer. Luckily the high cost of some of these products can be an incentive to measure more carefully!

We also see pH rising too high which impacts nutrient availability and uptake, as well as the health of microorganisms that do most of the nutrient conversion in the soil. Getting your soil pH in the ideal range is one of the single most important steps a grower can take, inside or outside a tunnel. Tomatoes want a pH of 6.5. A pH of 7.0 is too high and you should add elemental sulfur to bring it down. Sulfur works slowly, as does to lime, taking months to make a difference, especially under the dry conditions in a dormant tunnel. If you need to correct the pH and didn't add sulfur last fall, you can add it this spring pre-plant but try to add it a few weeks before planting and water it in well to give it a chance to dissipate and avoid any chance of burning your transplants.

And as we always say, there is no way to know what's in your soil without testing. The soil labs get busy in the spring rush so get your samples off as soon as possible. Here is the link to the Dairy-One soil test submittal forms http://dairyone.com/analytical-services/agronomy-services/soil-testing/ . The basic soil test for vegetables costs $12 but high tunnel growers should order the extra soluble salts test for an additional $5, since salts are not leached out by rain in a tunnel. It is well worth the small cost of these annual tests to be able to track nutrient, organic matter, pH and soluble salt levels over the years. And be sure to take your soil sample before adding compost, fertilizer, leaves, peat moss or other soil amendments which will throw off the test results. We usually recommend field soils be tested every few years but high tunnels should be tested annually.

We're Hiring!

New Grape Specialist for Eastern NY

The ENYCHP is hiring a new Grape Specialist!
This new specialist will provide support to commercial grape growers and producers across Eastern NY. This individual will use the knowledge and resources necessary to assess production and management practices that will enhance the profitability and sustain the growth of the grape and wine industry in the region.
The job has been posted; it will expire on Friday, March 31st.
Links to the job posting:
AJO: https://academicjobsonline.org/ajo/jobs/8872
Cornell Careers: http://tiny.cc/Viticulture_WDR_00009979

2016 Specialty Pepper Trial Results

ROBERT HADAD, CCE CORNELL VEGETABLE PROGRAM

SELECTED FROM VEGEDGE, 2/1/17

This season wasn't the greatest year to be trialing vegetables. With that said, anything that did produce decently must have something going for it. For this crop trial there were 24 entries. The goals were to find flavorful peppers that would stand out over and above typical bell pepper types. Along with flavor, other traits considered important were color, shape, yield, long term harvest of fruit, and performance. Right out of the gate, heat pressure required substantial irrigation. The plants were on black plastic with trickle irrigation. Pre-plant incorporation of fertilizer was applied at the lowest rate and additional N was used twice through the irrigation lines at 40lbs/A.

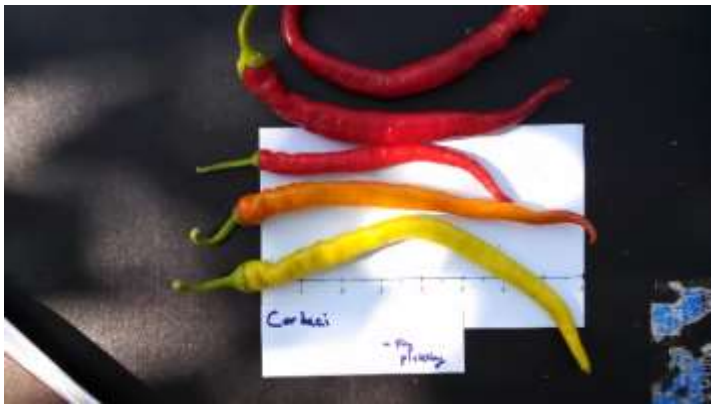
Transplants were set out the second week of June. The heat stress kept growth slow and flowering was delayed to mid-August. Towards the end of August several rain events kick started the plants which really took off. Regular fruit set began during the first week of September and fruit kept coming on till frost in late October.

The varieties with traits of great or interesting flavor, color, and shape were selected to be evaluated by several chefs. We also selected several other varieties that we personally liked as well. Here are the top choices.

Georgescu Chocolate. This is Romanian brownish red pepper that will turn a deep chocolate color when fully ripened. Yields were on the low side, averaging 7 fruit per plant. The shape was a crinkled bell type with long stems. The fruit shape was striking along with the color and the fruit size was decent, consistently 4"+ long and close to 2" at the shoulders. The flesh texture was crunchy and a stronger flavor than a green bell (which became sweeter when fully brown).

The chefs didn't find it overly interesting in flavor but liked the color for its presence on the plate. They would pay $4lb for 5lbs per week.

Chimayo is a chile type from the highlands of Northern Mexico with mild heat but very sweet with fruitiness to the flavor. The yield average was 12 – 3" fruit per plant. Few seeds and crunchy. The plants did start producing fruit in mid-July but took off later in the season. The chefs liked this one and would purchase 10/lbs/wk @ $5lb.



Corbaci is a Turkish variety that was a huge favorite. This consistent producer had an averaging a yield of 22 fruit per plant 11" long. Several plants had more than 30 peppers. The colors were vivid.

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Imagine a customer seeing a basket of these peppers with a variety of these striking colors? The flavor was strong but not sugary sweet with an almost smoky taste. Many of the fruit were seedless and the rest had few seeds and they were close to the top of the fruit near the shoulders. The chefs ranked this as one of their best tasting and would purchase up to 15lbs/wk @ $7lb. This pepper was our favorite.

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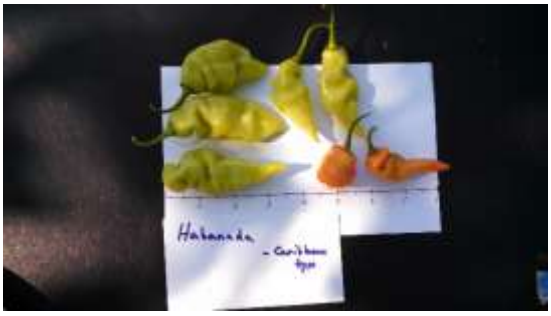
Kalmans Hungarian Tomato pepper has a great shape similar to a Genovese Ruffled tomato. It has thick flesh with thin skin like a pimento pepper type. The flesh is juicy and sweet with 8 fruits per plant of various sizes. The uniqueness of the shape could have farmers market appeal. The chefs like this and the color but weren't interested enough to purchase it.

Ostra Cyklon is a Polish paprika pepper. It has medium heat with a lot of flavor. When eating, the full smoky pepper flavor stands out then the heat fades in that becomes surprisingly hot. The skin and walls are thin for easy drying or can be used fresh. When dried, the aroma is outstanding. The shape is uniform throughout the season averaging 4" fruit and has good yield of 14 fruit. This pepper also ranked high for flavor with the chefs who would purchase 4-5lbs/wk @ $8.



Habanada is a Caribbean style habanero type with no heat. This variety was developed by Michael Mazourek, a Cornell plant breeder. The fruit came on late in the summer on tall multi-branched plants. The colors start off as a yellowish green then for a short time an almost solid pink before becoming orange to red. The variety of color would be a great attraction at markets. There are few seeds and 17 fruit per plant (from others who have grown this under better conditions, the fruit number can go higher than this easily). The flavor has a strong flowery or fruity taste. Because of the crinkled shape, the chefs thought the pepper was hard to deseed quickly but raved about the flavor and color. They ranked the flavor high and would purchase 5lbs/wk @$7lb.

Peppers of Merit

The next several varieties we thought had a place at the table. With better weather conditions, these peppers may have ranked higher. They weren't included in our chef test mainly because yields were low. We will trial these again under, hopefully, more optimal conditions. The flavors were good, the shapes and colors were sharp.

Hungarian paprika is a sweet paprika with thin walls and easy to dry.

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Zia Pueblo is a chile from Northern Mexico. It has a spicy sweet flavor and the heat wasn't overpowering. There were several of these native varieties that we will trail again in hopes to see higher yields. We also hope to grow out enough of these to have seed available for farmers to trial themselves.

Dolca di Bergam and Pepperoncini types had great flavor. Bergam was a hot Italian frying or pickling type that ripened to a great reddish brown color. Pepperoncinis were similar in shape but had stubby fruit ends. These had great flavor, an off-green color that was terrific fresh or pickled.
We are hoping that more growers will try these peppers. If so, please provide us feedback on how they sell at the market. This season we will have two growers trialing several of these varieties and bringing them to market. We will gather the economic information from the sales along with a new season's worth of production information.

Seed Sources:

Fruition Seeds, Naples, NY

Baker Creek Heirloom Seeds, Mansfield, MO

Seeds from Italy, Lawrence, KS

Seed Savers Exchange, Decorah, IA

2017 Upgrades to the NEWA Apple Scab & Fire Blight Models

Drs. Kerik Cox and Juliet Carroll have submitted upgrades for the NEWA apple scab and fire blight models. They have been racing the early spring to try and get these completed in time for growers to use them at the beginning of the season.

Apple Scab Model

The NEWA apple scab tool will have a daily ascospore discharge calculation that will be added to the ascospore maturity table. They have also written apple scab management messages to accompany the apple scab results.

Fire Blight Model

The NEWA fire blight tool will have an infection potential calculation, based on the epiphytic infection potential calculation in Maryblyt 7.2 and will better track the fire blight disease cycle with appropriate fire blight management messages for year-long information about this important disease.

For questions regarding these updates, please contact Julie Carroll, Fruit IPM Coordinator, New York State IPM Program, 315-787-2430 (Fax -2360), jec3@cornell.edu
For more information about NEWA, please contact Dan Olmstead, Leader, Network for Environment & Weather App's dlo6@cornell.edu

Additional Links

Link to download Maryblyt 7.2 http://anr.ext.wvu.edu/pests/diseases/forecasting-software

NEWA: http://newa.cornell.edu

You're NEWA Blog: https://blogs.cornell.edu/yourenewa/

NYS IPM Program: http://nysipm.cornell.edu

Can Modified Atmosphere Packaging Aid Small Fruit Growers by Extending "On-Farm" Shelf Life?

ANNIE MILLS, ENYCHP

Do you want to sell the best looking and freshest tasting produce possible? To keep your small fruits as fresh as possible, ENYCHP is investigating post-harvest management options. In 2016 we began this process by testing modified atmosphere packaging for small fruits in the eastern New York region. Modified atmosphere packaging, or MAP, is packaging that alters the normal composition of air around your produce to increase storage length & fruit quality. You can use it for single flats of fruit, or to cover a whole pallet of produce. We are hoping that packaging like this can aid farmers in extending the season for their fresh berries, therefore allowing them to sell more.

Products like these could also be especially useful for decreasing the weather dependence for harvesting, making fewer trips to wholesalers or markets, and keeping your farm stand fruit supply consistent and fresh. Modified atmosphere packaging is specifically designed to help reduce the respiration that occurs within the fruit, thus slowing its degradation process and lengthening the life as marketable fruit. With blueberries, it is about keeping the O2 level low and the CO2 elevated, 8-10% CO2 is ideal. Your blueberries should also be kept at 32^0. It is important to keep in mind that there are different types of modified atmosphere packaging available for the specific crops. The respiration rates of different fruits vary greatly, so you must be sure to use packaging that is specific to the commodity you want to keep fresh.

Eventually we would like to expand a trial to explore the possibilities with different commodities, but this summer we tested modified atmosphere packaging on blueberries. With the help of two farms in Columbia County and one farm in Albany County we were able to test two different MAP bags, each large enough to hold one flat of berries. One bag was a heat sealed bag, donated by Multi-

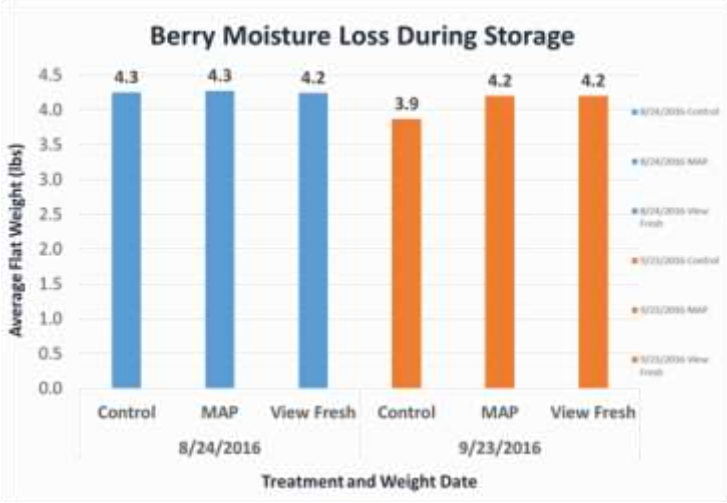


Figure 1

1. Control lost 0.4lbs
2. MAP lost only 0.1 lbs
3. View Fresh lost no weight on average

sorb Technologies and the other was a zip lock type bag, donated by ViewFresh. At each farm we tested one flat of blueberries in each bag and left a third flat untreated. All three flats were stored in cooler for roughly 4 weeks at the farm where they were picked. After four weeks, we evaluated the blueberries on each farm for fruit quality and marketability. During this preliminary trial, we evaluated qualities of the fruit such as weight change of each flat of blueberries, visual appearance (shrink, moldiness), taste, disease, SWD oviposition, and brix.

Overall, berries in the bags rated better than non-packaged berries in most categories we evaluated in this preliminary trial. At first glance and under the microscope the berries from the bags looked more appealing than the control group (the non-packaged berries). Berries in the bags experienced less moisture loss (fig.1) and they were less "shrunken" (fig 2.). The berries also appeared to have less fruit rot caused by botrytis and anthracnose. This was a good indicator of the potentials of modified atmosphere packaging. The taste of the berries in the heat sealed MAP rated slightly higher than the zipper sealed MAP and our control berries. The texture of berries in the heat sealed bag also rated slightly better than the other two treatments (fig. 3). For such a small trial, it was interesting to see the results that we did, but further inves-

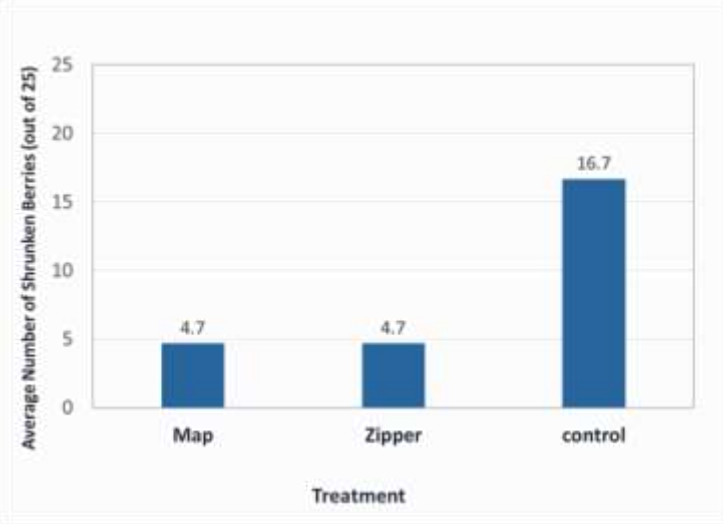
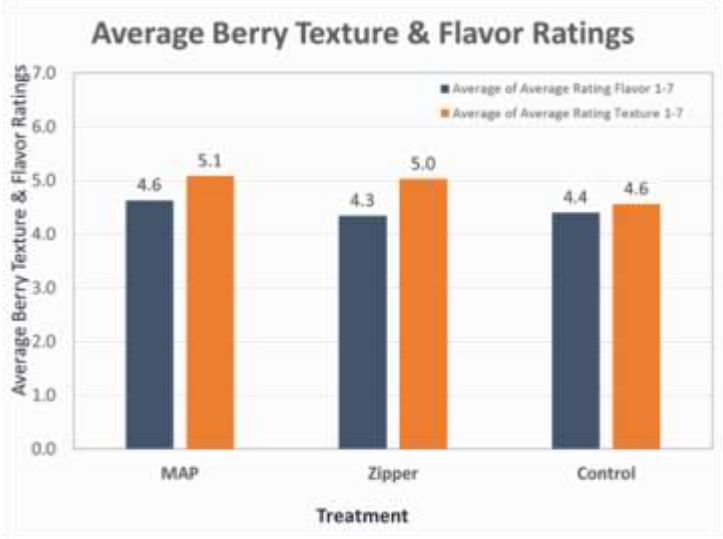


Figure 2: 2. The average of shrunken blueberries was greatest for the untreated flats (flats with no packaging)

tigation with more fruit and longer storage times is necessary.

The benefits of MAP could be especially significant for raspberries, strawberries, or other fruits with very soft flesh and a relatively short shelf life. Many factors affect post-harvest shelf life of a fruit or vegetable (and success of MAP) though. For example, MAP bags will not make up for fruits that have been poorly harvested or processed. Gentle harvesting, harvesting at optimal horticultural maturity, good sanitation, and proper cooling temperatures remain crucial to the shelf life of the fruit. With a combination of these proper harvesting practices, proper storage, and modified atmosphere packaging, you may be able to significantly increase the shelf life of fruit on your farm. Over the next few months we hope to communicate with growers about how to further test products intended for post-harvest use and develop a larger trial that can better determine the practicality of these products.



1. This was this biggest difference we found during our preliminary trial for modified atmosphere packaging.
2. A rating of 4 was considered to be the minimum number for market acceptability

Organic Certification Cost Share Program Available Through Farm Services Agency

OCCSP provides cost share assistance to producers and handlers of agricultural products who are obtaining or renewing their certification under the National Organic Program (NOP). Certified operations may receive up to 75 percent of their certification costs paid during October 1, 2016, through September 30, 2017, not to exceed $750 per certification scope. In the past, these dollars were distributed through NYS Agriculture & Markets. You can still apply for these dollars through NYSDAM but now you can also apply (instead of, not in addition to) FSA for the same program.

Information for producers and handlers:
Producers and handlers may submit OCCSP applications to FSA county offices beginning on March 20, 2017, or they may apply through participating State Agencies, which will be listed on this website as their agreements to administer the program are finalized.

For more information on organic certification and regulations, visit the USDA Agricultural Marketing Service's page: https://www.ams.usda.gov/about-ams/programs-offices/national-organic-program

New WPS Rules are Here

MAIRE ULLRICH, ENYCHP

In 2015 EPA changed the WPS regulations and most went into effect on 1/1/17, a few of the new regulations do not become requirements until 1/2/18. That means this spring there will be several new regulations and several more changes one that you will have to abide by. Below are the highlights of these changes/additions for private applicators with workers for outdoor production. There are additional changes for enclosed/indoor production such as greenhouses. The new guidebook can be found at the EPA website: https://www.epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wp . There are several documents on this site from quick reference guides to links that will download the entire compliance manual or purchased from Gempler's (**1-800-382-8473)**at: http://www.gemplers.com/wps-resources (look under compliance materials, item # EPA7) .

As always, you must comply with WPS if you apply any pesticides (something with an EPA registration number and some other sprays/chemicals/biologicals that have labeled requirements) and you have workers that are not immediate family* or certified applicators AND those workers may enter an area that has had an application in the last 30 days. This usually exempts farm stand/packing house workers unless they are doing field activities such as leading tours or u-pick groups. 1Some changes are minor and some are significant and several also now mirror or refer to OSHA requirements. I have tried to address the most notable ones. Be sure to consult the guidebook for additional information at: https://www.epa.gov/sites/production/files/2016-10/documents/htcmanual-oct16.pdf

The new regulations fall under several categories:

Training

1. Workers now have to be trained annually as opposed to every 5 years
2. Workers have to be trained BEFORE they enter the field (used to be a 5 day grace period)
3. Only certified applicators and those who have completed an EPA train-the-trainer course are qualified to conduct WPS training.
4. Expanded training topics for workers and handlers. New materials must be incorporated in trainings after 1/2/18. Training requirements are in the new guidebook but can also be obtained at: http://www.pesticideresources.org/

Definitions and exemptions have changed with the new law.

Farmers and immediate family members are NOT exempt from respirator fit testing, training and medical evaluations.

5. Training attendance roster must be kept for 2 years. See p. 23 for an approved roster. For your use.

6. The definition of handler has been expanded to include other tasks around the pesticide application other than mixing and spraying such as trailering or fixing the spray equipment.

Hazard Communication

1. Employer must display spray records at central location with 24 hrs. of the end of the application AND before workers enter field (used to be BEFORE application). Time of start and end of application must be recorded.
2. Spray records must be displayed for 30 days after REI ends and retained for 2 years.
3. Safety Data Sheets (SDS) for all chemicals must be available at central posting area.
4. Employers must provide workers with copies of spray records if requested.
5. Post warning sign if REI is greater than 48 hrs. (4 for enclosed spaces). Otherwise, oral warning is sufficient unless label states differently.
6. Handlers must be informed of applications in fields that they will be working in or be within ¼ of a mile before the application and any changes to application plans up to 1 hr. before application starts.

Minimum Age

1. Handlers and early-entry workers must be at least 18 years old.

Entry Restrictions/Application Exclusion Zone Around Outdoor Application Area & Application Suspension

1. Workers (and general public) must be out of application exclusion zone during application. Different AEZ depending on method of application (likelihood for drift). See bottom of page for chart.

- 100 ft. AEZ – airblast, aerial and other applications

continued on next page

that generate a fine particle size.

- 25 ft. AEZ- applications that create medium /course particles and application is more than 12 inches above the ground.
- 0 ft.AEZ – applications that create medium /course particles and are less than 12 in. off the ground.

Anyone enters the AEZ during application the handler/ applicator must suspend the application until they leave or until the time assessment that there is no risk to them being exposed to pesticides. This can be a confusing and "tricky" part of the new regulations. It might be best, if you are near a busy road or other place you cannot control entry into the AEZ, you may consider consulting with your local DEC to see what they would recommend to keep you in compliance.

Exemption and Exceptions

1. Certified Crops advisors are exempt from WPS and PPE requirements. CCA employees, entering during REI, are required to utilize PPE as per label and PPE, or allowed substitution, is supplied by employer.
2. Handlers and early entry workers need to be informed of tasks to be performed, conditions of the early-entry exception, and hazard information from the pesticide label'
3. *Owners and family members are NOT exempt from certain aspects of WPS such as medical evaluation, training and fit testing and recordkeeping for respirator use all label instructions/restrictions including use of PPE, staying out of AEZ or treated areas before end of REI without appropriate precautions/ PPE

Basic Pesticide Safety Information

1. Pesticide safety information must be posted at a central location AND at sites where decontamination supplies are located, if the decontamination supplies are at a permanent site or at a location with 11 or more workers or handlers.
2. Definition of application. The definition of application has expanded to include activities other than mixing and spraying. Workers who complete those tasks must also be trained, advised, fitted with PPE and decontamination supplies as handlers.
3. Poster or other equivalent materials must be displayed that relay the 7 concepts about preventing pesticides from entering the body. More information on identifying possible poisoning and how and where to immediately seek medical with appropriate chemical information. And contact information of the appropriate agency (DEC, in NY) to report the exposure. SDS (safety data sheets, no longer MSDS) for all pesticides used must be available, in an organized fashion to workers and in case of an emergency.

Personal Protective Equipment

1. Employer must provide respirators for handlers when label requires (and other times too under OSHA regulations but that's not for this article). Employer must also provide special training on respirator use, medical testing and fit testing. Must maintain required records pertaining to respirator requirements for 2 years.
2. PPE may not have to be used in a closed system BUT this is not for just any enclosed cab. The enclosed spray equipment must meet certain standards to meet the exception for the respirator. Most enclosed cabs will have an exemption for the PPE that protects from dermal exposure. Handlers must have specific training and written instructions for this exemption. The idea is that enclosed cabs protect you from spray hitting your body bit NOT from inhalation unless you have an air-tight cabin. I don't think this is a specific rule but don't go into an enclosed cab (or other enclosed space) with your post-mixing/spraying PPE on and no respirator.
3. PPE use, care, replacement and disposal has received much attention in this regulation change. This in-

Droplet Category[1]	Symbol	Color Code	Approximate VMD Range[2] (in microns)
Extremely Fine	XF	Purple	<60
Very Fine	VF	Red	60-145
Fine	F	Orange	145-225
Medium	M	Yellow	226-325
Coarse	C	Blue	326-400
Very Coarse	VC	Green	401-500
Extremely Coarse	XC	White	501-650
Ultra Coarse	UC	Black	>650

[1] ASABE (American Society of Agricultural & Biological Engineers) Standard 572.1.

Standard droplet size chart as it relates to nozzle color codes

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cludes training those who clean or launder PPE, if they are not trained handlers. Lots of details on managing cross-contamination. Please see the rule for all of the requirements for training and practice.
4. Crop advisors and employees, entering during REI, may wear label specified PPE or standard PPE. See the rule for the details on exceptions.

Decontamination Supplies

1. Requirements for amounts of water for workers and handlers has increased and become more specific as to numbers of gallons per worker and flow rate based on the job they are doing.
2. Requirements for soap and towels specified. This may be the same supply that you have for OSHA bathroom facility or food safety as long as it's sufficient to meet highest requirement.
3. Location, type and quantity of decontamination supplies is also more specific than it had been.

Emergency Assistance

1. Employers must promptly get exposed workers to medical facility for treatment with SDS sheets and label(s) of chemical(s) worker was exposed to. Share all pertinent information with medical staff.

Again, this is not ALL of the details in the new regulations so read the book to become familiar with what you will have to do on your farm to comply.

Tax Help for Very Small Farms

ELIZABETH HIGGINS, ENYCHP

Recently I have had several new, very small farms ask me for recommendations for tax preparation services. When pushed a little more I have discovered that they have looked into service providers like, Farm Credit, but the fees for tax preparation services are higher than they feel they can afford, given their income at this point. As your business grows and becomes more complex, the services of a good accountant who is knowledgeable about agriculture will likely save you money, grief and time in the long run – especially if you add employees to your business. But I recognize that for some smaller, simpler farm businesses going it alone is a viable option. Doing your own taxes can also help you learn a lot more about your farm's finances than turning over all of your records to a service provider. However, if you are new to tax preparation, or your records are a mess, count on a day of work.

If you are going to do your own taxes, I highly recommend reading IRS publication 225 (Tax Guide for Farmers) and reviewing the www.ruraltax.org website prior to beginning to make sure that you understand what types of deductions and credits are specific to agriculture. The ruraltax.org website has example tax returns from small farms to help guide you through the process and is an excellent resource. For state taxes, there isn't as comprehensive a resource. The NYS department of taxation and finance's website does have a page for businesses with links to resources https://tax.ny.gov/bus/. NYS Farm Bureau also has resources on NYS taxes on their website http://nyfb.org/resources/Taxes_16_topic.htm but some are for members only.

Although for years I was a hard-core paper and pencil tax-preparer, I have come to appreciate the ease of using tax preparation software. Just remember, garbage in, garbage out. You are more likely to be successful and catch mistakes if you take the time to first understand farm business taxes before you rely on software to do the work for you. Then you will know if you are getting results that don't make any sense. The advantage to the paper and pencil method is you have to manually do the calculations and methodically go through the process so you are more likely to catch screwy results. However, software saves a lot of time and can help you catch deductions and credits that you may not be aware of. You can use commercial software products like Turbo Tax or TaxAct for farm business taxes. Make sure that you get an edition of Turbo Tax or TaxAct that includes the Schedule F and any other forms you need. I have used both products and on-line reviews of them are consistent with my experience. Turbo Tax is more expensive, but does more hand holding, TaxAct is more stripped down, but is less expensive and is a good option if you are pretty comfortable with tax forms. For Turbo Tax you will need at least the Home and Business edition. There were a lot of complaints on -line from people who had purchased a Turbo Tax edition that did not include the Schedule F.

Cornell Cooperative Extension, Small Business Development Centers and other service providers offer classes on bookkeeping and financial management for farms and small businesses. These can also be helpful to you in getting your farm records ready for tax season. I will be teaching a class on bookkeeping at CCE Dutchess County on March 21st.

Grape Production and the Future of the Wine and Grape Sector in Eastern New York State

ELIZABETH HIGGINS, ANNA WALLIS,
JIM O'CONNELL, ENYCH
&
TIM MARTINSON, CORNELL UNIVERSITY

Grape production in Eastern New York counties in the Hudson River Valley and Lake Champlain Region is increasing, both in number of producers and number of acres in production, especially for wine and table grapes. According to the USDA Census of Agriculture, the number of operations growing grapes in eastern New York increased from 109 in 2007 to 146 in 2012, a 34% increase. The number of grape acres increased from 410 to 617, a 50% increase. Although this might not seem like a large increase, in eastern New York grapes are a high value crop, produced on small acreages. Most grape farms are 5 acres or less. A 20-acre vineyard is a large vineyard. Even in other grape growing regions in the state, small acre farms are the norm as 69% of the grape operations in NYS in 2012 had fewer than 25 acres, and 55% had fewer than 15 acres. Although New York is the third largest grape producer in the United States after California and Washington, with 37,000 vineyard bearing acres, most of the grapes (by volume) in New York are produced on a small number of very large operations outside of the ENYCH region – primarily for grape juice. Most of the farms growing grapes, especially for wine and table grapes are much smaller.

There are two primary reasons for the increase in acres and number of farms; new grape varieties and an increase in local wine production. Cold hardy hybrid grapes have spurred a lot of the growth in grape production in our region. Grape production in the northern counties Clinton, Essex, Saratoga and Washington went from almost no production in 2001 to over 100 acres in 2012 and has seen continued growth since then. The growth in this region is, in part, due to CCE Extension assistance. After the release of cold climate wine grape varieties in the 1990s, primarily from the University of Minnesota breeding program, the northeastern New York grape industry was supported and encouraged by CCE fruit specialist Kevin Iungerman and variety trial planted at the Willsboro Research Farm in 2005.

Figure 1 - Location of Farm Wineries and Wineries that Grow Grapes in ENYCH region

The other factor that is helping to increase overall wine grape production in Eastern NY is the enhanced focus, by the State of New York, on craft beverage production. Since the Cuomo Administration took office in January 2011, 78 new farm wineries have opened in New York State (a 40% increase) and 18 commercial wineries (33%), and the growth rate is accelerating, as it is for other farm-based craft beverages. NYS law requires "farm wineries" to use 100% NYS grapes (or other fruit/ingredient) in the production of their wine and limits the volume of production. There are 72 licensed farm wineries in ENYCH in 13 counties, not including farm wineries that only sell non-grape fruit wine (mostly hard cider) or mead. There are an additional 36 wineries in ENYCH, whose output either exceeds the farm winery threshold or that use non-NYS grapes in production, but that do grow grapes, bringing the total wineries with affiliated local grape production up to 108.

Eastern NY has three primary grape growing regions. There are two in the Hudson River Valley, the Hudson River Region AVA, centered around Ulster County, and the Upper Hudson Valley, focused on Washington and Saratoga Counties. The other region is the Champlain Valley AVA, primarily in Clinton and Essex Counties. Two of these regions are official American Viticultural Areas (AVAs). AVAs are designated wine grape-growing

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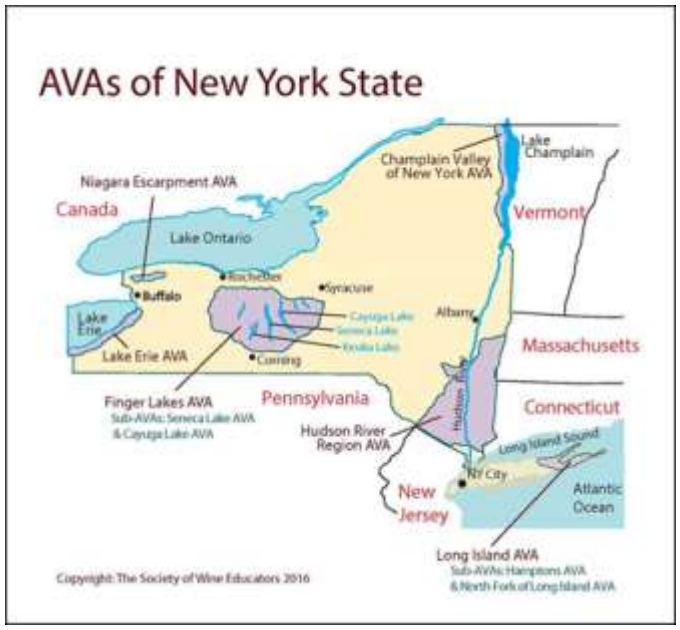

Figure 2: AVAs of New York State

Source:: the Society of Wine Education

gions in the United States distinguishable by geographic features, with boundaries defined by the Alcohol and Tobacco Tax and Trade Bureau (TTB) of the United States Department of the Treasury. These designations allow vintners and consumers to attribute a given quality, reputation, or other characteristic of a wine made from grapes grown in an area to its geographic origin. Wine has been produced in the lower Hudson Valley for hundreds of years and there are many areas in the region with favorable growing conditions for high quality wine grapes.

The Hudson River Region AVA was designated in 1982 and is one of the oldest AVA regions in New York State. Up until 2001, this is the primary region (outside of Long Island) where grapes were grown in eastern New York. It includes parts of Ulster, Orange, Columbia, Dutchess, and Westchester, Putnam, Rockland, and Sullivan Counties. There are currently 49 wineries and over 235 acres of vineyards in production in the AVA. Red wine blends, Pinot Noir and Cabernet Franc, Seyval and Traminette are common varieties produced in this region.

The Champlain Valley of New York AVA is in Clinton and Essex Counties, New York. It is the newest AVA in New York and became effective on September 21, 2016. The Champlain Valley of New York AVA covers approximately 500 square miles. There are 11 commercial vineyards covering a total of approximately 15.47 acres within the AVA, as well as 6 wineries. There are plans to establish 63 additional acres of vineyards in the near future. The distinguishing feature of the new Champlain Valley of New York AVA is its short growing season, which is conducive to growing cold-hardy North American hybrid grape varieties (such as Frontenac, La Crescent, and Marquette) but not the Vitis vinifera grapes that are grown in the surrounding areas.

The Upper Hudson region has applied to be an AVA. It would include Albany, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, and Washington counties. This area has approximately 35 commercial vineyards and about 15 wineries and an active grower association, wine trail and established group of grape producers. In this region a variety of grapes are produced but the emphasis is on the Geneva and French hybrids and cold-hardy varieties for wine and table grapes.

Tourism is particularly important to New York's farm wineries, with sales direct to consumers (usually linked to winery visits) representing about 60% of total wine sales volume by these producers. New York wineries and their satellite facilities received more than 5.29 million visits in 2012, spending more than $401 million. Tourism is an important facet of the local economy, impacting several different industries, from wineries to hotels and restaurants, retailing and transportation. Winery tourism contributes over 6,400 jobs to the state, for a total of more than $213 million in wages.

In December 2016 the Eastern New York Commercial Horticulture Program of Cornell Cooperative Extension sent out a survey to their membership list targeting those who had indicated an interest in grape production. The survey went out to 360 contacts in the 17 counties in the ENYCH service region, and 40 completed surveys were received. Of these, 33 respondents reported that they are currently grape growers which, based on Census of Agriculture data, is about 20% of the grape growers in the region. The remainder of respondents to the survey were either wine makers who use local grapes (3) or people who are not currently growing grapes but who have an interest in getting into grape production (4). In ***Figure 9*** you can see that most of the respondents to the survey (27) have started growing grapes in the past 15 years, but

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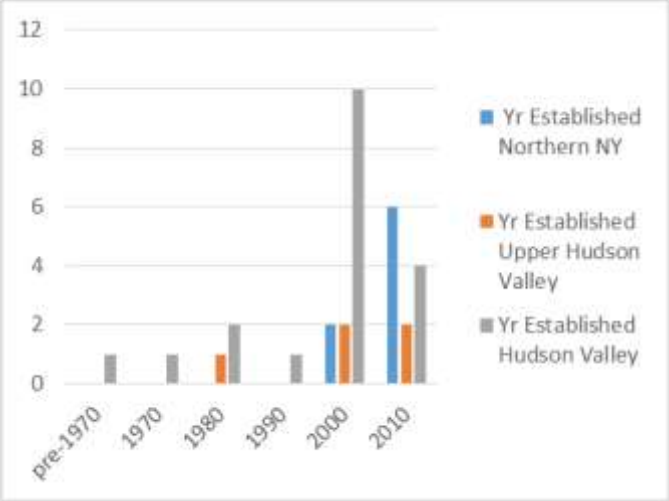

Figure 3 – Year of Orchard Establishment, by Region in ENY

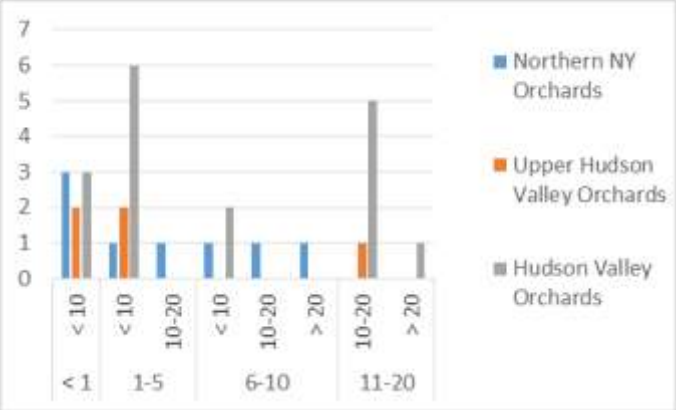

Figure 4 – Planned acreage in grapes in 2020 by region and current acreage level in 2016

seven respondents started growing grapes before the year 2000, including two in the lower Hudson Valley who were growing grapes before 1970.

All of the growers who responded to the 2016 survey, who currently grow grapes, plan to maintain or increase the number of acres that they have in production. In ***Figure 0***, the bottom row is the current acreage survey respondents said they have in grape production, ranging from less than 1 acre to 20 acres. Above that is the planned acreage in 2020 for respondents in each category. For example, everyone who reported that they have less than one acre in 2016 is planning to have less than 10 acres in 2020. But respondents who currently have 6-10 acres are planning to either stay at the same level, grow above 10 acres or grow above 20 acres. It does appear that most of the significant growth is anticipated by northern, NY (Champlain Valley growers) where growers in every category planned to grow. Three respondents, who currently do not have any acres in production, plan to put acres in production by 2020 and none of the growers who are currently growing plan to be out of production or significantly reduce their level of grape production in the next four years.

One of the questions that grape producers

County	2001 Acres	2007 Acres	2007 Operations	2012 Acres	2012 Operations	Farm Winery Licenses (2016)	Change in grape acres 2010 to 2015
Albany	(D)	5	5	(D)	1	2	o
Clinton	0	(D)	1	32	9	8	o
Columbia	152	66	14	129	15	3	+
Dutchess	105	82	10	107	17	8	+
Essex	0	9	7	6	8	0	+
Greene	0	(D)	2	(D)	4	2	o
Orange	(D)	69	16	65	19	10	o
Rensselaer	0	(D)	3	6	8	1	o
Saratoga	(D)	(D)	6	53	13	6	o
Ulster	161	171	29	202	36	23	+
Washington	0	8	10	17	13	7	o

Table 1 above provides data on the current levels of grape and wine production in the eastern NY region. This data, from public sources is consistent with the data in the ENYCH grower survey, although actual grape acres in production were most likely undercounted because they tend to be small. [1]

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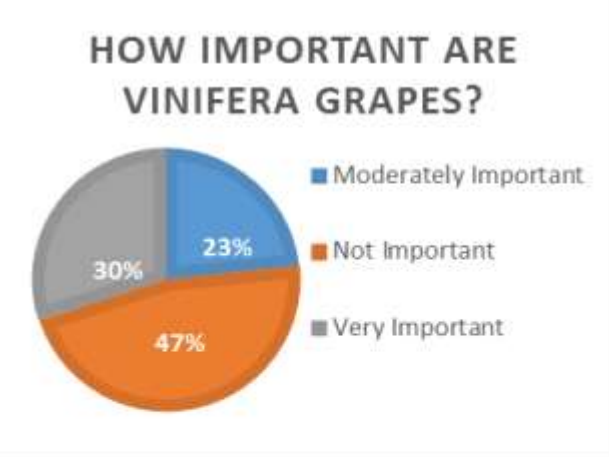
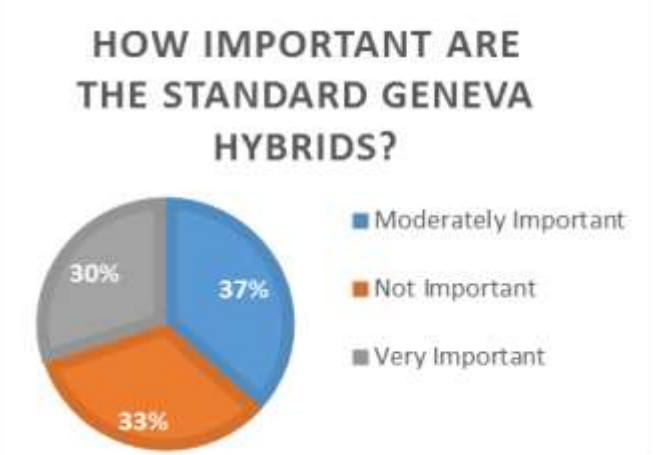
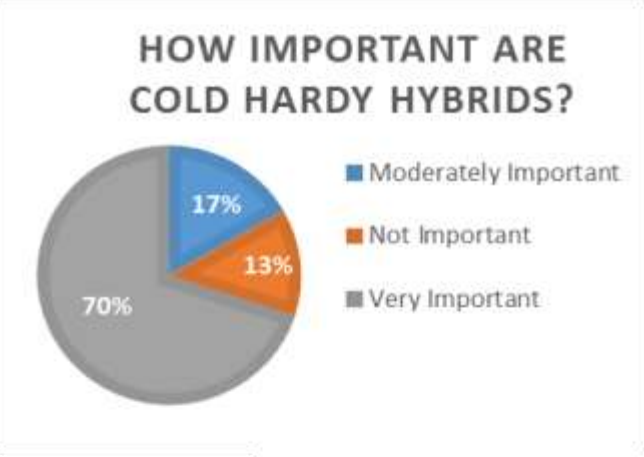
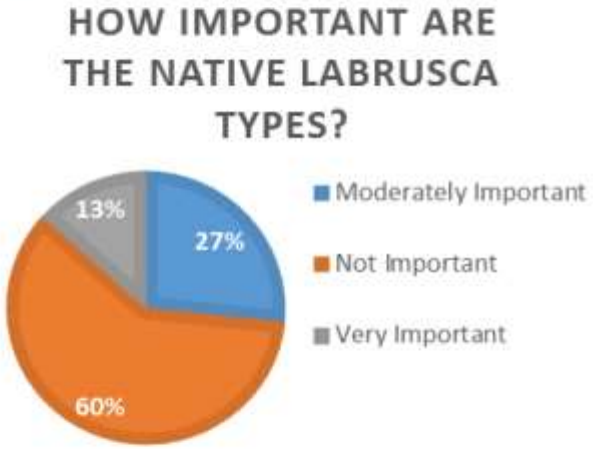
were asked in the 2016 survey was *how important are each of the various types of grapes to your farm business*? Cold hardy hybrids were the most highly rated, across the regions followed by Geneva and French Hybrids and Vinifera grapes – demonstrating the importance of the wine industry to grape production in the region. Table grapes and native grapes were not as important across the region. The charts below break down this data more finely. As you can see in the charts below, cold hardy hybrids are extremely important to the majority of producers surveyed, with over 87% labeling them as very important or moderately important – and they were important in all three growing regions, followed by the standard Geneva hybrids at about 67%. Vinifera grapes and table grapes were each important to about half of the growers, and native species were the least important overall in our region with only 40% finding them important, and only 13% (or about 4 growers in the northern counties) finding them very important.

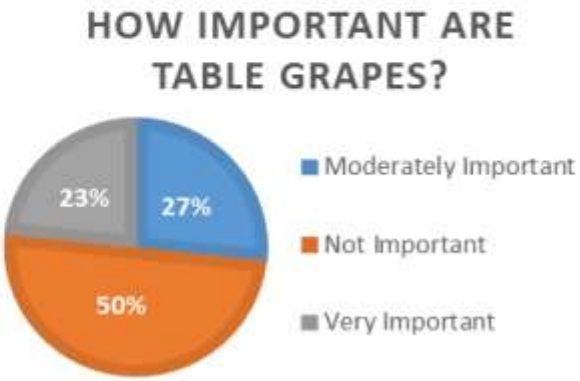
Overall, both USDA Census data, other data resources and our survey of the local grape industry indicate that grape production is a growing sector











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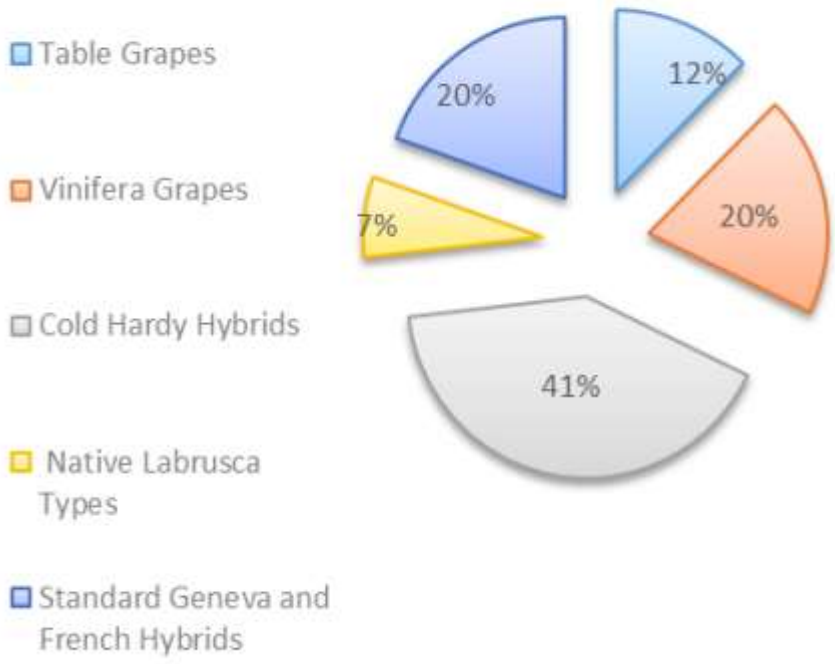

Figure 5 - % rating each grape variety as "Highly Important" to their farm business.

References:

- Federal Register. "Establishment of the Champlain Valley of New York Viticultural Area" Final Rule. Vol. 81, No. 162. Monday, August 22, 2016. pp 56490-56492.
- NY Fruit Tree and Vineyard Survey 2001
- NYS Liquor Authority Public License Query (https://www.sla.ny.gov) as of 9/16/2016.
- Stephen C. Ropel, Director Blair L. Smith, Deputy Director Marisa N. Reuber, NATIONAL AGRICULTURAL STATISTICS SERVICE UNITED STATES DEPARTMENT OF AGRICULTURE NEW YORK WINERY SURVEY 2008 October 2009.
- Stonebridge Research Group LLC. The Economic Impact of Grapes, Grape Juice and Wine on the New York Economy, 2012 Prepared for the New York Wine and Grape Foundation February 2014. 13pgs
- USDA NASS Census of Agriculture 2007
- USDA NASS Census of Agriculture 2012
- USDA NASS CropScape – Cropland Data Layer, 2015 and 2010 Data Layers
- US Dept of the Treasury, Alcohol and Tobacco Tax and Trade Bureau, American Viticultural Area website (https://www.ttb.gov/wine/ava.shtml)

in the Eastern NY Commercial Horticulture Region, largely driven by the wine industry, but with a significant fresh-market, table grape sector.

[1]Sources for Table 1:

[2]Data from NY Fruit Tree and Vineyard Survey 2001

[3]2007 data from 2007 Ag Census, USDA NASS

[4]2012 data from 2012 Ag Census, USDA NASS

[5]From NYS Liquor Authority list of farm license holders 9/2016. Farm wineries that produce mead, and non-grape wines only were removed from the list.

[6]USDA NASS CropScape-Cropland Data Layer. Because grape acreages are so small, the system under-estimates actual acreages, however the direction of change (+ = increased acres (3 or more acres), o = no change (less than 3 acres), and - = decreased acres) is probably accurate)

[7]Not reported to avoid disclosing data about an individual farm

Visit the ENYCHP Website

For online class registrations, announcements, previous issues of our newsletters, and more, visit the ENYCHP website at

http://enych.cce.cornell.edu/

Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!

EPA Worker Protection Standard Training Roster

Program Location_____Date/Time of Training_____

___Worker Only Training ___Handler Only Training ____Worker & Handler Combined _____English ___Spanish ____Other-_____

Training Format_____EPA Training Document/Approval#_____

Worker Statement:

I have attended this WPS Training and have had all of my questions answered.
He asistido a esta WPS formación y he tenido todas mis preguntas contestadas.

Name/Nombre (print)	Signature/Frima	Date of Birth/ fecha de nacimiento

Employer Name/Business/Address_____

Trainer Name (print)_____Signature_____

Certification # _____exp. date_____ OR # EPA WPS TTT #_____

Calendar of Events

March 16 2017. ***Direct Marketing Conference*** Brunswick Community Center, 18 Keys Lane., Troy, NY 9:00-3:00 , $30. This conference will feature presentations on Using Social Media to Promote Your Farm, Expanding Sales Beyond Farmers' Markets. In addition, a panel of farmers will discuss how they use the Internet and social media to market and sell their products.
https://reg.cce.cornell.edu/
CD_Direct_Market_Workshop_201

March 21, 2017. ***Bookeeping, Accounting and Recordkeeping*** **5:44-4:00, CC**E Dutchess County, 2715 Route 44, Millbrook, NY. $25 At the core of any successful business is accurate financial records, the ability to retrieve those financial records as well as determine and project cash flow, profit and loss. Whether starting a new farm enterprise or striving to be more efficient within an existing business financial record keeping is crucial.
http://ccedutchess.org/events

March 28, 2017. ***Creating a Business Plan*** **1:00-4:00, CC**E Dutchess County, 2715 Route 44, Millbrook, NY. $25 One of the keys to a successful business is a solid business plan. It is a blueprint for all aspects of your farm business. It covers the why, what, who, how, where, when of running your business. http://ccedutchess.org/events

March 28, 2017. ***Effective Orchard Spraying and NEWA Training.*** Miner Institute, Ridge Rd. Chazy, NY 12921. This 1-day workshop will include an effective orchard spraying workshop by Andrew Landers and instruction on the NEWA website and models available for orchard management (insects, diseases, irrigation, and crop load management) Contact Anna Wallis aew232@cornell.edu

April 4th & 5th, 2017. ***PSA FSMA Training: Capital Region.*** Albany Ramada Plaza, Watervliet Ave. Extension, Albany NY 12206. 8:30-4:30, $100 day one (includes certification and manuals,), $35 day two (optional farm food safety plan workshop). Registration is mandatory! Contact Abby Henderson 518-746-2553 or ENYCHP website to register

See the Website to register for many of these programs and other that have been added
http://enych.cce.cornell.edu/events.php