The Produce Pages Serving the fruit and vegetable growers of Eastern New York



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An Exciting Market is Brewing (Fermenting?) for New York Apple Producers

By Dan Donahue, CCE ENYCHP

The New York Cider Association is Formed

The New York Cider Association (NYCA) is expected to file its bylaws and articles of incorporation sometime in February. The launching of this statewide trade association is a major milestone in the re-invention and growth of the hard cider industry in New York State. The mission of the NYCA will be to represent the interests of its members on topics such as marketing and promotion, fermentation and horticultural research, as well as government and regulatory affairs. Voting membership is open to New York State licensed cidery owners, with supporting memberships offered to various categories of industry participants, including apple producers.

The Recent Growth of Hard Cider Production in New York State

The production of apple cider as an alcoholic beverage is currently undergoing a renaissance in New York State, some might call it a revolution. The New York Farm Cidery Law, signed by Governor Cuomo in October of 2013,

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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, Rensselaer, Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties

Hard Cider, continued from cover

permits the licensing of farm cideries in New York with the provision that New York produced apples are utilized, and production does not exceed 15,000 gallons annually. Currently there are at least 53 licensed cideries in the state, an impressive increase over the five known to be operating in 2011. Industry professionals are estimating that there are another twenty or so license applications pending with the State.

The cider industry is in its relative infancy, both in New York, and nationally, with total national sales amounting to approximately 2% of all light alcohol beverage sales. National and international beverage companies are actively pursuing this market, as recent growth has been exponential. Cider sales constitute some 14% of the UK's light alcohol beverage market; the potential for future growth is significant in the United States. The fact that New York State is ranked 2nd nationally in the production of apples, and the Hudson Valley is uniquely positioned to serve the densely populated northeast corridor, has not gone unnoticed by major players in the beverage industry. Angry Orchard, a national cider brand owned by the Boston Beer Company (of Sam Adams fame), has recently purchased an orchard in the Hudson Valley. The company participated in the recent cider apple research meeting sponsored by the newly forming New York Cider Association and the Glynwood Foundation. While uncertainty has been common in the last ten years, it now appears that the cider industry is poised for significant growth into the future.

Why in the World Would an Apple Producer Consider Producing "Juice" Apples?

The owners of New York farm cideries are interested in producing ciders which will sell in the premium segments of the market, differentiated from the "sweeter" ciders that are expected to be attractive to many mass-market consumers in the USA. New York apple producers presently supply adequate volumes of table varieties at modest prices to cider producers. Currently, fermentation research is underway at Cornell to determine the quality characteristics of ciders produced from New York's commercially produced varieties. Table apples are expected to contribute to a large proportion of cider production far into the future. However, cidery owners who attended a recent research meeting sponsored by the Hudson Valley Cider Association and the Glynwood Foundation, are looking for apple varieties that will produce more distinctive, premium and super-premium ciders that will stand apart from the "sweet" style of hard cider that is expected to form the base of this growing market.

Apple varieties appropriate for the fermentation of distinctive, traditional ciders usually have quality characteristics that, frankly, make them nigh impossible to eat out-of-hand. Following a bite, most people would spit them out, hence these varieties are called "spitters". The terms "bittersharp" and "bittersweet" are used to describe hard cider varieties with high tannins & high acids or high tannins & low acids, respectively. Porter's Perfection and Dabinett are examples. There are also several dual-purpose, heirloom varieties,, such as Golden Russet and Northern Spy, that add a distinctive touch to hard cider, but can also be marketed successfully at the farm stand. Kingston Black, a bittersharp, and Ashmead's Kernel, a dual-purpose cider & fresh eating apple, are two additional varieties that New York apple producers might consider. The aforementioned six varieties have been identified by hard cider producers as the top priority for additional horticultural research on how to profitably and reliably produce under New York conditions. Now let's beg the question, why deliberately produce "cull" apples that often will sell for a few cents per pound? The answer is that these, and other, hard cider/heirloom varieties are currently selling for strong, fresh fruit prices, more in line with Honeycrisp than packing line sorts. If the hard cider market continues to expand as many think it will, it is likely that prices for these varieties will remain strong for some time to come.

Research has demonstrated that the three most important factors driving new orchard profitability are orchard-run price received, yield, and time to full bearing. Nowhere in that sentence can a mention of the actual market segment be found. What is critical is not what the market is, but can that market deliver a strong price back to the grower? Yield and time to full bearing are strongly influenced by variety, rootstock, planting system, and site selection. Again, the destination market does not make an appearance in that sentence. Historically, the "fresh" market has delivered the highest prices back to the producer, so it is understandable to think that the future will be owned by those that can produce top-quality "fresh" fruit. The conclusion I've reached is that an apple grower should approach the cider market with the same mindset that

Hard Cider, continued from previous page

they would approach the fresh market: What variety/ rootstock/planting system/site will produce the most fruit, quickly, with the highest returns? Consider the question from the following angle:

"Approach hard cider varieties with the same production mindset that you would for fresh market. The economic drivers for success are the same, what differs is the definition of quality. Substitute your traditional notions that quality is defined by size, color, and fruit finish, for a new set of criteria; tannins, acid, Brix, juice structure, and fermentation quality."

Once we get past the connotations inherent in the way we label our markets, it becomes easier to evaluate the risks and rewards of producing these unique cider varieties under today's demanding economic conditions.

So What About Those Risks?

Hard Cider is Just a Flash in the Pan: Possibly, the industry has had some false starts in the past. Major players are currently in, and market share has been growing at 50% annually in recent years. If the market develops according to the craft beer model, there would be room for continued growth in the demand for unique cider varieties.

These Varieties are Hard to Grow: Yes, many of these varieties have challenging horticultural characteristics, including but not limited to; biennial bearing, production of blind wood, small fruit size, modest yields, and susceptibility to fire blight. However, as Dr. Ian Merwin but so succinctly in a recent presentation to producers at the Empire State Producers Expo, prior reputation aside "they are just apples". Consider the variety Honeycrisp, which is a horticultural challenge from every direction, seemingly a new problem every year, but still making money for producers, and is still being planted.

How do I Grow These Apples in New York?: This is a fair question. While apples are apples after all, the Honeycrisp model of how to deal with multiple horticultural challenges would be a prudent expectation. There exists a real dearth of modern, research-based information on how best to approach these challenges. Efforts are gearing up, but research will be playing catch-up with producers and industry for some time to come. What Varieties Should I Grow?: This question also faces today's fresh fruit producer. How does one predict what will be popular in the future? Current New York cider producers have recommended the following varieties for future research in New York State: Porter's Perfection, Dabinett, Golden Russet, Ashmead's Kernel, Kingston Black, and Northern Spy. There are many other varieties out there that can make excellent cider, but with limited research resources, focus is needed. The risk here may be more horticultural than market. Demand appears to be more tied to specific quality characteristics which can be provided by any number of cider varieties, than a few varieties with specific name recognition. However, which of these many varieties can be profitably grown for sale on the wholesale market that is the question. Contact a few of those fifty -three licensed cideries and ask about their future supply needs. Consider participating in NYCA, developing knowledge and relationships that will help with decision-making in the future.

Impact in Eastern New York

Orchardists in the three main sub-regions of eastern New York, Hudson Valley, Capital District, and Champlain Valley, have traditionally produced apples for the fresh market. Processing opportunities have been marginal, far less than those available to producers in the western part of the state. There have been times in the east where the marketing of packing line sorts (apples with defects, not suited for fresh consumption), has been difficult. While no one will be making a living off of the sale of \$0.05/lb. juice apples, there is still a positive contribution to a grower's returns. A thriving hard cider industry will increase demand for "table" varieties culled from the packing process, which can only be good for eastern producers.

Many growers in the east have become highly diversified in their marking strategies. The "buy local" mantra has translated into opportunities for direct retail marketing, agro-tourism, and now, cideries. The retail excitement that this growing industry will produce can be leveraged to generate increased interest in our local farm businesses. These days, New York State government is highly supportive of the farm-based craft brewery and cidery sector. Empire State Economic Development is making available a total of \$750,000 this year for the marketing and promotion of these beverages. Hard Cider, continued from previous page

The Need for Intensified Horticultural Research

New York State cidery owners met recently with Cornell University research and extension personnel to identify, and prioritize the horticultural research needs of this nascent industry. Participants identified six apple varieties (see above), that anecdotal experience suggests would produce high quality juice suitable for hard cider fermentation, profitably, when grown in New York's climate. Specific horticulture issues include:

- Suitable rootstocks
- Appropriate planting systems
- Top working recommendations with the goal to rapidly increase the supply of cider fruit
- Availability of budwood, along with concerns about virus infection
- Crop load management

- Management of fire blight
- Development of harvest indices and regular storage strategies

Fermented cider was a hugely popular, mainstream beverage in the United States, from the colonial days up to the start of the prohibition era. Often, hard cider was considered to be a "safer" drink than the water available at the time! This market disappeared with prohibition, and did not reappear commercially in New York State until modern cider pioneers like Elizabeth Ryan of Breezy Hill Orchards in the Hudson Valley, Bill Barton of Bellwether Hard Cider and Ian Merwin of Black Diamond Farm, both in central New York, blazed the trail during the 1990's. Far from being a flash in the pan, this industry, after a twenty year gestation, appears to be poised for significant growth, and the New York State apple industry will be a major beneficiary.

Winter Pruning in High Density Orchards

A few things to keep in mind as you continue to prune

By Anna Wallis (Adapted from Terence Robinson, Mario Sazo, and Steve Hoying)

Winter pruning is an essential part of optimizing production in your orchard. It is one of the most important activities involved in balancing vegetative and reproductive growth of a tree, leading to the production of high quality fruit. The best time for pruning is when trees are fully dormant—between January and April. Most of you are aware of the importance of this job and the timeframe during which it should occur, and are probably in the orchard working now. Here are a few things to think about as you continue to prune.

Reasons to Prune:

- 1. Maintain good sunlight exposure
- 2. Control tree size
- 3. Manage crop load and renew fruiting wood
- 4. Improve spray coverage or penetration

High density orchard systems are advantageous because light and spray penetration are much better in the smaller canopy. In addition, tree size is more effectively contained because thinning cuts are used to remove entire branches; these cuts stimulate much less vegetative growth than heading back cuts of permanent scaffolds (Image 1). However, winter pruning of these systems is much different and also much more critical especially during establishment, years 1-5—in making sure the orchard realizes its full production potential, as quickly as possible.

Developing a successful winter pruning strategy requires a good understanding of complex and interacting factors including tree



Image 1. Two types of pruning cuts. Heading cuts (left) remove part of a branch, thinning cuts (right) remove an entire branch from the main trunk. physiology, rootstock and variety characteristics, types of pruning cuts and responses, and environmental factors of a particular site. However, the pruning strategy, once developed, is usually easy to teach and can be done fairly quickly.

Following are considerations for pruning the Tall Spindle and Vertical Axis orchard systems.

Tall Spindle

Management of young trees (years 1-5)

 No heading should be done. This allows development of tall central leader. Remember that the goal is to fill the trellis space as quickly as possible. Once the tree starts producing a crop, it will be difficult to encourage vegetative growth, especially in less vigorous varieties and rootstocks.



Image 2. Correct and incorrect pruning of a well 'feathered' nursery tree in the first year of planting. Only a few branches are removed. In 'correct' pruning (top), wide crotch angles are used to prevent competition with central leader and to initiate fruiting in early years. Good tree structure will also increase air movement and sunlight penetration.

- Tie down feathers. They should be kept slightly below horizontal, soon after planting. After the initial tying, there should be little additional tying work in following years.
- Minimal pruning. This will only be to thin out an occasional dominant side branch that competes with central leader (2/3 the size of the central leader or greater) (Image 2).

Management of mature trees (years 5+)

- Limit tree height. This does not usually require intentional pruning. Cropping in year 5-6 usually pulls down the central leader, causing it to flop over the top wire. Otherwise, the central leader should be cut and replaced with a side branch. The branch should be tied to an upright position on the wire or conduit supporting the tree. Aim for a height no greater than 90% of between row spacing. For example, if your rows are 12' apart, trees should be less than 11' tall.
- Branch caliper management. The goal is to thin out branches to maintain good tree shape and light penetration. Maintain a tall slender tree with a conic shape. Keeping the tree narrower at the top will allow good light penetration into the bottom of the tree. Limit thinning cuts to 2 branches per year to prevent production of excess vigor. Remove branches > ¾" in the bottom of the canopy, > ½" at top. Always use a 'bevel cut' (Image 3) when thinning to ensure replacement branches.



Image 3. A bevel cut is used to renew scaffold limbs by triggering the growth of a new bud.

Winter Pruning in High Density Orchards, continued from previous page

 Columnarizing or simplifying fruiting branches. The goal is to keep fruitful spurs close to the central leader and the trellis. This will keep secondary branches from providing too much shade and will keep branches out of between row spaces where they will interfere with other orchard work such as spraying. Remove secondary branches > ½ the diameter of the primary branch.

Vertical Axis (From 'Pruning Tips Vertical Axis' by Steve Hoying)

Remember that this system consists of a permanent bottom tier or 3-4 scaffolds with every limb in the tree completely renewable.

- Reduce the bottom permanent tier to 3-4 limbs arranged in an X pattern angling from the tree not straight into the row. Limbs can be redirected by selecting a side branch that is more in the direction you wish the limb to go.
- Cingulate all limbs so that there are no large side branches coming off the main limbs. This includes removing forks at the end of each remaining limb.
- Remove all vigorous upright shoots and all weak down facing shoots from each branch. This should create a limb with all shoots nearly parallel to the ground.
- Vigorous large fruited varieties can be pruned so that the tips of these shoots face downward, weaker and small fruited varieties should be undercut so that each branch tip is more upright.
- Limit large branch removal to 3-4 cuts. Any limb that is more than ½ the diameter of the trunk where it

inserts is a candidate for removal. Remember to use a "bevel cut"! If you have more branches than need to be removed than the number of cuts allowed, favor large branches on the east and west side of the tree for removal.

• Finally decide how tall the tree should be and reduce the tree's height. Consider light interception and spray coverage when determining tree height. Trees should be no taller than 90% of the between row spacing. Always cut to an upright shoot near the center of the tree and remove side shoots that may contribute to excess shading and/or crop load in this portion of the tree.

More to it than minimal pruning?

Presentations given by Terence Robinson and Stefano Musacchi, at the Empire State Producers Expo, January 20-22 put a strong emphasis on winter pruning as one of the most important steps in precision crop load management, and extremely influential in realizing good fruit size and crop value in critical cultivars like Gala and Honeycrisp.

Two recent studies presented by Terence Robinson show that more than the removal of 1-2 branches annually may be beneficial to both crop value and fruit size (Image 4). The approaches tested in these studies were:

- 1. Minimal Pruning: Annual removal of 1-2 limbs with minimal detail pruning
- 2. Spur Pruning (Spur Extinction): Removal of 1/3 of all spurs on each branch plus removal of 1-2 large branches

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Image 4. Pruning approaches to reduce bud load. a) Limb renewal pruning or 'minimal pruning' b) spur pruning, and c) stubbing back. Photo credit: Terence Robinson.





3. Stubbing Back Pruning: Removal of distal 1/3 of each horizontal or pendant branch plus removal of 1-2 large branches.

In these studies, both spur pruning and stubbing back were *more effective than minimal pruning* in reducing crop load, thus improving size and increasing crop value in both Gala and Honeycrisp. Spur pruning and stubbing back were equally effective. The take home message here is that a little extra work to reduce the amount of fruitful wood can have a definite impact on crop quality. It doesn't seem to matter whether fruitful spurs are reduced by 1) *directly* removing spurs from the scaffold branch or 2) by *indirectly* removing spurs by removing part of the scaffold.

Good luck pruning!

Welcome Kevin!

We are pleased to announce that Kevin Besler has started as a Eastern New York Horticulture Team Vegetable Crops Resource Educator. Kevin has been hired by Cornell Cooperative Extension of Orange County where he will work to address the needs of growers locally as well regionally as part of the team.

Kevin is a native of Oneida County, where he grew up in a small town just north of Utica. He earned his Bachelor of Science degree in conservation biology in 2011 from the State University of New York College of Environmental Science and Forestry (SUNY ESF) in Syracuse. While at SUNY ESF Kevin developed an interest in crop science, plant pathology, and integrated pest management. After working for a season on an apple orchard in Central New York Kevin decided to pursue an education in Plant Pathology at the University of Georgia.



While completing his Master of Science degree at the University of Georgia, Kevin focused on the integrated pest management of cucurbit crop pests and pathogens with a special emphasis on cucurbit yellow vine disease and the squash bug that transmits the bacterial pathogen. His agricultural interests include plant tolerance and resistance to pests and diseases, chemical and cultural pest management strategies, and horticultural characteristics of crop varieties and cultivars.

Kevin has recently moved to Orange County with his Miniature Australian Shepherd, Homer. They will be joined in May by Kevin's wife, Kate, who is finishing up the school year in Athens, GA where she teaches middle and high school science.

Gearing up for Vegetable Transplant Production?

By Teresa Rusinek, CCE ENYCHP

Here are some tips and resources for those of you growing transplants. Attention to details during transplant production will reward you with quality transplants and best results in the field.

Greenhouse Clean Up

Some vegetable diseases including bacterial spot, bacterial speck, bacterial canker, gummy stem blight, tomato spotted wilt virus, impatiens necrotic spot virus, and Alternaria blight can start in the greenhouse and be carried to the field.

- Pull weeds and **remove** from greenhouse, weeds harbor disease and insects.
- Sweep and vacuum debris from greenhouse surfaces.
- Sanitize benches, floors, tools and plant containers are disinfected, surfaces should be clean and free of debris before use.
- Repeated use of chlorine solutions may be harmful to plastics or metals.
- 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://extension.umass.edu/floriculture/fact-sheets/ cleaning-and-disinfecting-greenhouse

http://agdev.anr.udel.edu/weeklycropupdate/?p=4110

<u>Seeds</u>

Buy disease indexed seeds when available. To reduce bacterial seed borne diseases in some crops such as tomatoes, peppers, and cabbages, 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.

Go to this factsheet for more details: <u>http://ohioline.osu.edu/hyg-fact/3000/3085.html</u>.

Scheduling

Keep records, you'll be glad you did.

http://extension.umass.edu/floriculture/fact-sheets/ scheduling-greenhouse-crops

https://nevegetable.org/vegetable-transplantproduction/seeding-and-transplanting

<u>Media</u>

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, drain well and provide good aeration but still have moderate water-holding capacity, and a low nutrient starter charge (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 fertility program before plants show signs of deficiency.

Adjust your fertility program to suite the crop. Tomato and pepper and cole crops tend to be heavier feeders, cucurbits crops and basil are lighter feeders. Cool wet conditions typical in winter and early spring are conducive to ammonium toxicity. Use low ammonical fertilizer source, do not over fertilize, media should not be waterlogged.

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

Water

Test irrigation water, highly alkaline water source (greater than 200 ppm CaCO₃) will raise media pH and result in iron deficiencies especially in peppers.

Purchase a pH and Electro Conductivity (EC) Meter to monitor media.

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

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

https://nevegetable.org/vegetable-transplantproduction/plant-culture-and-heightmanagement#managing

<u>Light</u>

Most vegetable seeds germinate in light or dark conditions (lettuce needs light), to avoid stretching of seedlings and "leggy" transplants be sure to provide higher intensity light right after germination. After germination, stretching can occur if seeds are left in dark or low intensity light.

http://content.ces.ncsu.edu/starting-plants-fromseeds.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 at transplant production.

Is Growing Greenhouse Transplants for Me?

Containers and Media

Gearing up for Vegetable Transplant Production, continued from previous page

Transplant Production Systems

<u>Water and Fertilizer Management for Production of</u> <u>Containerized Transplants</u>

Insect Management

Disease Management

Weed Management

Greenhouse Structures and Site Selection

Greenhouse Heating and Cooling

The Economics of Growing Vegetable Transplants in a Greenhouse

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

Allium Physiology 101

By H. Chris Wien, Cornell Univ. Dept. of Horticulture

Vegetable growers often wish for crops to grow that are undemanding in their requirements, and that provide reliable yields no matter when and how they are grown. Onions and their allies, known as the Alliums, are the fussiest of crops, demanding exact conditions of daylength and temperature for best performance. Here follows a short primer on what makes them tick. The two major important processes in these crops are the formation of bulbs, or bulbing, and the formation of flowers, known as bolting. Both these processes stop the vegetative growth of the plant, so once bulbing or bolting starts, the plant's bulb or number of flower stalks will be proportional to the size of the plant at that time. We will cover these processes separately, and then explain how the plants react to a "typical" growing season.

BULBING: Bulbing is the formation of an enlarged storage structure at the base of the leaves, composed of leaf bases and bulb scales. Bulbs are resting structures that provide food for the plant when it resumes growth after long periods of drought or cold. Since they are the harvested product for which the crop is grown, the factors influencing bulb formation are important to know. In Table 1, those factors are listed, and their influence explained for the main Allium crops.

In all the crops that form bulbs, the major stimulating factor is daylength. Under the long daylengths of late spring and summer, bulb formation is initiated. For bulb formation to be concluded, daylength needs to continue to be long enough, otherwise the process stops and goes in reverse, showing up as a thick-necked bulb that does not mature properly. Bulbing is fostered by temperatures that are optimum for growth of the crop in onions and shallots. In garlic, the long days of spring and

continued on next page

Сгор	Daylength	Temperature	Variety
Onion	Major	Moderate	Major
Shallot	Major	Moderate	Major
Garlic	Moderate	Major	Major
Leek		No bulbs formed	
Bunching onion		No bulbs formed	

Table 1. Influence of daylength, temperature and variety on bulb formation in 5 major Allium crops.

Allium Physiology 101, continued from previous page

summer stimulate bulbing, but cold temperatures of winter are essential for bulbs to be formed. That is why garlic is planted in fall; if planting is delayed until spring, no bulbs will form if the cloves that are planted were stored in warm conditions.

In all bulb-forming crops, the choice of variety makes a big difference when bulb formation starts, and what size of bulb is formed. In each major onion-producing area of the country, varieties have been selected to maximize productivity under their specific growing periods. Here in New York, our adapted onion varieties start bulbing at close to the longest day of the year (June 21). In Texas, on the other hand, varieties have been selected to start bulbing under the shorter daylengths of spring, because they have had all winter to make vegetative growth, and growers want to market an early crop. If such Texas varieties are grown in New York, they would not make much growth before the bulbing process would start, and thus only small bulbs would be formed.

BOLTING: The formation of a flowering stalk and flowers in onions and their relatives is defined as bolting. A bolting plant will not form bulbs, so it is important to prevent flower induction if the purpose of the planting is to produce bulbs. The major trigger for this process is cold temperature (Table 2). The temperature range most effective for flower stalk formation is between 40 and 50 F, but longer periods near freezing can also be effective. Again, the choice of variety makes a big difference in the ease by which an onion can be induced to bolt.

The size of the plant that is subjected to cold conditions is also a factor in bolting. Most onion varieties have a minimum size that must be reached before they can be induced to bolt. Smaller plants are called 'juvenile', while those that are large enough to be stimulated to bolt are 'adult'. That is why, in regions where the onion crop is overwintered, the crop should not be planted too early in fall, to prevent it from reaching the adult state as the cold period arrives. In general, onion varieties that were developed for areas where they will be routinely grown in winter such as Texas, will be more bolting resistant than those grown in the Northeast.

The formation of a seedstalk in garlic is primarily controlled by the variety in this crop. Generally the garlic varieties grown in the Northeast form stalks of varying heights, while those grown in California do not, even if they survive the winter here after fall planting. According to work in England, prolonged cold conditions stimulate bolting and seedstalk formation.

Сгор	Daylength	Temperature	Variety
Onion	Slight	Major	Major
Shallot	Slight	Major	Major
Garlic	Slight	Major	Major
Leek	Slight	Major	Moderate
Bunching onion	Slight	Major	Major

Table 2. The influence of daylength, temperature and variety on bolting and formation of seedstalks in the Alliums.

Marketing Your Farm and Products through Social Media

By Teresa Rusinek, CCE ENYCHP

As this is the time of year for planning marketing and sales efforts for the upcoming growing season, I thought it would be a good idea to refresh the minds about strengthening your marketing efforts.

Like so many business people these days, farmers, especially those in direct –marketing, are using social media as a tool to communicate with established customers and to reach potential customers. A project funded in part by NY farm Viability Institute through NY Flower Industries aimed to help ag producers build their brand online and target customers through social media. Guest speaker, Will Heeman, of Heeman's Greenhouse and Strawberry Farm in Ontario Canada gave a series of social media workshops in February of 2013 throughout New York. Will is in charge of marketing at his family run farm operation and has successfully built up a social media marketing campaign using Facebook, Twitter and Pinterest. I encourage you to take a look at their social media sites, they are well done! Will shared his extensive experience and insights using social media at the workshop held at CCE Ulster County. A diverse group of twenty three farm operators/staff attended. There was lively discussion

and hands on work using laptops to explore the ins and outs of social media.

Here are some highlights from his presentation at CCE Ulster County.

- There are 5 key components to success with social media: Engagement, Keeping content fun, Creating Community, Having a voice, and Brand Nurturing.
- <u>Engagement</u>- Ask Questions when you post on Facebook. "Are you interested in this product?" You will reach a larger audience by inciting comments and shares.
- <u>Keeping Content Fun</u>- Photo posts are more interesting, text only is boring. Post if it is awesome. Have themes for each day of the week. Build anticipation and excitement for seasonal crops/ offerings.
- <u>Create Community</u>- Tell the farm story. Educate how you grow.
- <u>Voice</u>- Create a positive voice. Have a personality.
- <u>Brand Nurturing</u>- Update frequently, it should only take 20 minutes per day to manage your social media accounts once you are set up
- Best times to post are 8:45-9:10 AM and 4:30 to 4:50 PM. Thursday is a good day in the week to post as people are planning their weekends.

- You should have a Facebook Business Account for running ad campaigns. Personal Facebook accounts are for individual, non-commercial purposes. Managing multiple accounts is a violation of Facebook's Terms of Use. If Facebook determines that you have more than more than one account, they reserve the right to disable all of your accounts.
- Use the Analytics Page on Facebook to better target your posts.
- Be prepared for criticisms and know how to respond, remember comments positive or negative are available for all to see
- There are different social media venues Twitter, YouTube, Facebook, Pinterest etc. Users go to each for specific reasons, make sure your content is relevant.

I hope this is useful for those of you using or thinking about using social media. If you are seeking more information, I suggest taking a look at "Social Media Tools for Farm Product Marketing," <u>www.attra.ncat.org</u>. This publication offers an overview of several social media tools, including how to use blogs, Facebook, email marketing, and Twitter. It also provides tips and case studies on using them more effectively.

Purification of Surface Water for Use in Irrigation Systems

By John-Erik Kocho-Schellenberg, CCE Orange Co.- Many farms in New York rely on surface water sources such as lakes, rivers, and farm ponds for a variety of agricultural uses including mixing sprays, frost protection, pressure washing equipment and infrastructure, and irrigation of greenhouse and field crops. Currently there are no quality standards for water to be used for these purposes, but the Food Safety Modernization Act (FSMA) will provide standards by October 2015. As it is currently written, the Produce Rule under the FSMA will require a baseline water quality to be established on any surface water sources. This would involve taking 20 tests over a two year period. If all tests were below the threshold of 126 CFU per 100 ml, annual testing could then decrease to 4. CFU stands for colony forming units, and is a method labs use to determine bacterial

density. It is interchangeable with MPN, the most probably number. If any of the tests exceed the limit, the testing requirement would go back up to 20. It is important to note that these standards have not yet been finalized and are subject to change pending finalization of the Rule. This article is meant to provide an overview of the variety of systems which can be installed in different situations to mitigate risk of surface water contamination.

The focus of FSMA is on risk reduction. When it comes to using surface water, risk prevention is generally a better solution than remediation in the long run. Installing systems to decrease contamination risk may have upfront associated costs (although some can be

quite inexpensive), but by reducing your contamination risk they could decrease the frequency of water testing required by the Produce Rule. Furthermore, some of the systems can be created in such a way as to provide a number of other benefits as we will see.

Standard Filtration Systems – Good, Better, Best:

Standard methods of filtration involve passing water through various types of media in order to remove particulate, chemical, and biological contaminants. These systems generally use high surface area materials such as gravel, sand, or charcoal.

Good:

Screens

The simplest form of filter is a screen filter. Screen filtration to remove large particulates such as sand is common and inexpensive, but using screens to remove pathogens is more difficult. Raw water is pumped through screens with mesh size .5-2 micrometers, which is small enough to remove many types of bacteria. These systems can be expensive because the screens decrease the flow rate. Screen filtration of biological contaminants may be economical for small applications, but not for field irrigation. Screen filter systems designed for irrigation are available, but there is no evidence currently linking their use to decreased

http://www.tekleen.com/water-filtration-101/

Phytoremediation and Myco-remediation

Phyto- and myco-remediation are effective at removing many types of chemical contamination from surface water. Phytoremediation involves the use of plants and their associated organisms which are hyper accumulators of certain toxins to remove these contaminants and accumulate them within their tissues. Depending on the type of chemical contamination, different plants are used to target the uptake of specific toxins.

http://www.epa.gov/superfund/accomp/news/ phyto.htm

Myco-remediation is the use of fungi to accomplish the same goal. Fungi are known hyperaccumulators of many heavy metals, and can also metabolize many classes of hydrocarbons.

http://www.wsdot.wa.gov/research/reports/ fullreports/464.1.pdf

Better:

Sand Filter



Figure from Minnesota Rural Water Association: <u>http://www.mrwa.com/WaterWorksMnl/</u> Chapter%2018%20Filtration.pdf

Purification of Surface Water for Use in Irrigation Systems, continued from previous page

A rapid sand filter is essentially a bed of sand onto which water is pumped and circulated. A large concrete reservoir is built in a location between the raw water source and the destination of the treated water. Porous pipes leading to a manifold lay on the bottom of the reservoir. The pipes are covered in coarse gravel, and the sand layer rests on top of that. Raw water runs into and spills out of troughs placed above the bed of sand, being filtered before entering into the porous pipes and being pumped into either a holding tank or directly into an irrigation system. This type of system can filter 2gpm/sqft of sand surface area. Periodic cleaning of the sand filter is achieved through backwashing, when treated water is pumped in reverse up through the sand bed and is made to run all the way back into the raw water source. The system must be designed so that the sand is not allowed to be forced out of the basin and into the raw water entry troughs. The cleaning frequency depends on the turbidity of the raw water and the flow rate.

The rapid sand filter can be built to accommodate almost any level of irrigation needs. For operations that have medium or large irrigation needs from surface water sources, the rapid sand filter will likely be among the best options for efficiently reducing physical and microbial contamination.

UV Sterilization

UV light in-line filters emit a sufficient intensity of UV light to destroy most bacterial and parasitic pathogens. The light destroys the pathogens' DNA and kills them but does not physically remove them from the water. They cannot be used with turbid water, and so must be used in conjunction with some type of particulate filter if the water source is often turbid. UV filtration requires electricity, but can be economical at small scales such as greenhouse or nursery irrigation. It is commonly used for sterilizing field irrigation water.

Best: The best water filtration system would be a sand filter with one of the additional sanitizing steps below.

Solar Purification

The easiest method of solar purification is through solar thermal disinfection. In this system, a network of water pipe is fitted with aluminum heating panels which are painted black, and set into a glass enclosed case, pointed at the sun. Water can be pumped through the solar water heater at a rate that allows the water to reach 170 degrees F and maintain that temperature for 1.5 minutes, killing the majority of E. coli.

http://www.ncbi.nlm.nih.gov/pubmed/9105932

The drawback with this technology is that when a large flow rate is needed for to irrigate crops for a prolonged period of time, the solar heater needs to be large enough to bring the water up to the pathogen killing temperature. This technology is more appropriate for systems with smaller irrigation needs, such as a single hoop house or plant nursery as opposed to large areas of outdoor field crops.

A system like this one that produces hot water when the sun is shining could also have numerous other applications in agricultural production. The excess hot water could be used for radiant earth heating in greenhouse production, or be used for warming nursery trays.

Sanitization

There are cases in which growers are unable to filter high-risk surface water sources, and yet need to use this water close to harvest. In some instances, unfiltered surface water is sprayed directly on crops such as strawberries up until day of harvest for frost control. In these instances, sanitization can be an effective way to deal with the problem. Contact your irrigation supplier for information on chlorine injection systems.

Clean Sweep NY (Lower Hudson Valley NYSDEC Region 3)

The New York State Department of Environmental Conservation (NYS DEC) has teamed up with Clean Sweep NY to properly dispose of cancelled, unwanted, unusable, or otherwise obsolete pesticide chemicals from agricultural or non-agricultural entities such as farmers and commercial pesticide applicators. The collections will take place during the week of April 6, 2015 in Kingston, Fishkill and Middletown.

Pre-registration is required and registration packets can be requested by telephone or e-mail: Telephone: 877-793-3769 E-Mail: info@cleansweepny.org

Hudson Valley Research Lab Membership Meeting

The Hudson Valley Research Lab Inc. (HVRL) is hosting a membership meeting on March 10, 2015 at the Hudson Valley Lab at 3357 Route 9W in Highland, NY. Membership allows growers to participate in establishing programing and research priorities originating from the Hudson Valley Lab (HVL).

Research conducted at the HVL is of direct importance to growers in the Hudson Valley. Experiments are done under real world Hudson Valley conditions and the data collected can help with growers with their crop management decisions.

For more information, about this meeting or the Hudson Valley Lab contact Peter Jenstch at 845-691-7151 or email pjj5@cornell.edu.

SNAP for Direct Marketing Farmers and Farmers Markets:

Learn more through free webinars

USDA has appropriated another \$4 million to help direct marketing farmers and farmers markets join the SNAP program. The National Association of Farmers Market Nutrition Programs (NAFMNP) has created MarketLink, an online solution to an expedited application process, nationally negotiated rates for SNAP, debit and credit; as well as state-of-the-art equipment, an iPHone 5, card reader and blue-tooth connected printer.

Joining the SNAP program involves a three step process. The first is to complete an eligibility assessment to determine whether the USDA funds can supply a free terminal (iPhone 5 with data plan, card reader and printer) or whether NYS funds can be used to assist you in using your own iPhone, iPad or Android. The second step is the online USDA SNAP retailer application. The final step is to complete the application for a third party processor, WorldPay, to process transactions. With MarketLink, you can complete your applications today and be accepting transaction payments through your iPhone in as little as two weeks!

The Farmers Market Federation of NY will be holding webinars to help direct marketing farmers and market managers understand the MarketLink program and will schedule phone appointments with attendees to complete the application process. The presentations

SNAP for Direct Marketing Farmers and Farmers Markets

Tuesday	Mar 3	Noon – 1pm
Wednesday	Mar 18	Noon – 1pm
Tuesday	Apr 7	6pm – 7pm
Wednesday	Apr 15	6pm – 7pm

should take approximately 60 minutes for the presentation and question and answers.

The webinar is free to join and will help you understand the process and the value of adding SNAP to your farm or market. Register now to reserve your space on the date that best fits your schedule.

To register, click <u>here</u> for the registration information, then click on the link for your choice of dates and complete the registration information. Once submitted you will receive a link to the webinar. Save that link! This is how you will access the live webinar.

In addition, the Farmers Market Federation of NY will be holding webinars for farmers markets who will be using a token system. The webinar training is mandatory for all markets using this system and have not previously participated in training. For all others, the webinar is a refresher course.

The webinars are free to join. To register for these webinars, click <u>here</u> for the registration information, then click on the link for your choice of dates and complete the registration information.

For more information, contact the Farmers Market Federation of NY at 315-400-1447 or email deggert@nyfarmersmarket.com.

Operating a Central Terminal for SNAP

Tuesday	April 21	Noon – 1:30
Wednesday	April 29	Noon – 1:30
Tuesday	May 5	Noon – 1:30
Thursday	May 21	Noon – 1:30

Deadline Approaches for Crop Assistance Program

By Sandy Buxton, CCE Capital Area Ag & Hort Program

Noninsured Crop Disaster Assistance Program (NAP) from USDA could be advantageous for new farmers or those that are highly leveraged and need to protect their income from weather related disasters.

A January 14 and Feb 1 deadline just passed for a program that allows farmers to "buy up" coverage on crops that have expired deadlines. Next up: March 15.

These crops (and their deadlines) include:

March 15, 2015 – most other fruits and vegetables, including tomatoes, cucumbers, beans

Past NAP deadlines are listed below:

- Ornamental & Non- Nursery 5/1/2014
- Value Loss Crops & Garlic 9/1/2014
- All Forage Crops, Fall & Spring Seeded Small Grains 9/30/2014
- Perennial crops, Fruit & Nut trees 11/20/2014
- Honey & Maple Sap 12/1/2014
- Strawberries, blueberries, apples, cherries and other fruit January 14, 2015
- Beets, Greens, Herbs, Lettuces, Radishes, Scallions,& Shallots - February 1, 2015

Why is this important?

Using an example of squash production: Farmer Brown purchased NAP for his winter squash crop (\$250 administrative fee), and he has an Average Production History (APH) of 150 cwt per acre. The value of the squash is \$42 per cwt. The producer planted 20 acres of squash and produced 1,470 cwt., or a 51% loss.

Under regular NAP Catastrophic Coverage his payment would be \$693 for the covered loss. If he had employed "Buy Up" coverage with NAP, his NET payment would be \$15, 860.

Certainly, a more reasonable option considering the investment in crop production expenses. Also, beginning, socially disadvantaged or limited resource farmers qualify for a waived administrative fee and a 50% reduction in premiums, which provides a great opportunity at less financial risk!

Process

After a farm signs up, the process then involves establishing production history which helps measure for losses and calculate program guarantees. New producers can use the County Average while established producers will need to show some documentation of production.

For farms that are looking to buy-up coverage, this sign up round is allowing for a one-time opportunity to replace missing year data with 65% of County Average Yield, which is far better than a zero when calculating rolling 5 year averages!

In terms of reporting, producers must file a planting report at least 10 days prior to the crop being harvested if planted <u>before</u> the planting deadline. Or report planted acreage within 15 days of planting if planted <u>after</u> deadline.

In the event of a loss, producers are required to notify FSA of the potential crop loss by filling out a Notice of Loss form, amount of production, the cause, and an application for payment.

If the loss is caused by prevented planting, the timeline for reporting is within 15 days of deadline. But if a



Deadline Approaches for Crop Assistance, continued from previous page

weather event or disaster is the cause of the loss, farmers have 72 hours from the event OR when the damage is first noticed. Weather related disasters include "damaging weather, such as drought, freeze, hail, excessive moisture, excessive wind or hurricanes; adverse natural occurrences, such as earthquake or flood; and conditions related to damaging weather or adverse natural occurrences, such as excessive heat, plant disease, volcanic smog (VOG) or insect infestation".

Often loss claims require a field visit by an investigator or third party (such as Cooperative Extension), so the reporting must be filed quickly to allow for visual confirmation.

Records can be reliable and/or verifiable as determined by FSA. Keeping good records is vital to being part of the NAP program. Verifiable production records can be substantiated by a third party, such as packing slips, purchase orders filled, and include a date. Reliable records would include farm production records, ledgers, pick records, deposit slips, register tapes and field logs.

Taking the time to learn more about this program and investigate the potential value it has to be a risk management tool for your business will be worth it. For several of the producers who have sought more information, obtaining buy-up coverage protection on just two of their key crops would have protected enough income at a nominal price to keep the farm operating comfortably. Knowing that weather issues have caught many producers recently with the more extreme temperature fluctuations wreaking havoc certainly figured into their decision.

For more information, please contact your local Farm Service Agency office or call Sandy Buxton at 518-380-1498 or <u>sab22@cornell.edu</u>.

2015 Winter Tree Fruit Schools Presentations

Presentations from the 2015 ENYCHP Commercial Tree Fruit Schools held in Lake George and Kingston February 9-12 have been added to the ENYCHP website. You can view them by following this link: http://enych.cce.cornell.edu/submission.php?id=273&crumb=crops|crops|apples|crop*38

B.E.V. NY 2015: Business, Viticulture, Enology

February 26 - February 28

RIT Inn & Conference Center, 5257 W. Henrietta Rd., Henrietta, NY

Last year the New York Wine Industry Workshop and the Finger Lake Grape Grower Conference joined forces to become B.E.V. NY. This event is focused on providing the New York grape and wine industry with the most current and relevant evidence-based information. Presentations will be given by Cornell scientists and other regional experts. For more details and registration information go to <u>http://flgp.cce.cornell.edu/event.php?id=162</u> or call Karen Gavette at 315-536-5134.

NYS DEC Special Permit Training for Pesticide Handlers

2 Dates and Locations—registration deadline 3/27/15 Both Sessions run 9 am—12 pm.

April 2, 2015 St. Augustine's Parish Center

3035 Main Street, Peru, NY 12972

Contact: Anna Wallis at 443-421-7970 or email <u>aew232@cornell.edu</u>

April 3, 2015*

Best Western Plus, 503 Washington Ave., Kingston, NY 12401

Contact: Dan Donahue at 845-691-7117 or email <u>djd13@cornell.edu</u>.

*Kingston training will be offered in English and Spanish!

This training is for TREE FRUIT FARMS ONLY.

The NY State Department of Environmental Conservation (DEC) adopted regulations in 2000 that required supervising certified applicators to be on site and in voice contact with their trained pesticide handlers in order for the handlers to apply federally restricted pesticides.

We will again hold training programs so that DEC can issue "special permits" to these non-certified applicators that work under the supervision of a private certified applicator. This "special permit" will enable trained workers to apply restricted-use pesticides to tree fruit for the 2015 season without "direct, on-site supervision". These DEC "special permits" are being made available to assist individuals who have difficulty taking English written tests and are not certified.

Permits issued last year are no longer valid, and this year's permit will be valid only for the 2015 season! The best option is still to have your handlers pass the DEC private applicator certification exam.

Supervisor Requirements: The supervising certified applicator is required to attend the beginning portion of this meeting with employees being trained.

PRE-Registration is REQUIRED. Registration cost: \$30 per trainee. Payment in advance is preferred but can also be made at the door the day of the meeting but you <u>must be pre-registered</u>! Your completed registration form must include the **names and addresses of those workers attending** the training, and must be received by the registration deadline of March 27, 2015.

To register, go to the ENYCHP event webpage at <u>http://rvpadmin.cce.cornell.edu/pdf/event</u> and click on the event you want to attend. Under each event listing you will find a printable registration form (to register via mail or email) or a link for online/credit card registration. For further help registering, contact Marcie at 518-272-4210 or email <u>mmp74@cornell.edu</u>.

This event is being hosted by the Eastern NY Commercial Horticulture Program

2015 Garlic School

Tuesday, March 10th from 10 am-3 pm

(Rescheduled from Feb. 12)

Hudson Valley Lab, 3357 US 9W, Highland, NY 12528

This year's garlic schools will have a broad focus on disease, insect and weed pests that growers are already dealing with or that may show up in New York from other parts of the country. Cornell pathologists and growers will discuss the latest research on Aster Yellows, a disease which has devastated the garlic industry in the Midwest, and the soil-borne diseases such as Fusarium. The latest fertility and weed control research will also be presented.

Registration fee includes a delicious, garlicy lunch!

For full event details, and registration information (by mail or online) go to <u>http://enych.cce.cornell.edu/event.php?</u> <u>id=303</u>. For additional questions contact Marcie at 518-272-4210 or email <u>mmp74@cornell.edu</u>.

Winter Pruning Demonstrations with Terence Robinson

Winter pruning of high-density and semi-dwarf apple trees will be held in three locations in Eastern NY. Event will include orchard platform & pruning equipment demonstrations.

This event is FREE—thank you to our sponsors! OESCO, Inc. and INFACO Inc.

Pre-registration is REQUIRED. Please register by February 27th—see contact person listed under each location.

CHAMPLAIN VALLEY

March 3rd, 2015, 9:00 am – Noon Forrence Orchards, main packing house 2731 Rte 22, Peru, NY Contact: Anna Wallis at 443-421-7970 or <u>aew232@cornell.edu</u>.

SOUTHERN HUDSON VALLEY

March 2nd, 2015, 10:00 am – Noon Crist Bros.—Milton Farm, 193 Willow Tree Road, Milton, NY 12547

GPS Coordinates: 41.653735 -73.982152 for the entrance off of Willow Tree road

NORTHERN HUDSON VALLEY

March 2nd, 2015, 2:30 – 4:30 pm Yonder Farms, 3143 US Rte. 9, Valatie, NY 12184

Seasonal farm stand location. Follow the signs to the demo site. GPS Coordinates: 42.442159 -73.686560 for the entrance off Route 9

Contact for Hudson Valley sessions: Dan Donahue at 845-691-7117 or <u>djd13@cornell.edu</u>.

Eastern Winery Exhibition

The Eastern Trade Show & Conference for Wineries and Growers March 17-19, 2015 at the OnCenter, Syracuse, NY

This 3-day event is an excellent opportunity for you to attend educational presentations and workshops in enology, viticulture and business, to network with other wine and grape producers, and to connect with companies who can supply products for your business.

In the past this event has been held in Lancaster, PA. The event has expanded so much that this year it has moved to the OnCenter in Syracuse, NY.

More information and registration options are available on the EWE website: <u>http://www.easternwineryexposition.com/</u>

Non-Profit U.S. Postage Paid Albany, NY Permit #937

UPCOMING EVENTS

February 26 - February 28 , Henrietta **B.E.V. NY 2015: Business, Viticulture, Enology** Providing the NY grape and wine industry with the most current and relevant evidence-based information. *See page* 18 *for details*.

March 3, Peru, and March 2, Milton and Valatie Winter Pruning Demonstrations with Terence Robinson. See page 19 for details.

March 10, Highland (Rescheduled from Feb. 12) 2015 Garlic School. See page 19 for details,

March 15, Highland Hudson Valley Research Lab Membership Meeting. See page 15 for details.

March 17-19, Syracuse Eastern Winery Exhibition: The Eastern Trade Show & Conference for Wineries and Growers. See page 19 for details.

April 2, Peru and April 3, Kingston Special Permit Training for Pesticide Handlers. See page 18 for details.

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.