Crowning, Pruning, and Training
The Art of Growing Hops

By Steve Miller

Hops are easy to grow. At least that is what everyone says. But to obtain good yields, maintain excellent quality, and fully utilize your harvesting and drying facilities, it is not easy at all. Growers in the emerging production areas of the East and Midwest are learning this every year. Recently, Kevin Riel, a hop grower from the Yakima Valley spent an extremely valuable day with growers in New York. Kevin said there is a scientific side of growing hops, and an art side. Crowning, pruning, and training are the later, and so important to the success of the crop. These three cultural practices are used by growers in the Pacific Northwest to manage weeds, rejuvenate the plants, manage diseases, set the internal clock for harvest date and increase yield.

We newcomers to hop farming often lump the Pacific Northwest into a non-diverse, monolith of hop production, but there are significant differences in soils, historical variation in the cultivars grown and certainly climate differences between Oregon, Washington and Idaho. Growers build their own equipment and learn what works best on their ranch. We often read about what practices are carried out in these long established production areas, but we may not fully understand the why, how, and when of what is done.

Let’s tackle these in chronological order. Crowning is the first and is done during the dormant season of late winter to early spring. Remember these production areas have much less snow and rain than we do in the east, and their winters are quite a bit milder. It is usually easy for them to get into the fields in March (mud season here). There are differences between Willamette and Yakima regions and even between growers in how they approach their practices and what equipment they use.

In Oregon, growers often crown more aggressively, deeper into the soil, exposing more of the crown. They will often use a fungicide soon after crowing to knock back downy mildew potential. Because they are crowning so deep, up to a few inches, they will hill up soil over the plants in the summer. This too helps reduce downy mildew growth and invigorate root and shoot production. The equipment they use might be a single, side mounted flat blade or a set of two opposing round, cutting blades that

For Northeastern Growers:
- Don’t crown 1 and 2 year old plants
- Crown weaker varieties, mostly aroma, first
- Prune when the time is right, not by the height of the shoots
- Pruning timing sets the schedule for training and harvesting for each variety
- Train weaker varieties first
- Train 2 to 3 shoots of medium vigor to each string
- Use only coir or paper twine
- Cut out “bull” shoots and downy mildew spikes
- Keep detailed records to use for future crop tasks
cut horizontally into the soil. For obvious reason, crowning is done before stringing.

Some growers in the Yakima Valley use an overgrown weed whacking type device that only scuffs shallowly into the soil. Downy mildew is not as much of a problem there, and hilling is used mostly to rejuvenate aging yards and to encourage rhizome production for propagation.

One and even two year plantings are generally not crowned and should not be in eastern production where vigor and growing season are less than in the Pacific Northwest. Since crowning is done during the dormant season, growers can do the entire field as weather permits. If downy mildew is not an issue yet in the yard, weaker varieties may not be crowned at all.

Pruning is the next step. In this practice, emerging hop shoots are mowed, cut, burned or desiccated chemically about 3 to 4 weeks before you expect to train that variety up the strings. How do you know when that should be? That really is where the art comes in again. Experienced growers will often say, I do it then, because grand dad did it that way. Keep in mind that PNW hop ranches are multigenerational and some varieties like Cluster have been grown for 40 or 50 years. I’ll say it here and again later, keep good records of everything you do with the crop. This will be your most valuable tool to make your farm productive. Keep track of the weather, as well.

This year in New York we had a long winter and late spring. Do you remember when your Cascade emerged last year, and when you pruned them, harvested, and if the yield was good or not. The great majority of yards in the east are less than four years in the ground.

Pruning sets the clock for when you want to train each particular variety. When the plants reemerge, the shoots will be even aged so the harvest too will be even aged (and with good records) somewhat predictable. Here are a few concepts to keep in mind related to deciding when to prune. Weaker varieties should be pruned first and secondly, extra-vigorous “bull shoots” will produce lower yields and should be removed. These shoots grow so fast that they have very long internodes, meaning the space between sets of leaves. This results in fewer branches, and therefore, fewer hops.

In general, aroma varieties are weaker growers than high alpha types. Also these more vigorous types tend to emerge earlier. Cascade, Fuggle, Willamette, Liberty, Perle and many others should be pruned early. Out West that may mean late March or early April. The shoots can be anywhere from 6” to 3’ at this point, but height is not the determining factor for when to prune. Where you are, the date is going to be different. For fast growers like Galena and C,T,Z this might be as late as early May in Yakima. Given that PNW hoppers are now being grown from North Carolina to Canada, you can see that no one is going to be able to say for example that “Willamette should be pruned the first week of May, and Cascade a week later.” Frost can be a natural pruner and may set the plants back. Not much you can do except to wait for them to come back up. Some growers are experimenting with using sheep to clean weeds and prune the hops. This practice takes careful management. Even on your own farm you may find that you have too many varieties maturing at the same time so you may want to prune and in turn train a portion of some varieties a week apart to help spread out the harvest.

Training is the final step for planning harvest dates. To maximize yield, we use a “V” trellis with two strings per hill. Only coconut coir or paper twine should be used. Baling twine will stretch when wet. This will cause the vines to slump and may result in breakage at the soil line from wind movement. Baling twine will also clog up mechanical harvesters, so don’t use it! First year plants need only one string per hill. This is a good time to cut out those bull shoots as mentioned before. Similar to pruning, slower varieties are trained first so they will get all the time they need to mature. Train healthy shoots with medium vigor. How many shoots per string? Typically 2 strings with 2 bines per string for vigorous varieties and 2 strings with 3 or 4 bines for varieties like Cascade, Willamette, etc.
Scouting Report from Jason Townsend:

Hops scouting season will begin again in the middle of May. This year we will build on the information obtained from May to August of 2014. In 2014, 30 farms were scouted bi-weekly. These farms spanned Albany to Rochester, and Syracuse to the Susquehanna River, covering a wide range of soil types and farm management practices.

From the 2014 season, we obtained information on the timing of hop pests and the pressure that hops face from a number of fungal diseases. Downy mildew is the top fungal disease of hops. It is in many yards around New York right now, as the fungus overwinters in the rhizomes and can begin sending out spores when spring rains contact the first early shoots. It’s important to have a downy mildew control plan in place from right now forward until harvest. Other fungal diseases appear later in the summer and are more dependent on optimal (hot, wet, humid, windy) late-summer conditions to affect your hops. We’ll monitor for these and try to positively ID all disease issues this year through a partnership with the plant pathology lab at Cornell’s Geneva Experiment Station. Hopefully we can develop some tools to combat the late-season fungal pressure as well.

In general, arthropod pest pressure won’t appear until hotter weather and I will send a scouting report out as I begin to detect significant two-spotted spider mite, potato leaf hopper, hops aphid, and Japanese beetle populations.

We will also continue with petiole analysis in 2015 to better understand the nutrient needs of hops in New York. Additionally, we will be piloting some plant sap analysis, which has potential to give a much more accurate assessment of real-time nutrient needs of hop plants. This will be in partnership with a researcher at Cornell University in Ithaca. I will provide more details on this as the hop plants mature and we begin sampling. We hope to use this tool to develop more targeted fertilizer programs that boost both yields and plant resistance to pests and disease.

Please feel free to contact me with questions about pests and diseases of hops. I have PDF summaries of the results of the 2014 scouting season that I am happy to share with interested growers. jmt344@cornell.edu

This is also a great time to watch for downy mildew spikes. These should be cut out whenever they are found. Bring a bucket and remove them from the field.

Hops shoots are quite brittle and sometimes the growing point will be broken off. Two shoots will arise from the node closest to the break. Early in the growing process its best just to train a new shoot to the string. If this happens further up the plant you should allow the two shoots to grow a foot or so and then train one of them to the string to take over the growing point.

Crowning, Pruning, and training are extremely important practices in hops production. Understanding how each variety responds to these is key for success in managing the crop. For a list of average maturity order for hop varieties refer to the April newsletter. The best tool you have is to keep detailed records, and refer back to them each year.
Plant Sale Plant Pick-up

If you ordered hops plants, please watch for an e-mail from Sarah Ficken in the coming weeks. This e-mail will contain important information about plant pick-up. In the interim, please be aware of the following items.

Please call Zerrillo’s Greenhouse (George or Nick) after June 5 at 315-656-8466 to make an appointment for pick-up. Please note their hours of operation are Monday – Friday 8:00am-5:00pm and Saturday & Sunday 8:00am-1:00pm. Remember to bring a copy of your order form the day of pick-up. Please contact Sarah Ficken (sjs299@cornell.edu), if you do not have a copy of your order form.

Zerrillo’s Greenhouse is located at 7581 East Taft Road, East Syracuse, NY 13057.

The plants are being grown in 4 ½ inch pots. There are 15 plants in each tray. Each tray is approximately 1ft x 2ft. Please make sure that you have enough room in your vehicle to transport your plants. Plants must be transported inside your vehicle. Transporting plants in an open truck bed will destroy them. If you plan on building shelves in your truck for transport, please leave a foot between shelves. Please note we are not able to ship plants for you.

The plants will need daily watering and should be kept out of the hot sun and wind for several days to get acclimated. If it is sunny and windy, the plants may need to be watered several times a day. You should not put them in the field unless you have your irrigation system ready.

You must bring a check for the balance you owe or you will not be able to pick up the plants. In order to claim tax exempt status, you must have an ST-125 on file with Zerrillo’s. If you have any questions about the status of your tax exempt form, please contact Sarah ahead of time by email sjs299@cornell.edu or phone 315-684-

Resources for Growers:

The USDA has a great site on germplasm. This could be of interest to all growers, but especially those looking for more information about the genetic makeup of the hop varieties in their yard.  
http://www.ars.usda.gov/News/docs.htm?docid=11069

Michigan State University Extension has some really great information for controlling downy mildew, especially in the early season. The main takeaways: scout consistently, remove infected shoots, and utilize a protectant fungicide management strategy to mitigate early and severe infection risk. 
http://msue.anr.msu.edu/news/managing_hop_downy_mildew_early_in_the_season_is_critical

List of Funding Sources Compiled by the USDA. The National Agricultural Library’s Alternative Farming Systems Information Center has compiled a list of agricultural related funding opportunities and programs  
http://afsic.nal.usda.gov/where-can-i-find-agricultural-funding-resources
Gaining a Competitive Advantage of Your Business
Debra Perosio
Dyson School of Applied Economics and Management, Cornell University

What type of business do you own? Maybe a farm market selling fresh produce? Maybe you produce artisanal cheese on your dairy farm that is sold wholesale. In either case what sets your business apart from the competition? What makes you different or unique from the “other” farm stands and artisanal cheese markers? Without some point of difference, or in marketing lingo, “positioning” of your business, you will soon become “just like everyone else” in the mind of your wholesale and/or retail customers. In today’s competitive marketplace your goal should be to stand out from the crowd! Here’s a step-by-step process to help you create a unique competitive advantage for your business!

Positioning your Business

Step 1: Create your “Owned Benefit”
The “owned benefit” for your business is the one unique idea that you want your customers to associate with your business. What is the one thing that sets you apart from your competitors? It could be attributes like customer service, quality, growing the best sweet corn for 50 miles, or the experience you provide customers? Is that one thing clear, simple, positive? So for instance when you think about Apple Computers/iPhones, many people think “innovation”, when we think about Wegmans we think about “customer service” and “freshness”

Step 2: Creating your “Frame of Reference”
A frame of reference is the reference (it could be a reference to a type of product, business or industry) that is most like your business. For instance, when people think Wegmans the frame of reference is “supermarket.” When people think about your fresh produce business the frame of reference is “farm market.”

Step 3: Creating your “Target Market”
It is critical to understand and clearly define who your target customers are. Rather than trying to cater to everyone you should focus on a subset of customers who you feel are your “best” customers with the greatest potential.

Understanding your target market allows you to tailor your marketing mix (product, promotion, price and place) to the specific preference of that target market.

Once you have identified your target market you want to learn as much about them as possible. For example a target market for an organic farm selling produce at a roadside stand might be “Gen X’ers” who are concerned with health and wellness that live within a 30 mile radius of the farm who have children and are looking for excursions the family can enjoy.”

Step 4: Creating your positioning statement
Putting the “owned benefit”, “frame of reference”, and “target market” together creates a positioning statement. Typically a positioning statement looks like this:

For (target audience) (your brand or business name) is the (frame of reference) that (owned benefit).

Thinking about the farm market, assume the produce is organic and picked fresh daily. In addition to produce you provide recipes and canning/freezing information. There is always someone at the stand to provide a high level of customer service. SO based on this, what is your “owned benefit”, “frame of reference”, and “target audience”?

A possible positioning statement might be:

“For Gen Xer’s who live locally, value organic produce, and support local businesses (target market), Smith Farms (brand name), is the organic farm (frame of reference) which offers fresh picked organic produce along with superior customer service, education, and information. (owned benefit)”

Check out the complete article at http://agribusiness.dyson.cornell.edu/SmartMarketing/index.html
Be it known that I, George D. Pierce, of Sangerfield in the county of Oneida and State of New York have invented an Improved Twine Holder for Stringing Hop Yards; and I do hereby declare that the following is a full, clear, and exact description of the same reference being had to the accompanying drawing, which forms part of his specification.

Figure 1 in the accompanying drawing represents my improved twine-holder attached to the person of a workman engaged in stringing a hop-yard. Fig. 2 is an enlarged perspective view of the twine-holder detached from the person. Fig 3 is a transverse section of the same. Fig. 4 is a top view of the twine holder with the cover or lid thereof removed.

The object of my invention is to greatly facilitate the stringing of hop-yards by obviating the inconvenience experienced in the operation as hitherto practiced.

The invention consists in certain novel constrictions and combinations of parts in a twine holder for stringing hop-yards, whereby said holder may be conveniently carried about the person without necessitating the setting of it down and taking it up while the stringing operation is being conducted, the balls of twine are prevented from being jerked from the holder, and the ends of the twine from being entangled; also, the twine is prevented from being paid out with too great freedom.

The cost of poles for a hop-yard, when poles alone are used to support the vines, is very heavy, often nearly approaching or equaling the cost of the land. To lessen this heavy cost in the establishment and maintenance of a hop-yard, the practice of what is called “stringing” has become widely extended.

A string hop-yard is a yard in which poles, or
stakes, or both, and strings of twine, are employed to support the growing hop-vines, the number and cost of poles required being largely reduced by this system.

There are various ways of stringing a hop-yard; but that which is, perhaps, most popular is what is called the “tent-pole” method, (illustrated in Fig. 1 of the drawing,) in which method a tall central pole, A, is placed in the ground at a “hill” of hops, and, generally eight other hills are connected with it by stakes B and strings b.

To perform this operation the ends of eight balls of twine are ordinarily first attached to the top of the pole A, which is then set up or stuck in the ground. The several twines are next tied to the tops of the stakes B and cut off, leaving the ends of the balls free for the next tent-pole.

It is hitherto been the custom to carry the twine balls in an open basket and the entanglement of the ends, the frequent jerking of the balls out of the basket, and the necessity of frequently setting down and taking up the basket, are inconvenient and delaying incidents of the work which my invention entirely removes.

My improved twine-holder consists of a box, C, made of wood, sheet metal, basket-work, or any other suitable material, and which may be straight, but which is preferably curved to adapt it to the form of the workman, as shown in Fig 1.

The interior of said box is multi-chambered, as shown in Fig. 4, the chambers of c being separated by partitions d, each chamber being adapted to hold a ball, E, of hop-twine.

The box C is supplied with a lid, F, preferably hinged to the box c, and supplied with a hook, f, or other suitable fastening to keep it closed when not required to be opened for putting the twine balls E in the box.

For each of said chambers, I form an eye, h, in the box for the passage of each of the twines E as unwound from the balls E said eyes being preferably in the lid F, one over each chamber c.

To prevent the too easy passage of the several twines E, I place on the lid F a curved bar, G, attached to springs g, fastened to said lid, which bar presses upon the twines as they are drawn out of the twine-holder, and forms a friction device.

In or on the lid F, I also insert or attach guides I, preferably staples, through which each twine E passes after passing under the bar G. These guides keep the free ends of the twines apart, and prevent entanglement of the same.

To the front side of the box I attach flexible shoulder-straps or bands k, connected by the back-strap k, which in use passes across the back of the workman, and down under his arms to the ends of the box C to which ends said strap or band is firmly attached.

But I do not confine myself to the precise construction of the bar G, springs g, and straps k k. A separate friction device G for all in common. The box may, moreover, be attached to the body of the workman by a belt or by a strap or straps arranged otherwise than those described, and it may be worn at the side of the body instead of at the front, as shown in Fig 1.

The attachment of the box to the person and its peculiar construction, when used in the manner described, prevents all entanglement or kinking of the twines, obviates the necessity of taking up and setting down baskets, keeps the ends of the twines always separate, and, in fact, obviates all the inconveniences and delays of hitherto attendant upon the operation of stringing hop-yards.

I claim —

1. A multi-chambered twine-holder for stringing hop-yards, provided with one or more straps or bands for attaching the same to the person, and having eyes for the separate passage of the twines from the chambers of the said holder, substantially as and for the purpose specified.

2. The combination with the eyes for the passage of the twines and guides for keeping the free ends of the twines separate, or a friction device or devices for preventing the too easy passage of the twines, substantially as and for the purpose described.

3. The combination, with the box C, provided with straps for attaching it to the person, and having a series of separate twine holding compartments or chambers c, eyes and guides for the passage of the twine from the box of the spring clamp or bar G, constructed to control the delivery of the several twines from the box, essentially as shown and described. George D. Pierce

Witnesses:

E.H. Mott

E.E. Mott
Opening a Small Brewery Workshop

Sunday May 17 and Monday May 18
9:00 am - 6:00 pm

If you are considering opening a brewery you owe it to yourself to be as informed as possible. This intensive two-day workshop to be held at Hopshire Farm & Brewery in Freeville, NY will allow you to participate in a 7 barrel brew on the first day. The second day will be devoted to a detailed walk-through of the many licenses and approvals your brewery will need. In one place you will find a comprehensive presentation of what you will need to start your brewery.

Day 1 Brewday
- Start-to-finish 7 barrel brew including mashing, sparging, boil, cooling/transfer, and yeast pitching
- Using brewing software to create recipes and measure efficiency
- Conduct pH and SG measurements throughout the process
- Learn the critical aspects of sanitation
- Discuss new and used sources of brewery equipment
- Understand a malt analysis
- Review sources of grain and hops (NY and other)

Day 2 Licensing, Labeling and other Approvals
- We will walk through the Federal and NYS license process
- NYS farm brewery, microbrewery, and brewpub differences
- Label and formula approval
- Ag. and Mkts 20 C Wholesale license
- NYS sales tax submission and keg wholesale report
- Payroll tax reporting
- Sales tax payments
- Good bookkeeping practices
- Federal and State Brewers reports and excise tax
- Discussion of brewery business plans
- Brewery/ tasting room architecture
- Introduction to tasting room operations
- Alcohol server training resources

Workshop limited to 12 people to allow participation
Cost $500 per person
A welcome reception will be held Saturday May 16, 5 – 7pm
Breakfast and Lunch will be provided both days
Dinner is on your own

We can provide a list of nearby hotels and restaurants
$100 deposit will hold your place. To reserve call Randy at (607)229-6700

Instructors
Randy Lacey
A facilities engineer for 30+ years, Randy began his transition to brewing about 10 years ago when he became a homebrewer and hops grower. He is a founding board member of the Northeast Hops Alliance and a member of the NY Brewers Association Farm Brewery Subcommittee. He is the co-owner and head brewer at Hopshire Farm & Brewery.

Diane Gerhart
Diane was a public school teacher for 20 years and a small business bookkeeper. She is now co-owner and Business Manager of Hopshire Farm and Brewery where she manages the tasting room and is responsible for all bookkeeping, payroll and tax submissions.

Marty Lacey
During a long career as a carpenter Marty has also been a home brewer and winemaker. For the last two years he has also been a brewer at Hopshire Farm & Brewery. His attention to detail and problem solving skills are important to beer quality at Hopshire.

Zach Lanham
Prior to moving to New York State, Zach was a brewer at Oscar Blues in Longmont, CO. He has a valuable combination of large brewery experience and a passion for farm brewery opportunities.
2015
Hops Production in the
Lake Erie Region Conference

June 26 - 27, 2015
9 AM - 4 PM
Cornell Lake Erie Research and Extension Center
Meeting Room and Hop Yards
6592 West Main Road, Portland, NY 14769

Featured Speakers
Mike Roy - Roy Farms Inc., Moxee Washington*
Mary Gardiner - Ohio State University
David Spamm - Chautauqua Soil & Water
Beth Reed - Small Business Development Center
Steve Miller - Hops Educator, Cornell CE
Tim Weigle - NYS IPM Program & LERGP
and many more to come...

*Sponsored by Ommegang Brewery

Friday June 26 -
Focus on Getting Into Hops Production
Classroom and in-field opportunities to learn
first hand the hows and whys of hops produc-
tion

Saturday June 27 -
Becoming profitable with Hops Production
Now that they are in the ground and the trellis
is up, learn about some of the techniques that
will help you to become profitable with your
hops production.
Classroom and in-field opportunities

Single Day Registration: $75
Two-day registration: $125
Beer & BBQ Dinner June 26: $50

To Register:
Contact Kate at (716) 792-2800 x202 or kjr45@cornell.edu
For credits cards please our website at:
http://lergp.cce.cornell.edu
or use form on back

Class size is limited to 80 each day, sign up early to reserve your spot
Are you in the food, beverage, or agricultural industry in Upstate New York? On Tuesday, May 19th, attend a free workshop sponsored by the Federal Reserve Bank of New York, Empire State Development, New York State Department of Agriculture & Markets, and Mohawk Valley Edge. **AGENDA**

Get the inside perspective from experts and lenders about:
- Which type of financing is most appropriate for you
- What lenders look for in potential borrowers
- Alternatives to traditional bank loans
- International market opportunities + financing tools

*Light Breakfast and Lunch will be provided*

**DATE:** Tuesday, May 19th  
**TIME:** 10:00 am-2:00 pm  
**LOCATION:** Amphitheater, Herkimer County Community College  
100 Reservoir Rd.  
Herkimer, New York 13350

**REGISTER**  
([http://bit.ly/1CBMALg](http://bit.ly/1CBMALg))

*Registration required*


**Sponsors:**

For additional information contact:  
Chelsea Cruz  
Federal Reserve Bank of New York  
Email: Chelsea.Cruz@ny.frb.org

Samantha Baldock  
Empire State Development  
Email: Samantha.Baldock@esd.ny.gov
AGENDA
DATE: May 19, 2015
Amphitheater, Herkimer County Community College

10:00 - 10:30 am  Registration + Continental Breakfast
10:30 - 10:35 am  Welcome
10:35 - 11:05 am  **Traditional Sources of Capital (5 Panelists)**
                   Craig Pollack, Branch Manager (Sangerfield, NY), Farm Credit East
                   Tom Serwatka, Business Lender, First Source Federal Credit Union
                   Jeff Archer, Area Specialist, USDA Rural Development
                   Dave Manzelmann, VP and Market President for Mohawk Valley, M&T Bank
                   **Moderator:** Kenneth Tompkins, Mohawk Valley Regional Director, Empire State Development

11:05 - 11:35 am  **Alternative Sources of Capital (4 Panelists)**
                   Steve R. Smith, Executive Director, Mohawk Valley Economic Development District
                   **Moderator:** Frederick Arcuri, Vice President - Economic Development, Mohawk Valley Edge

11:35 – 12:00 pm  **Global Access: Export Financing + Services (4 Panelists)**
                   John Tracy, International Trade Specialist, U.S. Department of Commerce
                   Kathryn Bamberger, Industrial International Development Representative, NYS Empire State Development
                   **Moderator:** Steven King, Executive Director, Central New York International Business Alliance

12:00 – 1:05 pm  Closing

1:05 – 2:00 pm  **Resource Expo + Networking**
                 Lunch provided

Sponsors: Federal Reserve Bank of New York, Empire State Development, New York State Agriculture & Markets, and Mohawk Valley Edge
Upcoming Events

May 30 — Craft New York Brewers Roots Festival
Saranca Brewery — Utica, NY
The Craft New York Brewers ROOTS Festival will feature up to 60 NYS breweries sampling nearly 150+ beers including rare and barrel aged beers not found anywhere else. This event is in support of the New York State Brewers Association to help further their mission of promoting the great craft beer being produced in this state every day.

June 2015
June 12 — The Craft Brewing and Hops Farming Industries in WNY
Flying Bison Brewery — Buffalo, NY
This workshop includes sessions on STATE REQUIREMENTS FOR FARMERS AND BREWERS, GETTING STARTED GROWING HOPS IN NEW YORK (presented by Steve Miller), and CRAFTING BEER — THE HISTORY OF FLYING BISON BREWING COMPANY.

June 26-27
CLEREL Hops Conference
CLEREL Grape Lab — Portland, NY
Two day conference with the first day emphasizing the hows and whys of hops production. The second day will focus on techniques to become profitable with your hops production

Hops in the News:
Sasha-Anne Simons from WXII teamed up with the Innovation Trail for a story on Cornell University’s Brewing Science and Technology workshop and the expanding role of women in the local brewery industry.
http://innovationtrail.org/post/watch-upstate-women-tap-brew-successful-careers-beer

The craft beer industry expanded by 59% from 2013 to 2014, with the number of breweries in the state more than doubling from 2012 to 2015

Northeast Hop Alliance
Madison County, New York
1000 Eaton Street
Morrisville, NY 13408
(315)684-3001 ext 127
Steve Miller, NYS Hops Educator — Newsletter Editor
Sarah Ficken, Hops Program Assistant — Newsletter Production and Design

Mission
The Cornell Cooperative educational system enables people to improve their lives and communities through partnerships that put experience and research knowledge to work