



Cornell Cooperative Extension Lake Ontario Fruit Program Quarterly Report July - September 2022

*A partnership between
Cornell University and the
CCE Associations in these five
counties:*

*Monroe, Niagara, Orleans,
Oswego & Wayne*

Overview: The dry weather that mainly affected our counties west of Rochester continued into July and August, with both months having below average rainfall. September finally brought us precipitation that was slightly above normal. A positive aspect to the dry summer months was that temperatures were moderate. The relatively cool temperatures in August ushered in fall-like weather for September, and the predominant weather patterns were mainly sunny days with average to below-average temperatures accompanied by cool nights. In contrast, apple orchards mainly east of Rochester (Wayne County predominantly) had more rainfall during the summer. The end result for the entire region was some of the best coloring of apples that anyone has seen.

In addition to finalizing our summer tour plans, the team continued to be engaged in field work this quarter. Trapline checks and reporting by Janet and Liz continued. Applied research projects (mainly ARDP-funded) occupied a lot of Mario, Craig, Janet, Liz, and Jennifer's time. Honeycrisp projects topped the list. Sample collection for the peel sap test for bitter pit prediction took place in mid-July. In late August, Honeycrisp sample collection took place for the passive bitter pit prediction model. In September, evaluations of the passive model were carried out. In addition, Craig set up an experiment to try to advance color in "Premier" Honeycrisp, an early strain. After applying the treatments that included putting reflective fabric on half the plots, Craig, Liz, and Jen harvested the plots in three consecutive weeks. The precision crop load management applied research work also continued, with a pruning severity experiment and fruitlet and fruit scans with new technology provided by the startup company, Farm Vision.

Our annual LOF Summer Tour was held on August 9th in Eastern Orleans Counties. It featured four progressive tree fruit/berry farms, in addition to a lunch stop in which sponsors had booths and equipment to display, and there was ample time for industry networking. We featured our (and some growers) work with six different companies that are working to help optimize precision crop load management in apples. One company even traveled from England to demonstrate their work. By all accounts, the tour was a great success, and nearly 200 people attended.

Personnel: While we had Natalie Mrzywka as our admin after Kim Hazel's departure in early May, Natalie went on maternity leave in late August. Aeddon Cayea is Natalie's temporary replacement. Before Natalie left, she made sure Aeddon was trained on Acumatica™ and learned how to perform the majority of administrative duties for our team. Aeddon has done an excellent job stepping in. To date, we have two strong applicants for our Business Management Specialist position with our team, and plans are being made for interviews.

	Editions:	Articles:
Fruit Notes	3	14
Email Blasts	4	N/A
Fruit Facts	8	N/A
Harvest Maturity Reports	7	N/A



Aeddon Cayea, LOF's temporary
Administrative Assistant

Selected Publications by LOF Team	Periodical	Author
<i>Practical Implications of Early- and Mid-Summer Water Stress on Tree Growth, Cropping, and Physiology</i>	Fruit Notes, Vol. 22, Issue 12	Alan N. Lakso, Terence L. Robinson, Luis Gonzalez, and Mario Miranda Sazo
<i>Sunburn Protection</i>	Fruit Notes, Vol. 22, Issue 12	Mario Miranda Sazo
<i>Keep an Eye Out for Brown Marmorated Stink Bug</i>	Fruit Notes, Vol. 22, Issue 12	Janet van Zoeren and Monique Rivera
<i>7th Hispanic Summer Fruit Tour Featuring the Leadership/Communication Styles and Orchard Management Skills of Bulmaro Solis at Zingler Farms</i>	Fruit Notes, Vol. 22, Issue 13	Mildred Alvarado, Nicole Waters, Janet van Zoeren, Alejandro Calixto, and Mario Miranda Sazo
<i>Scientists, Extension Educators, and Ag-Tech Innovators are Working Together to Fine-Tune and Validate the Adoption of Digital Technologies for Precision Crop Load Management</i>	Fruit Notes, Vol. 22, Issue 14	Terence Robinson, Yu Jiang, Luis Gonzalez, Mario Miranda Sazo, and Craig Kahlke
<i>Fall Pre-emergent Herbicide Timing: Takeaways from Our Research</i>	Fruit Notes, Vol. 22, Issue 14	Janet van Zoeren & Mike Basedow



A drone photo from the Fish Creek Orchards stop on the LOF Summer Fruit Tour, August 9th, 2022. Photo courtesy of R.J. Anderson.

Selected Presentations by LOF Team	Periodical/Meeting:	Presenter:
<i>“Nutrient Uptake and Accumulation of ‘Honeycrisp’ Trees as Affected by Four Rootstocks from Establishment (2017) to Maturity (2021)”.</i>	2022 American Society of Horticultural Science (ASHS), Annual Conference, Chicago, Illinois, July 30-August 3, 2022.	Miranda Sazo
<i>“Advances in precision crop load management of apple – A USA national project”.</i>	2022 International Horticultural Congress (IHC) in Angers, France, August 15-19, 2022	Miranda Sazo
<i>“LOF’s Research with Fruit Scout”</i>	LOF Summer Fruit Tour, Orleans County, August 9.	Kahlke
<i>“Tizon de Fuego”</i>	Hispanic Summer Tour, Holley NY, August 24.	van Zoeren
Co-presented talk with Mike Basedow <i>“Peru Herbicide Trials - Efficacy, Tree Damage, Soil Health”</i>	Peru Weed Management and Soil Health Field Day, Peru NY, July 20.	van Zoeren

Business Consultation

Specialist	Site Visit	Phone/Texts/Emails
Kahlke	6	~90
Miranda Sazo	18	~160
van Zoeren	17	52



Anya Osatuke of CCE Harvest NY informs growers about mechanical harvesting of blueberries at LOF's Summer Tour on August 9th in Orleans County.



The LOF crew of Liz Tee, Natalie Mrzyka, and Jennifer Duerden at LOF's Summer Tour August 9th in Orleans County.



The Green Atlas crop estimator is featured at LOF's Summer Tour August 9th in Orleans County.

Research

Activity/Proposal/Grant	Person(s)	Funded (Y/N) or Unfunded/ Preliminary Research (UPR)
<i>CALS Innovation Project: ‘A Sus Órdenes: Developing and Strengthening CALS & CCE Capacity for Innovative and Transformational Engagement with Spanish-speaking Stakeholders’</i>	Miranda Sazo, Rangarajan, Waters, (co-PI’s)	Y- CALS Innovation Fund
<i>Root Traits and Rapid Apple Decline in High-Density Orchards</i>	van Zoeren (Khan PI)	Yes-NIFA
<i>A Statewide Effort to Manage Crop Load, Nutrient Status and Bitter Pit of Honeycrisp</i>	Miranda Sazo & Kahlke (Robinson PI)	Yes-ARDP
<i>Further Development of Peel Sap Analysis for Managing Bitter Pit Risk in ‘Honeycrisp’</i>	Miranda Sazo, Kahlke, Duerden (Cheng, PI)	Yes-ARDP
<i>Precision Orchard Management</i>	Miranda Sazo, Kahlke, Tee (Robinson PI)	Yes-SCRI & ARDP
<i>Assessing the Significance of Brown Marmorated Stink Bug Damage to New York Apple Production</i>	van Zoeren PI	Yes-ARDP
<i>Optimizing Herbicide Strategies for Weed Control</i>	van Zoeren, Basedow	Yes-ARDP
<i>Testing the Role of Latent Viruses in the Decline of Apple Trees</i>	van Zoeren (Fuchs PI)	Yes-ARDP

Selected Professional Development and Training

Activity	Team Member(s)	Comments:
Attended Hard Cider Summer Tour (Geneva NY, July 22)	van Zoeren	
Attended AgrAssistance Summer Tour (Wayne Co, Aug 3)	van Zoeren	
Attended and moderated Dr. Chris Watkins webinar, “ <i>Postharvest Review Session 1: Gala Quality</i> ” on July 28.	Kahlke	Zoom
Attended Wayne County Solar Energy day, which included stops at 3 farms on July 29.	Kahlke	
Attended the American Society for Horticultural Sciences annual meeting (Chicago, IL, August 1-3)	Miranda Sazo	
Attended the International Horticultural Congress annual meeting (Angers, France, August 15-19)	Miranda Sazo	

Fruit Quality Management – Craig J. Kahlke

Educational Programs/Presentations

- Gave a Zoom presentation “*Retain-Harvista Trial Results from 2022 in WNY*”
 - Summarized trial results for Valent R&D representative, via Zoom on July 12.
- LOF Summer Tour August 9th
 - Welcome and tour kick off at first orchard stop.
 - Lunch Stop Sponsor introductions.
 - Summarized LOF’s ground-truthing work with two companies, Farm Vision and Fruit Scout, at Orchard Dale Fruit Farm.
 - Final sendoff/thanks for attending.

Publications

Fruit Notes

- Articles Written: Fruit notes newsletter
 - *Thanks to our LOF Summer Tour Sponsors!*– Volume 22, issues 12 & 13 .
 - *Scientists, Extension Educators, and Ag-Tech Innovators are Working Together to Fine-Tune and Validate the Adoption of Digital Technologies for Precision Crop Load Management*, by T. Robinson, Y. Jiang, L. Gonzalez, M. Miranda Sazo, and C. Kahlke – Volume 22, Issue 14
- Edited 2 newsletters in the quarter.
- Sorted through numerous announcements about workshops/conferences/meetings/surveys and along with the pertinent on-line registration links, put them in the newsletter.

Email Blasts

- Sorted through numerous announcements about workshops/conferences/meetings/surveys and along with the pertinent on-line registration links, put them in the email blasts.
- Sent out 6 email blasts in the quarter
 - 7/20 – Hard Cider Tour 2022 this Friday (July 22) in the Finger Lakes – You can still register! Cornell 2022 Postharvest Reviews Webinar-Session 1 (Zoom) with Dr. Chris Watkins, Thursday July 28, Noon-1:30 PM.
 - 7/27 – Cornell 2022 Postharvest Reviews Webinar-Session 1 (Zoom) with Dr. Chris Watkins, Thursday July 28, Noon-1:30 PM.
 - 7/28– Cornell 2022 Postharvest Reviews Webinar-Session 1 (Zoom) with Dr. Chris Watkins, Thursday July 28, Noon-1:30 PM.
 - 8/5– LOF’s 2022 Summer Tour featuring Orleans County – Tomorrow (Tuesday, August 9th) – please pre-register for accurate lunch counts!
 - 8/8– LOF’s 2022 Summer Tour featuring Orleans County – Tuesday, August 9th – please pre-register for accurate lunch counts!
 - 8/18– *Sample August 19th-23rd for Passive Model for Honeycrisp Bitter Pit Prediction! The Use of Plant Growth Regulators Near Harvest.*
 - 8/23– *LOF YouTube Video on the Use of Reflective Fabrics for Improved Fruit Coloring – New Release! There’s still time to register your employees for the Hispanic Summer Fruit Tour tomorrow, Wednesday, August 24, 8:30 AM – 1:30 PM.*

Applied Research

- SCRI Project *"Precision Orchard Management for Apple"* (Robinson, PI)
 - Pruning Severity experiment on Honeycrisp
 - Featured this experiment at the LOF Summer Tour August 9.
 - Harvested fruit on September 29. Counted and weighed fruit from three trees per treatment. Fruit were put in a commercial storage until they can be run over the color sorter at Cornell AgriTech.
 - Summarized data and put on Box.
 - Presented on the use of the Fruit Scout app for trunk measurement and fruitlet sizing at the LOF Summer Tour August 9.
 - Presented on the use of Farm Vision technology for fruit and fruitlet sizing at the LOF Summer Tour August 9.
- ARDP Project *"A Statewide Effort to Manage Crop Load, Nutrient Status and Bitter Pit of Honeycrisp"* (Robinson, PI)
 - Collected fruit from the research sites in Orleans County for the passive bitter pit prediction model. Stored the samples in a room temperature storage room at a storage facility.
 - Evaluated the fruit for percentage bitter pit and reported to PI's.
 - Collect fruit from the research sites in Orleans County and put in a commercial storage facility for model validation of actual percentage bitter pit in November or December.
 - Summarized data and put on Box.
- ARDP Project *"Further Development of Peel Sap Analysis for Managing Bitter Pit Risk in 'Honeycrisp'"* (Cheng, PI)
 - Collected fruitlet samples from Orleans County research sites at the 50-60g weight for peel sap analysis.
 - Peeled the samples and froze them.
 - Picked up the research sites, growers and packing facilities' frozen samples, and delivered them to Cornell AgriTech.
- ARDP Project *"Color Improvement in 'Premier Honeycrisp'"* (Robinson, PI)
 - Secured a site to conduct the experiment in Orleans County.
 - Flagged trees and set up the experiment.
 - Installed reflective fabric on half the treatments.
 - Applied all treatments with a motorized mistblower.
 - Harvested fruit on August 26, September 1, and September 8.
 - Took counts and weights of all ripe fruit in each treatment.
 - Delivered fruit to a commercial storage facility until they can be run over the color sorter at Cornell AgriTech.
 - Summarized data and put on Box.
- ARDP Project *"The Use of the Apple Irrigation Model"* (Robinson, PI).
 - Continued to run the model on NEWA twice per week, and advised the cooperator (Niagara County) on when to irrigate and for how long.
 - Harvested all fruit on September 14.
 - Took counts and weights of all legal size fruit in each treatment.

- Delivered fruit to a commercial storage facility until they can be run over the color sorter at Cornell AgriTech.
- Summarized data and put on Box.
- Valent – PGR Trials with ReTain™ and Harvista™ on Gala and SnapDragon
 - Put together all data and performed basic analysis.
 - Presented this data to Valent R&D representative Poli Francescatto via Zoom on July 12.
- Unfunded project “*Advancing Maturity of High Bitter Pit Orchard Blocks to Reduce Fruit Loss*”.
 - Applied all treatments, (including Hexanal) with either a motorized mistblower or a piston pump backpack sprayer.
 - Harvested fruit on September 16 & 23.
 - Strip picked 1-2 trees to get a bushel per treatment for storage.
 - Harvested maturity samples.
 - Too drop counts during several weeks.
 - Summarized data and put on Box.

Team and Other Duties

- Team Leader Administrative Duties
 - Approved invoices and vouchers as needed.
 - Reviewed budget and monthly financials.
 - Approved timesheets/vacation/sick leave hours for team members as needed.
 - Disseminated pertinent info to rest of team as needed from Group and other email lists
- Organized and led weekly team (Zoom™) meetings on July 6, 13, 20,27, August 3.
- Attended SCRI Extension meeting, field plots tour, engineering tour, and group dinner on 8/8 at Cornell AgriTech and in Geneva.
- Submitted April-June 2022 quarterly report
- Mileage Reporting for funded grants

Professional Development

- Attended and moderated Dr. Chris Watkins webinar, “*Postharvest Review Session 1: Gala Quality*” on July 28.
- Attended Wayne County Solar Energy day, which included stops at 3 farms.

Stakeholder Contacts

- 6 site visits to assist growers (3 Niagara, 3 Orleans).
- Assisted stakeholders via texts, phone, and email (~90).

Cultural Practices – Mario Miranda Sazo

Educational Programs/Presentations

2022 Virtual Orchard Meetup Summer Series. Orchard efficiency: Labor and Technology

- This was a spring/early summer collaboration between fruit extension specialists from CCE LOF (Mario), MSU (Anna Wallis), WSU (Bernardita Sallato), PSU (Dan Weber), and OMAFRA, Canada (Kristy Grigg-McGuffin).
- This was the second season for this nationwide extension effort started with 'Honeycrisp' topics in June 2021.
- This Q3 we conducted the 4th and last meetup on July 14 (70 participants).
- Meetups showcased growers and other specialists leading the development of several AG-technologies for the US apple industry.

2022 CCE LOF Fruit Tour – August 9

- Some of the tour activities are highlighted in the success history of this Q3

2022 CCE LOF Hispanic Fruit Tour – August 24

- More than 120 Hispanic employees attended the CCE LOF Hispanic fruit tour this quarter.
- Cornell Small Farms Program and Farm Credit East provided financial support to make the 7th Cornell Hispanic fruit tour a great success.
- It was a very memorable tour, with record participation numbers, and filled with so much practical and useful information discussed with orchard manager Bulmaro Solis and his orchard crew of Zingler farms.
- In addition to the 6-year collaboration established with the Cornell Small Farm Program, CCE LOF started working very closely with the Director of the NYSIPM program
- Janet van Zoeren participated for the first time in this tour and gave an excellent presentation in the Spanish language this summer

Presentations Given – Conference Presenter/Organizer:

- “Nutrient Uptake and Accumulation of ‘Honeycrisp’ Trees as Affected by Four Rootstocks from Establishment (2017) to Maturity (2021)”. 2022 American Society of Horticultural Science (ASHS), Annual Conference, Chicago, Illinois, July 30-August 3, 2022.

Other Presentations Given – Invited Presentation (on behalf of Terence Robinson who was not able to present because of health issues):

- “Advances in precision crop load management of apple – A USA national project”. 2022 International Horticultural Congress (IHC) in Angers, France, August 15-19, 2022

Publications

Fruit Notes

CCE LOF Fruit Notes newsletter: Wrote/modified/summarized/requested articles including:

- “Practical implications of early- and mid-summer water stress on tree growth, cropping, and physiology” (A. Lakso, T. Robinson, L. Gonzalez, and M. Miranda Sazo), pages 4-5, Vol. 22, Issue 12, July 14, 2022.
- “7th Hispanic summer fruit tour featuring the leadership/communication styles and orchard management skills of Bulmaro Solis at Zingler Farms” (M. Alvarado, N. Waters, J. v. Zoeren, A. Calixto, and M. Miranda Sazo), pages 1-4, Vol. 22, Issue 13, July 28, 2022.

- “Scientists, extension educators, and Ag-tech innovators are working together to fine-tune and validate the adoption of digital technologies for precision crop load management” (T. Robinson, Y. Jiang, L. Gonzalez, M. Miranda Sazo, and C. Kahlke), pages 1-2, Vol. 22, Issue 14, Sept. 12, 2022.

CCE LOF Fruit Facts:

- Announced/conducted the CCE LOF Hispanic fruit tour, provided tree training, summer pruning (manual/mechanical), sent nutritional recommendations, etc.

CCE LOF YouTube Videos – Other social media efforts and collaborations

- This Q3 Liz Tee posted the last virtual meetup (part 4) conducted on July 14 and also posted three new videos related to the use of reflective fabrics in our CCE LOF YouTube channel:
 - **2022 Orchard meetup series**
 - Part 1 – Labor, grower experiences – 120 views
 - Part 2 – Labor, Specialists – 64 views
 - Part 3 – Technology, Grower experiences – 105 views
 - Part 4 – Technology, Specialists – 79 views
 - **Videos related to the use of reflective fabrics**
 - “Using reflective materials for improved fruit color” – 259 views
 - “The importance of diffuse scattering and factors that influence light interception and distribution” – 69 views
 - “The use of ground cover materials to increase fruit color on Honeycrisp, NY-1, NY-2, and Evercrisp” – 72 views

Email Blasts

- One about NYSIPM interviews and Myco survey

Applied Research Projects/Collaborations

Statewide effort to manage crop load, nutrient status, and bitter pit of Honeycrisp (ARDP/Robinson)

- WNY fruit sampling occurred early in July, 2022
- Planned/coordinated/conducted peel sap analysis with a 5-person crew in a lab in Ithaca
- CCE LOF conducted passive bitter pit evaluations in late August, evaluated bitter pit on site in September, and got a fruit sample for storage

Cornell AgriTech experimental orchard (ARDP/Fuchs, Miranda Sazo, van Zoeren, Wunsch)

- Helped M. Fuchs and A. Wunsch to conduct fruit quality evaluations of Honeycrisp and Gala at Cornell AgriTech on Sept. 29 and 30

Course: Futuro Financiero (NYS Agriculture and Markets, Yes! Apples, Rangarajan, Miranda Sazo, Waters)

- This course is an improved version of the Master Class training offered through the project titled *“Labor readiness: Pathways for farmworkers to start up and advanced beginners to scale up new farm business”*
 - Conducted a fruit summer tour for Hispanics on August 24 to continue delivering additional technical training to past graduates and prospective students

CALS Innovation Project: ‘A Sus Órdenes: Developing and strengthening CALS & CCE capacity for innovative and transformational engagement with Spanish-speaking stakeholders’ (Funds provided by CALS Innovation Fund.

PIs: Rangarajan, Miranda Sazo, Waters, and 18 more Cornell staff)

- We started authoring a final report to CALS highlighting the importance of Hispanic population in NY State. Currently, there is not a coordinated or cohesive education and outreach program to unify Cornell University and CCE’s effort to support the Hispanic population. Our project, titled “A sus Ordenes”,

assessed current Spanish language and Latino/a/x cultural assets as well as gaps in service to create a set of recommendations to foster more robust support of the Hispanic population.

Ph.D. related course/research work in Ithaca campus (SCRI and ARDP/Cheng and Miranda Sazo)

- Registered PLSCI 9900 PhD Dissertation research
- Presented partial results at the ASHS meeting in Chicago in August
- Will present some data at the GLFW meeting in Nov.

SCRI – POM project (T. Robinson)

- Attended SCRI PACMAN extension team on August 8
- Planned/coordinated/conducted one SCRI orchard stop at the 2022 CCE LOF Fruit tour on August 9
- Introduced Moog, Green Atlas, and Vivid technologies at Fish Creek orchards to several hundred growers
- Review success story submitted for Q3

Team and Other Duties

- Attended LOF team meetings and conference calls as needed
- Attended zoom meetings as needed for the planning of:
 - CCE LOF Hispanic summer fruit tour – August 24
 - Final report to CALS - ongoing
 - Cornell soil health initiative in tree fruit perennial systems - ongoing
 - SCRI POM project – August 8
 - Last orchard virtual meetup - July 14
 - NYSIPM hiring process/field tours with candidates/interviews – 5 days in Q3
- Met with Basedow and Londo via zooms for the planning of a NESARE full proposal
- Reported fleet mileage as needed during this quarter, changed oil, etc.
- Authored/submitted two articles to LOF newsletter editor
- Submitted April-June 2022 quarterly report
- Continued working closely with Basedow, van Zoeren, Aller, and Furber for the SH initiative in tree fruits (helped to take WNY soil/leaf samples on August 4)
- Communicated and strategically worked with Cornell Small Farm Program (mainly with N. Waters and M. Alvarado)
- Partnered strategically with Alejandro Calixto (Director NYSIPM) for the CCE LOF Hispanic tour
- Developed idea/ assembled project team/led a CALS innovation project

Professional Development

- Attended ASHS in Chicago – August 1-3
- Attended IHC in Angers, France – August 15-19

Stakeholder Contacts

- Assisted 18 growers via farm visits (8 Orleans, 2 Monroe, 8 Wayne).
- 50-60 emails, 40 phone communications, 60 texts (pics, videos, voice messages, etc.).

Integrated Pest Management – Janet van Zoeren

Educational Programs/Presentations

- Co-presented talk with Mike Basedow “Peru herbicide trials - efficacy, tree damage, soil health” at Peru Weed Management and Soil Health Field Day (21 attendees, Peru NY, July 20).
- Co-presented talk with Mike Basedow “2 years of Data on Pre-emergent Herbicide Application Timing” at LOF Summer Tour (175 attendees, Albion NY, Aug 9).
- Presented for Monique Rivera “Mating Disruption: it's a good time to re-consider how it fits on your farm” at LOF Summer Tour (175 attendees, Albion NY, Aug 9).
- Presented “Tizon de Fuego” at Hispanic Summer Tour (115 attendees, Holley NY, Aug 24).

Publications

Fruit Facts Articles Written:

- 7 issues

Fruit Notes Articles Written:

- van Zoeren, J and M Rivera. *Keep an Eye Out for Brown Marmorated Stink Bug*. Fruit Notes, Volume 22, Issue 12. P 5-6.
- Alvarado, M, N Waters, J van Zoeren, A Calixto, and M Miranda Sazo. *7th Hispanic Summer Fruit Tour Featuring the Leadership/Communication Styles and Orchard Management Skills of Bulmaro Solis at Zingler Farms*. Fruit Notes, Volume 22, Issue 13. P 1-4.

Tree Fruit News Articles Written:

- van Zoeren, J, D Donahue, M Basedow and M Rivera. *Keep an Eye Out for Brown Marmorated Stink Bug*. Tree Fruit News, Volume 10, Issue 5. P 6-7.
- Basedow, M and J van Zoeren. *Fall Pre-Emergent Herbicide Timing Results and Takeaways*. Tree Fruit News, Volume 10, Issue 6. P 1-5.

Applied Research Projects/Collaborations

- ARDP funded Project “*Optimizing Herbicide Strategies for Weed Control*” (PI-Mike Basedow)
 - Weed assessments (July 11, July 25, Aug 15, Sept 21)
 - Presented data at Peru Weed Management and Soil Health Field Day (July 20)
 - Presented data at LOF Summer Tour (Aug 9)
 - Apply burndown herbicide to spring pre-emergent treatment (July 29)
 - Collect foliar nutrient samples (Aug 1)
 - Apply burndown herbicide to control treatment (Aug 19)
 - Tree health and herbicide injury assessments (Aug 22)
 - Harvest/yield assessments (Sept 20-21)
- ARDP funded Project “*Assessing the significance of brown marmorated stink bug damage to New York apple production*” (PI-van Zoeren)
 - Weekly trap monitoring in Wayne and Oswego counties
 - At harvest damage assessment – Oswego county (Sept 9)

- At harvest damage assessment – Ontario county (Sept 12)
- At harvest damage assessment – Niagara county (Sept 20)
- Comprehensive photos of damage from caged study (Sept 16)
- USDA NIFA funded Project *“Root Traits and Rapid Apple Decline in High-Density Orchards”* (PI-Khan)
 - Decline severity assessment at Morgan Orchard (July 7, Aug 5, Sept 6)
- Unfunded Project *“Testing the role of latent viruses in the decline of apple trees”* (PI-Fuchs)
 - Fruit maturity testing of all treatments (Sept 29)

Team and Other Duties

- Served as Fruit Program Working Team Co-chair, including planning “Ag Inservice” planning.
- Helped organize LOF Summer Tour, host for Kast Orchard site.
- Assisted with coordinating a WNY tour portion of in-person interviews for NYS IPM Fruit Coordinator position (Sept 8, 13, 15).
- Attended team meetings.

Professional Development

- Attended “Morning Brew” conversations led by Peter Jentsch, Poma Tech (July-September; 5 total).
- Attended Hard Cider Summer Tour (Geneva NY, July 22)
- Attended AgrAssistance Summer Tour (Wayne Co, Aug 3)

Stakeholder Contacts

- 17 site visits to assist growers (2 Niagara, 3 Orleans, 1 Monroe, 9 Wayne, 2 Oswego).
- Assisted stakeholders via texts, phone, and email (52).

Grant Submissions, Re-Submissions, Letters of Support, Proposal Meetings

- Letter of support for “Killing them softly: defining the future of insect mating disruption in specialty Crops” (Monique Rivera PI)
- Letter of support for USDA NIFA Proposal “The weakest link: determining the role of sublethal cold temperatures and climate change on apple tree collapse” (Jason Londo PI)

Other Area-Wide Education and Advocating

- Weekly insect trapline and orchard scouting (July-Sept)
- Collaborated with the Motts facility to help identify internal lepidoptera and stink bug problems in incoming processing fruit.
- Collected soil samples for Cornell Soil Health testing, in collaboration with Mario M S and Debbie Aller, from four sites in Orleans and Wayne counties.
- Collect woolly apple aphid samples for genotype mapping research, in collaboration with Gennaro Fazio, USDA