



141 MEETINGS & TRAININGS

4947 MEETING/TRAINING ATTENDEES

12K+ NEWSLETTERS & REPORTS

Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

2019 ANNUAL REPORT

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.





PROGRAM HIGHLIGHTS



New Technology in Soil Moisture Sensing

With funding from a Specialty Crop Block Grant and an ENYCHP Challenge Grant, Ethan Grundberg and Chuck Bornt were able to purchase an Irrometer IrroMesh wireless soil moisture and temperature sensor system. Each node, mounted atop a 10-foot length of conduit, can support up to 3 soil moisture sensors, a soil temperature sensor, and a rain gauge. The nodes then communicate via radio signal to a central base station. When equipped with a cellular modem, the base station can transmit data from up to 12 nodes to the cloud every hour making the data viewable through the web portal shown below. The system is currently deployed in a reduced tillage kabocha squash trial in Orange County. More soil moisture sensing systems will be investigated in 2020 to inform

growers of newer technologies for improving irrigation management on the farm.

Entomopathogenic Nematodes (EPN) Expand Bio-Control of Vegetable Pests

Perennial EPN bio-controls have provided control of alfalfa and strawberry root pests and are now being examined to suppress wireworms and Colorado Potato beetles (CPB) in vegetable crops. In collaboration with Cornell Entomologist Elson Shields, ENYCHP specialist Teresa Rusinek and Charles Bornt are using the same plots inoculated with EPNs for the wireworm study in 2017 to monitor for long-term control for Colorado Potato Beetle. EPN's have been shown to control certain species of white grubs (in particular Japanese Beetle larvae) that have reduced the quality of sweet potatoes and Irish potatoes while a significant reduction in white grub feeding on Daikon radish was anecdotally observed. EPN's may have the potential to control Seed Corn Maggot in organic and conventional production systems, which would continue to benefit local farmers. To date, nematodes have been applied on eight fruit and vegetable



farms throughout Eastern New York. ENYCHP specialists advise growers on raising their own nematodes and on application techniques.



Food Safety Recommendations for Eastern NY Farms

This growing season marked the first official inspections for farms subject to the Produce Safety Rule under the federal Food Safety Modernization Act (FSMA), signed into law by President Obama in 2011. Farms selling fresh produce are required to meet specifications for numerous activities involving growing, harvesting, and storing produce, including worker training, soil amendment application, and irrigation water testing. ENYCHP specialists offered three trainings throughout the region this year, to help growers earn certificates for FSMA compliance on their farms. ENYCHP collaborated with University of Vermont Extension to host a post-harvest workshop, where growers worked on plans to update their wash/pack areas with food safety in mind. Several ENYCHP specialists are now trained to assist the New York State Department of Agriculture and Markets to with On-Farm Readiness Reviews (OFRRs). During OFRRs, farms

receive personalized recommendations for improvements for their farm's food safety, and are excellent opportunities to prepare for upcoming inspections.

Bitter Pit Prediction Helps Increase Producer Profitability

Bitter pit (BP) disorder of Honeycrisp (HC) is financially devastating to NYS apple producers. Estimated per acre losses can range from 1,170-\$12,000/acre, a minimum 2.3 million to the NYS industry. Research has produced results with great benefits for NYS HC producers. The 1st is that a plant growth regulator, applied at pink, can reduce BP approximately 50%. 2nd is the development of a BP prediction model based on pre-harvest peel mineral analysis and other horticultural factors, that has the potential to identify blocks with a high BP risk. 3rd is the development of a non-mineral "passive" BP prediction model that is simple to implement, with only a labor commitment and no lab analysis fees. ENYCHP tree fruit educator Dan Donahue has taken a leadership role in the research. The entire state-wide team of research, extension, and industry professionals encourage producer adoption of



these new BP management technologies. By reducing the incidence of bitter pit, and providing tools to assist producers and marketers in pre-harvest identification of problem BP blocks, producers will see a significant reduction in storage losses. Our project will result in a direct benefit to the NYS apple industry of at least 1 million dollars annually, perhaps more.



High Tunnel Production Guide for Raspberries & Blackberries



Protected Culture Offers Options for Berry Growers

Tunnel production offers growers the opportunity to produce crops under a 'protected' environment. High tunnels are used by vegetable farmers to improve crop quality, lengthen the season and manage weather related risk. Now berry growers have access to low and high tunnel information due in part to work by ENYCHP staff.

A Specialty Crop Research Initiative (SCRI) brought faculty and extension staff from seven states to conduct field research and develop outreach material <u>High Tunnel Production Guide for Raspberries and</u> <u>Blackberries</u> that is now available on the <u>Tunnelberries website</u>. The research focused on analyzing different plastic covering treatments, different pruning and wintering treatments, the use of exclusion netting in a tunnel, and the comparison of berry crop budgets. ENYCH staff are also involved with ongoing research in low tunnel strawberry production and actively assist with research that is being conducted by the Cornell berry faculty team to protect New York state's \$20 million berry industry.

Apple Thinning with Computer Models and New Materials

Thinning the apple crop is one of the most difficult tasks an orchardist undertakes each year, with profound implications on profitability. If too much fruit is left on the tree, labor intensive hand thinning will be required to encourage apples to size. Too heavy a crop will also result in a smaller bloom the following spring. If thinning is too aggressive, total yield could be dramatically reduced.

Ideal crop loads for various combinations of variety, rootstock, and tree age, are difficult to achieve with chemical thinners based on plant hormones. The narrow temperature range where these thinners act predictably make it hard to know how well each application "worked", and if continued thinning is needed. To help make thinning a more precise



process, Mike Basedow worked with Champlain Valley orchards to fine tune the process using new models and thinning materials. The pollen tube growth model and the fruit growth rate model, are two predictive tools that help quantify the art of thinning decision-making. Participating growers were happy with their fruit yield and quality at harvest (see photo below), and look forward to adding more precision to their thinning.



Research Supports the Growing Garlic Industry

Garlic production continues to increase in New York State, and our team plays key role in making successful growth possible. We are currently involved in several grant-funded garlic projects led by Crystal Stewart-Courtens on disease management and post-harvest handling for long-term storage. The opportunity to partner with UVM Ag Engineer Chris Callahan in an attempt to optimize drying and storing of garlic and other alliums promises exciting synergy.

On-farm research is paired with outreach activities including our annual presence at the Hudson Valley Garlic Festival, a bi-annual Garlic School, and intensive workshops at NOFA-NY. This year over 500 garlic growers were supported with new information that helps them improve the quality of their garlic and, by extension, farm profitability.

New Vineyard in Westport Promises to Expand Adoption of Champlain Valley Wines

A recent vineyard planting in Essex County is the largest expansion of grapevines in the Champlain Valley since the creation of the Champlain Valley American Viticultural Area (AVA). Rolling Hills Farm in Westport, NY planted 12,000 vines including six cold hardy cultivars. The new planting covers approximately 20 acres and the farm has long range plans for as many as 100 acres in total. While the creation of the Champlain Valley AVA draws attention of wine consumers, wines are not currently being produced in quantities large enough to export out of the region. Rolling Hills is seeking to change that. ENYCHP worked with Rolling Hills during the planning phase, providing guidance on site evaluation, site preparation, cultural practices, and ongoing operations, including the integration of specialized drones and aerial imagery into farm operations.



PROGRAM HIGHLIGHTS CONT.



Sweet Potatoes Gain Popularity with ENY Growers CCE ENYCHP has worked with the growing number of sweet potato growers for the past decade. Numbers have increased over seven times to a 2017 Census high of just under 150 growers. This season ENYCHP specialists conducted a variety trial at two different locations with different soil types. The varieties are from across the country and the evaluation will help growers better understand the differences in performance in our colder climate. Another barrier to sweet potato production is acquisition of high-quality slips for planting. A study evaluating sweet potato root propagation using simple heat mats in greenhouses may inspire local growers to try propagation themselves to

reduce dependence on southern slip growers.

2019 Collaborators

NY Apple Research and Development Program NYS Dept of Agriculture and Markets NE Sustainable Agriculture Research & Education NY and NE Integrated Pest Management University of Vermont New York Farm Viability Institute US Dept of Agriculture **Michigan State University** Northeast Organic Farmers Association-NY National Institute of Food & Agriculture NYS Dept of Environmental Conservation New York Apple Association Northern NY Ag Development Program NY Center for Agricultural Medicine & Health **Cornell Farmworker Program** Hudson Valley Farm Hub NYS Berry Growers Association US Dept of Labor Grow NYC NYS Dept of Labor New York State Vegetable Growers Association CCE Associations and Regional programs **New World Foundation Cornell Institute on Climate Smart Solutions** University of Maine Louisiana State University University of Rhode Island **Produce Safety Alliance** Hudson Valley Research Laboratory Cornell Agricultural Workforce Development Program **Cornell Small Farms Program** Glynwood Orange County Vegetable Growers Association **Onion Research and Development Program Garlic Seed Foundation** Pennsylvania Dept of Agriculture Poughkeepsie Farm Project Northeast Center to Advance Food Safety

ENYCHP Specialists

Charles Bornt, Vegetables Ethan Grundberg, Vegetables Elisabeth Hodgdon, Vegetables Teresa Rusinek, Vegetables Crystal Stewart-Courtens, Vegetables Maire Ullrich, Vegetables/Hemp

Technicians

Sarah Eve Elone Natasha Field Andy Galimberti Nate Mengaziol Sarah Tobin

STAFF

Laura McDermott, Small Fruit Michael Basedow, Tree Fruit Daniel Donahue, Tree Fruit James Meyers, Viticulture/Grapes Liz Higgins, Business

Administrative Staff

Chelsea Truehart Marcie Vohnoutka

2018 OPERATING BUDGET



Supporting County Association Shares: \$539,030.00

ENYCHP Grants & Funds¹: \$446,807.00

Cornell University Federal Funds²: \$186,000.00 Harvest New York³: \$15,000.00

1 Includes funds from reserve accounts, grants, donations, program revenue, Ag & Markets, money market investment interest, Cornell Dept 2 USDA National Institute of Food and Agriculture Smith Lever Funds 3 New York State Funds

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