

Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

2018 Second Quarter Report

April– June 2018

ENYCHP Fruit Specialists Help Apple Growers Thin Their Crop

Chemical thinning of fruit crops is a well-established practice within the commercial fruit industry, as apple trees produce more flowers than what is needed to develop into a full crop at harvest. Unthinned fruit will generally be small, of poor quality, and will reduce the amount of flowers that develop on the trees the following year. Chemical thinning is a difficult task to manage due to the variability in each products' efficacy, which is dependent on a number of factors, including: the previous year's crop size, tree stress throughout the growing season, how heavily the trees were pruned, and the weather before and after the chemical thinning application. Due to this variability, growers are looking for more tools to remove some of the uncertainty in achieving their desired number of apples per tree.

Some grocery chains are no longer accepting fruit thinned with carbaryl, an insecticide that has also been used as a reliable thinner. Growers that sell wholesale to these stores are seeking alternative thinning programs to get a similar thinning response while also being able to continue selling to these retailers.

To help growers with their thinning in the spring of 2018, regular farm visits were made to evaluate flower density and fruit responses to thinning applications, as many blocks now receive multiple applications from bloom up until fruit are about 15mm in size.

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1720 total readers
currently receive the
following ENYCHP
newsletter and e-alerts:

Weekly Vegetable News

Bi-weekly Small Fruit News

Monthly Tree Fruit News

Grape & Tree Fruit E-alerts





articles from pomologists at Cornell, Rutgers University, and the University of Massachusetts were also published in e-alerts and online at the ENYCHP website.

In addition to Dr. Francescato, other meeting speakers included Dr. Win Cowgill of Rutgers University, and Peter Jentsch and Dr. Srdjan Acimovic of the Hudson Valley Research Lab. At the Champlain Valley meeting, Dr. Acimovic video conferenced into the meeting, presenting on disease management in real time from

Serbia.

Thinning experiments were established at commercial orchards throughout the Champlain Valley and Hudson Valley. The Champlain Valley thinning studies are being conducted in collaboration with Dr. Poliana Francescato and Dr. Greg Peck. These studies include a carbaryl-free thinning program to determine which combinations and timings of other products can best replace this commonly used thinner. Other projects include incorporating a pollen tube growth weather model into the thinning program to determine the best time to apply thinners at bloom, and a tree row volume experiment to determine which rates of thinners are best applied to different portions of the trees.

Recommendations based on field observations by the ENYCHP fruit specialists were published weekly during May and June. Recommendations were developed using weather models, including a tree carbohydrate balance model, a fruit growth rate model, and a pollen growth rate model.

Four thinning meetings were organized across Eastern NY. At these meetings, Dr. Poliana Francescato provided extensive thinning recommendations for growers, unique to each meeting's production region. These recommendations were then published in e-alerts and published online at the ENYCHP website. Additional

Reduced Tillage Trials in Muck-Grown Kabocha Squash

Thanks in part to the support of an ENYCHP Challenge Grant, vegetable specialists Ethan Grundberg and Chuck Bornt are experimenting with reduced tillage systems in muck-grown kabocha squash during the 2018 growing season. Working in conjunction with grower-cooperators Paul Ruskiewicz and Joe Jados, both farming in the black dirt region of Orange County, Bornt and Grundberg are hoping that the soil conservation practice of reducing tillage can be adapted to address some of the unique challenges posed by muck soils. Specifically, Bornt and Grundberg hope to assess the performance of four different cover crops as mulches, track any differences in nutrient uptake and availability across the treatments, record any impacts on final yield and fruit quality, and calculate potential cost savings or increases in the reduced till fields. The ultimate goal of the trials is to see if production levels and profitability can be maintained while



slowing muck soil loss from wind erosion, water erosion, and the process known as

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subsidence (the conversion of carbon in the soil organic matter to carbon dioxide gas).

Vine crop growers in the black dirt region have been reluctant to adopt reduced tillage practices due to concerns about yield, rodent pressure, weed suppression, and water management.

With approximately 600 acres of cucurbits planted in 2018, muck growers stand to benefit from the soil conservation practices being trialed if successful. Grundberg and Bornt are also working with colleagues at USDA NRCS and the Soil and Water Conservation District to help growers become aware of cost share and conservation incentive programs that may be available to offset costs of adopting reduced tillage practices. The initial interest in the trials was used in developing a successful proposal to the USDA Specialty Crop Block Grant program that will continue to fund these trials and research through 2020.



Garlic Work Continues to Attract Strong Interest

This quarter Crystal Stewart held a garlic twilight meeting in Ulster County to highlight the second year of Fusarium management work conducted. Ethan and Teresa also highlighted Allium Leafminer, an emerging pest moving from Pennsylvania into Eastern New York. This year's meeting attracted many growers who had not been able to attend previous meetings, which was very exciting to see. We also had local media coverage through a small paper from the area. This work has been able to both further the statewide garlic industry and offer targeted support to growers here in our region.



Research in Fresh Market Tomato Production

Fresh market tomato production is an important enterprise for growers in Eastern NY which requires intensive management and significant investment. To be profitable, a grower must produce a quality crop with good yield. Several destructive diseases such as Late Blight, Early Blight, and Septoria are among the growing number of pests that must be



managed. More recently, bacterial diseases have emerged and persisted on many farms in the region, causing significant economic losses. Growers, both organic and conventional, need to spray fungicides often to control these diseases. In managing these diseases, resistant plants are a first line of defense and can significantly reduce or even eliminate the use of fungicides. Dr. Martha Mutschler of Cornell University has been developing and breeding tomato lines with resistance to these diseases. Several are already commercially available including: Mt. Merit, Mt. Magic, Iron Lady, Stellar and most recently Brandywise hybrid which is crossed with the heirloom variety Brandywine. ENYCHP educators have been working with Cornell researchers for many years trialing new resistant tomato lines "on farm". This season, the ENYCHP is continuing collaboration with Dr. Mutschler to evaluate new tomato lines she is developing. The new lines have increased resistance to early blight, bacterial speck and bacterial spot. We have trials in the Hudson Valley at two farm operations. One trial consists of 8 experimental lines with enhanced early blight resistance and 3 commercially available lines as a demonstration. The other trial consists of 9 enhanced early blight lines, 8 bacterial spot resistant lines, and a horticultural trial of a speck resistant line that is in the earliest stages of development. ENYCHP specialist Teresa Rusinek is rating plants for disease severity and fruit quality as well as providing tissue samples for genetic analysis to researchers at Cornell. An "on farm" twilight meeting at one of the trial sites later in the season focusing on disease management practices using resistant plant varieties. Growers will be asked to provide input on quality of new lines.

High Tunnel Research Projects

A variety of research projects are on-going at the Cornell Willsboro Research Farm. We concluded our winter spinach project with the last harvest on May 3rd with some interesting results. The full report is posted on our website [here](#), and includes results from last summer's projects as well. These projects are funded by the Northern NY Agricultural Development Program (<http://www.nnyagdev.org/>).

For the winter spinach study we compared 3 nitrogen sources (urea, blood meal and alfalfa meal) with a control of no additional nitrogen to see if cold soil conditions affect nitrogen uptake in an unheated high tunnel. This availability is of particular interest to organic growers since organic sources typically need soil microbial action to make the nutrient available while urea, a conventional source, is quickly available.

Here are a few takeaways from the spinach study:

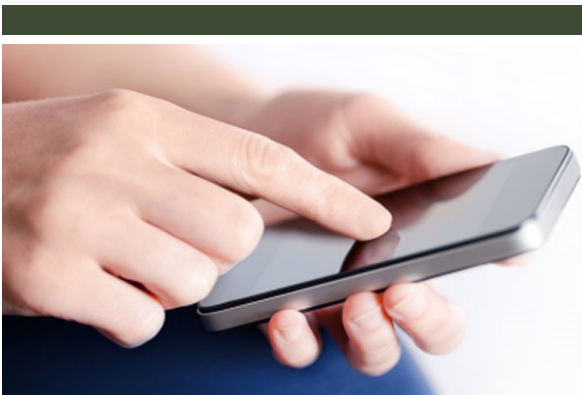
- For late fall harvests, the 9/20 transplant date yielded more than the 10/6 date
- For late winter-early spring harvests, the 10/6 date yielded more than the 9/20
- Alfalfa was the most expensive and least available of the 3 nitrogen sources. Urea and blood meal were very close in foliar nutrient levels and yields. Urea was the least expensive source.
- Many questions remain about rates and we have funding for a follow-up project this winter.

This summer we are comparing ways to get the earliest harvest of some common warm season crops: zucchini, green beans and red bell peppers. We have 2 mid-April plantings inside an unheated high tunnel; one covered with rowcover and the other not covered and 2 mid-May plantings outside the tunnel, one covered with rowcover and the other not covered. We are recording the first harvest dates and yields of each treatment in order to see how much difference each provides.

Growers know that being the first to market, even by just a week or two, gives a distinct advantage in drawing customers to your table and builds loyalty for the season.



Amy Ivy assesses the zucchini treatments in the high tunnel in early June.



Increasing Connectivity with Growers

In response to grower interest, this year our team is offering a text alert system to those in our 17 country region. Growers can now receive real time alerts on high risk disease and pest outbreaks texted directly to their cell phones. This initiative will help us to deliver crucial important information in a the most timely and manner possible. Initial feedback has been very positive, and 130 phone numbers are now registered for the system.

We are also continuing to grow our YouTube station with useful video content for our growers to review at anytime they have a need.

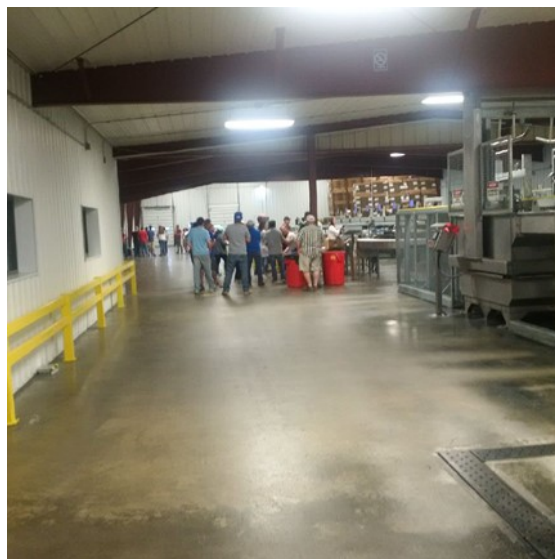
Grower Workshop:

Controlling Listeria in Apple Packinghouses

The safety of our food supply is an issue of concern for growers, marketers, regulators, and consumers. Contamination of food by human pathogens such as *E. coli* can result in severe illness, even death. From an economic standpoint, the negative media publicity from a contamination event can be financially devastating for farm-based businesses. Considering the volume of product consumed, the apple industry has a remarkable safety record over the years. However, the record is not perfect, as evidenced by the tragic loss of seven lives following the contamination of caramel apples by *Listeria monocytogenes* in 2014. Packing house managers and apple marketers are aggressively implementing the new Food Safety Modernization Act (FSMA) requirements, as well as the specific food safety protocols such as Global GAP that are commonly mandated by the retail chain stores.

Dr. Martin Weidmann of the Cornell College of Agriculture and Life Sciences Food Safety Laboratory in Ithaca, New York, along with his Department of Food Science colleagues and graduate students has developed a packing house safety and sanitation workshop for owners, managers, and sanitation staff with the goal of reducing human pathogen risk by conducting practical educational outreach to the apple packing industry. In cooperation with CCE-ENYCHP staff, a workshop “Controlling Listeria in Apple Packinghouses” was presented on June 28th in Ulster County, New York, and attended by 48 apple packing house managers and staff from all over the Hudson Valley. A morning classroom session was held at a venue in Highland, followed by an afternoon on-site “practical” at the Porpiglia Farms packing house in Marlboro. Ph.D. students Genevieve Sullivan and Alexandra Belias, along with Cornell Department of Food Science faculty Dr. Randy Worobo presented valuable information on the topics of FSMA regulations, human pathogen biology, and practical sanitation protocols tailored specifically for apple packing houses. The quality of the presentations was excellent, as the glowing participant reviews attest. This food safety workshop is an excellent example of how local Cornell Cooperative Extension interacts with world-class faculty experts to bring valuable educational opportunities to local growers.

Photo: 2018 Listeria workshop participants learning practical sanitation techniques for use in their own apple packing facilities. Porpiglia Farms packing facility.



2018 Listeria workshop participants learning practical sanitation techniques for use in their own apple packing facilities. Indian Ridge venue.

**In the second quarter,
the ENYCHP team
Conducted...**

**25 Field Meetings
with 659 people in
attendance**

**27 Webinars with
296 total participants**

**491 Email & 543 Phone
Consults**

**785
On site Farm Visits**