

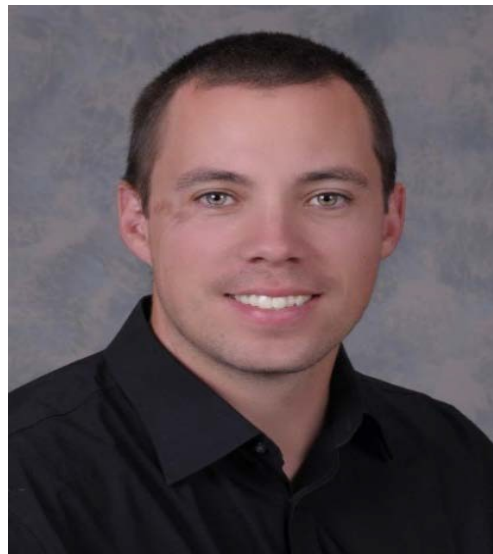


**Cornell Cooperative Extension
Lake Ontario Fruit Program
Quarterly Report
October - December 2018**

Overview: With the peak of apple harvest in September and October, the rainy and cloudy weather continued right through the end of harvest into early November. This made color on apples less than ideal. The stress of the growing season and late rains just prior to harvest for many varieties caused a lot of fruit to be harvested softer than normal, questioning the storage potential of a significant portion of the crop. The silver lining is that very few hailstorms were reported. The continuation of harvest for the entire team performing tasks/collecting data on applied research projects were the main focus through late October/early November. Then began the transition into “meeting season”.



EverCrisp® apples for harvest maturity testing



Dr. Lee Kalcsits from Washington State University, who is giving 3 talks at the Empire Producers Expo in Syracuse

Education: The Harvest Maturity Program wound down for Craig and Liz, while Craig continued to perform maturity testing on some new late-season apple varieties. The finalizing of the educational programs for the Empire Producers Expo and the development of the full programs for the LOF Winter Fruit schools this winter were the main educational programs that were being implemented. In addition, Craig and Mario each planned an educational session (chair & presenting) for the upcoming International Fruit Tree Association Annual Meeting in Rochester on February 24-28, in much upwards of 400 tree fruit growers from around the world are planning to attend.

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Selected Publications by LOF Team	Periodical	Author
<i>Is Fall the Best Time to Plant, or are there and Problems or Concerns to Consider This Year?</i>	<i>Fruit Notes</i>	Miranda Sazo
<i>The Master Class for Bilingual Crew Members – Class Enrollment is Full and Set to Begin!</i>	<i>Fruit Notes</i>	Miranda Sazo
<i>Spotted Lanternfly Update</i>	<i>Fruit Notes</i>	Grasswitz
<i>Dormant-Season Activities for Fruit Pest Management</i>	<i>Fruit Notes</i>	Grasswitz
<i>“Lessons Learned”: End-of-Season Review is the Beginning of Next Season’s Plan</i>	<i>Fruit Notes</i>	Wiltberger
<i>REMINDER! It’s time to buy crop insurance for Apples, Grapes, Peaches & Tart Cherries</i>	<i>Fruit Notes</i>	Wiltberger
<i>Is Your Farm FSMA-Compliant?</i>	<i>Fruit Notes</i>	Kahlke

Presentations by LOF Team	Periodical/Meeting:	Author/Presenter:
<i>Module 4: Wildlife, Domesticated Animals, and Land Use, and Module 6: Postharvest Handling & Sanitation</i>	Produce Safety Alliance Grower Training Course + Farm Food Safety Plan-Writing Workshop, November 1-2, Watertown	Kahlke
<i>“Effect of Hail Netting on Tree Growth, Return Bloom, Fruit Quality and Pest and Disease Management in High Value Apple Cultivars in Western New York”</i>	Lockport Rotary Club, November 13 th , Lockport	Kahlke

<i>"Effect of Hail Netting on Fruit Quality"</i>	ARDP Annual Reporting, December 3, Geneva	Kahlke
<i>"Sudden/Rapid Apple Decline in New York."</i>	Great Lakes Fruit Workers Conference, November 7, Ithaca	Grasswitz
<i>"Effect of Hail Netting on Pest & Disease Management"</i>	ARDP Annual Reporting, December 3, Geneva	Grasswitz
<i>"Impact of New Exotic Pests on New York Fruit Production."</i>	Web-based presentation for county CCE staff, December 13 (via Internet)	Grasswitz
<i>"Economic Considerations of Hail Netting".</i>	ARDP Annual Reporting, December 3, Geneva	Wiltberger
<i>"Transitioning from 3-D to 2-D Canopies with Pruning, Hedging, and via Grafting of an Old Block" and "Embracing the Use of New Technologies in a Modern Apple Orchard"</i>	2018 Washington State Tree Fruit Association Annual Meeting in Yakima, WA, December 4. (Presented via Internet).	Miranda Sazo
<i>"Evaluating a Practical, Simple, and Cost Effective Hail Netting System for High Value Apple Cultivars in Western NY".</i>	ARDP Annual Reporting, December 3, Geneva	Miranda Sazo

Research:

Activity/Proposal/Grant	Person(s)	Funded (Y/N) or Unfunded/ Preliminary Research (UPR)
Crop Load and Harvest Management for Hard Cider Orchards	Peck, Kahlke, Tee, Miranda Sazo	Y – ARDP
Brown Marmorated Stink Bug in US Specialty Crops	Agnello, Grasswitz, et al.	Yes-SCRI
Biological Control of the Brown Marmorated Stink Bug in New York State	Jentsch, Grasswitz, et al.	Yes
Effect of Hail Netting on Fruit Quality and Pest and Disease Management in High Value Apple Cultivars in Western New York	Kahlke, Grasswitz, Wiltberger, Tee	Yes-ARDP
Evaluating a Practical, Simple, and Cost Effective Hail Netting System for High Value Apple Cultivars in Western NY	Miranda Sazo, Tee	Yes-ARDP
Cornell University Crop Insurance and Risk Management and Education Program	Ifft, Wiltberger	Yes-USDA-RMA

Survey of Apple Tree Decline in NY	Grasswitz & Donahue	Yes-ARDP
Prediction and Prevention of Ambrosia Beetle Infestations in NY Apple Orchards	Agnello & Grasswitz	Yes- Cornell Federal Capacity Fund - Pending
Labor Readiness: Pathways for Farmworkers to Start Up and Advanced Beginners to Scale Up New Farm Business	Rangarajan & Miranda Sazo	Yes- USDA-NIFA
Testing the Role of Latent Viruses in the Decline of Apple Trees on G.935 in a Commercial Apple Nursery	Fuchs & Miranda Sazo	Yes-ARDP
Managing Nutrient Balance for Effective Mitigation of Bitter Pit	Cheng & Miranda Sazo	Yes- ARDP
Implementing the Pollen Tube Growth Model on NEWA and Validating the Model in NY Orchards	Peck, Miranda Sazo, Kahlke, et. al.	Yes- ARDP

Business Consultation:

Specialist	Site Visit	Phone/Texts/Emails
Grasswitz	0	1
Kahlke	1	68
Miranda Sazo	15	43
Wiltberger	7	30

Selected Professional Development and Training:

Activity	Team Member(s)	Comments:
Great Lakes Fruit Workers Conference, Ithaca, November 7-9	All 4 Specialists	Cornell/CCE hosted
Cornell Digital Agriculture Workshop, Cornell University, October 8	Miranda Sazo & Wiltberger	
BioControl East Conference, Rochester, October 11-12	Grasswitz	

Field Demonstration on the potential use of drones for sterile insect releases for codling moth management, Waterport, October 20	Grasswitz	CCE-LOFT (Miranda Sazo)
Use of Agroforestry Techniques to Support Native Pollinators, Webinar, October 23	Grasswitz	
The Annual Meeting of the Entomological Society of America, Vancouver, Canada, November 10–15	Grasswitz	
Attended 3-Day meeting CCE NSO New Staff Orientation, Cornell University, October 16-18	Wiltberger	
Participated in Initial Mentor Committee Meeting, Wayne County CCE, November 5, 2018.	Wiltberger	
Attended 3-Day meeting CCE In-Service, Cornell University, November 14-16	Wiltberger	

Quarterly Highlight for the Lake Ontario Fruit Team – Mark Wiltberger, Production Economics & Business Management

LOF Team takes Field Measurements of the Effects on Apple Quality of the New Technologies of Hail Netting and Reflective Materials

Background & LOF Response: In 2018, a handful of apple growers in the LOF region began trials of protective netting to prevent hail damage after suffering losses in preceding years. Growers also began trials of reflective fabrics, which have been used in other regions to increase the percentage of high-grade fruit at harvest, especially for increasing color of fruit in the lower half of the trees. However, growers had unanswered questions about adopting these new technologies. Would netting negatively affect fruit quality, for example, by excessively shading fruit? Would netting exclude pests to the benefit of fruit, or would it provide a more conducive microclimate for pests? Would netting adversely affect tree physiology, such as tree growth or return bloom? Could it possibly have positive effects on fruit quality or physiology? Would reflective fabric have a real effect on fruit color? For the business decisions to adopt these technologies, what would be the actual costs of adoption? How would adoption affect field operations? And would any improvement in fruit quality translate into increased revenue?

The LOF team submitted proposals to ARDP at the beginning of 2018 to systematically study these questions at multiple sites. Working with partners at DeMarree Fruit Farm and Cherry Lawn Orchards, LOFT conducted controlled field studies of SweeTango, Honeycrisp, and Fuji varieties. Microclimate was monitored within the orchard canopy. Spray deposition trials were conducted and pests monitored with traps. At harvest, fruit size, weight, physiological characteristics, and pest impact were measured. Fruit color was measured at Cornell AgriTech with fruit sorting technology. Grower installation and removal of the technologies were monitored to assess labor costs. Growers were interviewed for feedback on technology adoption.

Preliminary results show few negative effects of the new technologies. Reflective materials in particular may show positive economic benefits for improved fruit color quality. Improved color may translate into increased revenue on the scale of thousands of dollars per acre for certain varieties. Economic costs are ascertained in more detail now. Growers have given feedback on their strategy for adoption of the technologies. The LOF team will continue further analysis and dissemination of their findings through LOF educational channels



2018 Harvest was the time for the LOF team to collect the data for the study of the effect of hail netting and reflective fabric on apple quality. Tess Grasswitz (not pictured) examined the effect on spray deposition and population dynamics of foliar pests. Craig Kahlke, Mark Wiltberger, and Mario Miranda Sazo studied the effect on fruit quality characteristics. Miranda Sazo also continues to look at the effect on tree fruit physiology. Elizabeth Tee (not pictured) provided technical support at all sites. Wiltberger analyzed the economic costs and benefits and talked to growers about their future business strategy after using the technologies for one season.

Photo credits: Mark Wiltberger, CCE, LOFP.