



Cornell Cooperative Extension Lake Ontario Fruit Program Quarterly Report July - September 2023

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

Monroe, Niagara, Orleans,
Oswego & Wayne

Overview: The drier weather (but not completely dry) we had in June turned into too much precipitation in July. Many farms in our region had at least 75% above normal for the month, while some had 2.5 times normal. Temperatures were actually close to normal, with some hot days around July 4 and late in the month balanced out by quite a few days with below normal temperatures. Despite the rains, many of the storms went through relatively quickly, returning ample sunshine for photosynthesis in crops. As what usually happens with summer storms, some of the more severe ones brought crop-damaging hail to several large apple farms in our region. August had around average rainfall for many farms, with a few getting over 50% above normal. Temperatures were cooler than normal, but again we had a lot of sunshine. September was drier than normal, with most farms only receiving about one-third of normal rainfall. However, the previous summer precipitation had already sized the fruit above normal. September had temperatures above normal, but only a few days of hot weather. The dry weather along with lots of sunshine and many cool, clear nights brought another phenomenal coloring year to early and mid-season apple varieties. With the freeze of May 18, many farms were eligible for disaster assistance.

We were fortunate to be able to hire help for the summer. Daniel Acquilano, a recent high school graduate, split time with LOF and Dr. Yu Yiang's Digital Agriculture program. We only had Daniel from late June until mid-August, but he was a smart, respectful, hard worker. He was off to college in August.

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 Daniel'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, fruits to validate the models were collected at harvest and stored at 38F until evaluation before Christmas. The precision crop load management applied research work also continued, with a pruning to set bud loads experiment and fruitlet and fruit scans with new technology provided by the startup companies, Orchard Robotics and Pometa. For the third consecutive year, Janet conducted on-farm herbicide trials. Bonnie met many stakeholders via farm visits, and assisted the rest of the team with harvest of research plots and other field work on several occasions.

Summer Tour – See Quarterly Highlight.

	Editions:	Articles:
Fruit Notes	2	3
Email Blasts	17	N/A
Fruit Facts	7	N/A
Harvest Maturity Reports	6	N/A
Crunch Time Apple Growers Harvest Maturity Bulletins	3	N/A



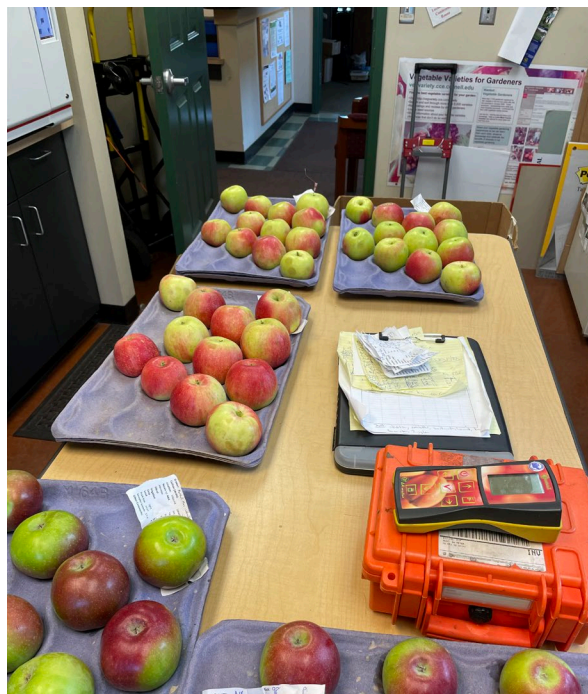
LOF's Janet van Zoeren gives a presentation at the 1st Annual Western NY Fruit Grower tour on July 28 at S & L Farms in Sodus.

Selected Publications by LOF Team	Periodical	Author
<i>1st Annual Western NY Fruit Grower Tour July 28 in Wayne County – Pre-Registration is Required – Don’t Delay!</i>	Fruit Notes, Vol. 23, Issue 11	Kahlke
<i>Tree Fruit & Small Fruit Twilight Meeting 4 of 5 at Burnap’s Farm Market, July 27, 7-8:30 PM.</i>	Fruit Notes, Vol. 23, Issue 11	van Zoeren
<i>The Use of Reflective Materials and other Technologies for Improving Fruit Color on High Value Cultivars in WNY</i>	Fruit Notes, Vol. 23, Issue 12	Miranda Sazo, Kahlke, Gonzalez, Robinson

Selected Presentations by LOF Team	Meeting:	Presenter:
<i>“Dry matter accumulation of Honeycrisp as influenced by four rootstocks.”</i>	2023 American Society of Horticultural Science (ASHS), Annual Conference, Orlando, Florida, August 4th	Miranda Sazo
<i>“What Can You Use for Dogwood Borer Control?”</i>	1 st Annual Western NY Fruit Grower Tour, Cherry Lawn Farms, Sodus, July 28.	van Zoeren
<i>“Introduction to Honeycrisp Management for Quality Fruit & to Reduce Biennial Bearing”</i>	1 st Annual Western NY Fruit Grower Tour, S & L Farms, Sodus, July 28.	Miranda Sazo
<i>“Welcome & Introductions, Format for the Day:</i>	1 st Annual Western NY Fruit Grower Tour, Cherry Lawn Farms, Sodus, July 28.	Kahlke
<i>“Principles of IPM”</i>	Bilingual Fruit School, Sodus, NY 9 attendees	van Zoeren

Business Consultation

Specialist	Site Visit	Phone/Texts/Emails
Kahlke	17	~440
Miranda Sazo	15	~120
Nelsen	10	~90
van Zoeren	35	118



Research

Activity/Proposal/Grant	Person(s)	Funded (Y/N) or Unfunded/ Preliminary Research (UPR)
<i>Precision Orchard Management</i>	Miranda Sazo, Kahlke, Tee	Yes-SCRI & ARDP
<i>Determining if beneficial fungi increase tree growth and reduce the need for fertilization and irrigation of newly planted apple trees</i>	Miranda Sazo (Londo PI)	Yes-NESARE
<i>A Statewide Effort to Manage Crop Load, Nutrient Status and Biter Pit of Honeycrisp</i>	Miranda Sazo, Kahlke, Tee (Robinson PI)	Yes-ARDP
<i>Paired soil sampling 'comparison' of several Honeycrisp blocks in WNY</i>	van Zoeren & Miranda Sazo (Aller PI)	UPR
<i>Optimizing Herbicide Strategies for Weed Control</i>	van Zoeren, Basedow	Yes-ARDP
<i>Assessing the significance of brown marmorated stink bug damage to New York apple production; Part 2: threshold and spray timing</i>	van Zoeren	Yes-ARDP
<i>Mating Disruption</i>	van Zoeren (Rivera PI)	Yes-ARDP
<i>Precision Irrigation</i>	Kahlke	Yes-ARDP

Selected Professional Development and Training

Activity	Team Member(s)	Comments:
Attended Gas at Site Dynamic Controlled Atmosphere Workshop(Ithaca, Aug 15).	Kahlke	
Attended 2023 Cornell Storage Workshop (Ithaca, Aug 16).	Kahlke, Nelsen	
Attended PACMAN Extension Team meeting on July 31.	Kahlke, Miranda-Sazo	Zoom
Toured Wayne County farms with BeeHero™ Founder Itai Kanot on July 27.	Kahlke, Nelsen, van Zoeren	
Attended the American Society for Horticultural Sciences Annual Meeting (Orlando, FL, August 1-4).	Miranda Sazo	
Attended "Morning Brew" conversations led by Peter Jentsch, Poma Tech (April-June; 13 total).	van Zoeren	
Attended "NE Berry" conversations led by Laura McDermott and Anya Osatuke (April-June; 6 total).	van Zoeren	
Attended the NERME Applicant Training Webinar (training to apply for Northeast Extension Risk Management Education grants) on 10/4/2023.	Nelsen	
Attended NE Juice Coop meeting held at Ontario Golf Club, 8/29/2023.	Nelsen	
Attended the Summer Growers Tour sponsored by Reality Research and Nutrien Ag Systems held in Lyons, NY on August 9, 2023.	Nelsen, van Zoeren	

Fruit Quality Management – Craig J. Kahlke

Educational Programs/Presentations

- 1st Annual Western NY Fruit Grower Tour July 28th
 - Welcome and tour kick off at first orchard stop.
 - Sponsor introductions at final stop.
 - Gave gift cards and LOF hats to tour hosts.
 - Final sendoff/thanks for attending.
- Harvest Maturity Program
 - The making of iodine solution multiple days in August and September
 - Starting in late-August, and continuing past the end of the quarter, performed the harvest maturity testing and reporting on apples and pears
 - With Liz, sampled orchards and picked up grower and crop consultant samples on Mondays, and tested them in the maturity lab at Orleans County CCE
 - With Liz, tested Wayne County samples (growers and crop consultants collected) at K.M. Davies on Tuesdays.
 - Sent data to industry reps on Tuesday evenings, had conference call (Zoom) on Wednesday mornings
 - Put out maturity reports later Wednesday mornings
 - This included maturity reports for Crunch Time Apple Growers, the producers of SnapDragon™ and RubyFrost™
 - Put out 6 Harvest Maturity Reports in the quarter
 - Put out 3 Crunch Time Apple Growers Harvest Maturity Bulletins in the quarter

Publications

Fruit Notes

- Articles Written: Fruit notes newsletter
 - *1st Annual Western NY Fruit Grower Tour July 28 in Wayne County – Pre-Registration is Required – Don't Delay!* – Volume 23, issue 11 .
- 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 17 email blasts in the quarter

Applied Research

- SCRI Project *“Precision Orchard Management for Apple”* (Robinson, PI)
 - Pruning to set bud load ratios experiment on Honeycrisp
 - Flagged trees on September 15.
 - Harvested fruit on September 21. Counted and weighed all fruit from 24 trees across all treatments.
 - A subsample of the fruit were testing in the maturity lab for seed counts, firmness, brix, and starch pattern index.
 - The remaining 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.
- ARDP Project *“A Statewide Effort to Manage Crop Load, Nutrient Status and Bitter Pit of Honeycrisp”* (Robinson, PI)
 - For the bitter pit prediction models via the peel sap analysis:
 - Collected fruitlet samples from Orleans and Monroe County research sites at the 50-60g weight for peel sap analysis over 4 days in mid-July.
 - Peeled the samples and froze them.
 - Picked up the research sites, growers and packing facilities’ frozen samples, and delivered them to Cornell AgriTech on July 14.
 - For the passive bitter pit prediction model:
 - Collected fruit from the research sites in Orleans and Monroe Counties over 3 days in late August. Stored the samples in a room temperature storage room at a storage facility.
 - At ~ 21 days, evaluated the fruit for percentage bitter pit and reported to PI’s and put on Box.
 - For Validation of the Bitter Pit Prediction Models:
 - Over 3 days in mid-September collected fruit from the research sites in Orleans and Monroe Counties. Stored the samples in a 38F storage room at a storage facility.
 - Will evaluate fruit for bitter pit incidence in December.
- ARDP Project *“Precision Irrigation”* (Robinson, PI).
 - Continued fruit diameter measurements at 1-2 week intervals.
 - Monitored irrigation website to determine when (none in 2023!) the grower needed to irrigate.
 - 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.
 - Took a subsample to the maturity lab and tested for firmness, brix, and starch pattern index.
 - 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 (in-person or Zoom™) meetings on July 20 and August 2nd.

- Submitted April-June 2023 quarterly report.
- Mileage Reporting for funded grants and for fleet website.

Professional Development

- Attended Gas at Site Dynamic Controlled Atmosphere Workshop (Ithaca, Aug 15).
- Attended 2023 Cornell Storage Workshop (Ithaca, Aug 16).
- Attended PACMAN Extension Team meeting on July 31 (Zoom).
- Toured Wayne County farms with BeeHero™ Founder Itai Kanot on July 27.

Stakeholder Contacts

- 17 site visits to assist growers (2 Niagara, 8 Orleans, 1 Monroe, 6 Wayne).
- Assisted stakeholders via texts, phone, and email (~440).

Cultural Practices – Mario Miranda Sazo

Educational Programs/Presentations

8th CCE LOF Hispanic Fruit Summer Tour (G&S Fruit Farms, Walworth, Wayne County) – August 16

- 12 employees were trained in the Spanish-language.
- We had a labor, leadership, and human resources conversation with Gary Craft and his employees (discussion led by Mildred Alvarado of Ag Futuro).
- We covered the following topics: (1) blueberries with Anya Osatuke (simultaneous translation to the Spanish language by Mario), (2) soil science with Debbie Aller, and (3) Brown Marmorated Stink Bug with Janet van Zoeren.
- We had a great Mexican lunch (provided by Ag Futuro this Q₃).
- Grower hosts (Gary and Stephanie Craft) were invited to attend the Cornell Latino conference in Dec.

2023 Virtual Orchard Meetup Summer Series: ‘Managing the Uncontrollable’

- This was a spring/early summer collaboration between fruit extension specialists from CCE LOF (Mario), MSU (Emily Lavelly), WSU (Bernardita Sallato), PSU (Dan Weber), OMAFRA, Canada (Kristy Grigg-McGuffin), and the British Columbia Ministry of Agriculture (Lindsay Hainstock)
- This was the third season for this nationwide extension effort started with ‘Honeycrisp’ topics in June 2021.
- The last orchard meetup about heat stress was conducted this Q₃ on July 13 (60 participants).
- Meetups showcased growers and other specialists leading the research and development of mitigation strategies for the US apple industry in a changing environment.
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Orchard Tour(s) in the Summer:

- Planned, organized, delivered two orchard stops during the 2023 WNY fruit tour this Q₃ (July 28)
 - **Stop 1:** ‘Honeycrisp’ nutrient management (hosted by Cherry Lawn Farm, Alton, Wayne):

- Introduction to the Honeycrisp stop by Mario Miranda Sazo (CCE LOF).
 - Introduction to xylem sap (sap analysis) by JP Jacobson (Agro-K) and results/interpretation by Vaughn Gingerich (Lake Ontario Ag Consulting) and Brad Palmer (Reality Research).
 - An update about the work with ABA, auxins, and bitter pit by Ph.D. candidate Chayce Griffith (MSU).
 - An update about the peel sap project on ‘Honeycrisp’ by Dr. Lailiang Cheng (Cornell U.).
 - Calcium foliar spray trials by Dr. Luis Gonzalez (Cornell U.).
 - Putting the pieces together for ‘Honeycrisp’ management/final remarks by Dr. Terence Robinson (Cornell U.).
 - 150-180 participants.
- **Stop 2:** Precision crop load management guided by digital technologies (hosted by DeMarree Fruit Farms, Williamson, Wayne):
- Dr. Terence Robinson (Cornell U.) moderated a Q&A session with invited speakers.
 - Kristen DeMarree (fruit grower at DeMarree Fruit Farm).
 - Jennie Lemieux, Hannah Nascimiento, and Hannah Maloney (R&D, Vivid).
 - Charlie Wu (CEO, Orchard Robotics).
 - Ph.D. candidate Laura Hillman developer of the Fruit Size Distribution model (MSU).
 - Rod Farrow (grower advisor for SCRI POM project).
 - Dr. Yu Jiang, Dr. Luis Gonzalez (Cornell AgriTech) and Mario Miranda Sazo (CCE LOF).
 - 180-200 participants.

Presentations Given – Conference Presenter/Organizer:

- *‘Dry matter accumulation of Honeycrisp as influenced by four rootstocks.’* Paper presentation presented at the ASHS Conference, Florida, on August 4, 2023.

Publications

Fruit Notes

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

- *“2023 Honeycrisp Fruit Collection for Peel Sap Starts in Early July”* (M. Miranda Sazo, C. Kahlke, M. Basedow, E. Tee, L. Cheng, and T. Robinson), Vol. 23, Issue 10, June 29, 2023.
- *“The Use of Cover Crops in the Summer for a Future Orchard”* (M. Miranda Sazo, D. Aller, and J.v. Zoeren), Vol. 23, Issue 10, June 29, 2023.
- *“The Use of Reflective Materials and Other Technologies for Improving Fruit Color on High Value Apple Cultivars in WNY”* (M. Miranda Sazo, C. Kahlke, L. Gonzalez, and T. Robinson), Vol. 23, Issue 12, August 11, 2023.

CCE LOF Fruit Facts:

- Provided summer recommendations for hand thinning, irrigation, nursery, and tree training, etc.

Peer-reviewed Research Articles:

- **Gonzalez Nieto, L.; Wallis, A.; Clements, J.; Miranda Sazo, M.; Kahlke, C.; Kon, T.M.; Robinson, T.L.** 'Evaluation of Computer Vision Systems and Applications to Estimate Trunk Cross-Sectional area, Flower Cluster Number, Thinning Efficacy and Yield of Apple'. *Horticulturae* 2023, 9, 880. <https://doi.org/10.3390/horticulturae9080880>
- **Serrano, A.; Wunsch, A.; Sabety, J.; van Zoeren, J.; Basedow, M.; Miranda Sazo, M.; Fuchs, M.; Khan, A.** *The Comparative Root System Architecture of Declining and Non-Declining Trees in Two Apple Orchards in New York.* *Plants* 2023, 12, 2644. <https://doi.org/10.3390/plants12142644>

CCE LOF YouTube Videos – Other social media efforts and collaborations

- 2023 virtual orchard meetups will be uploaded in our LOF YouTube channel by Liz this fall.

CCE LOF announcements (email blasts):

- LOF Announcements - *Registration is Open for the 2023 Cornell Annual Hispanic Summer Fruit Tour in Wayne County next Wednesday August 16* (sent on August 11 and 14).
- LOF Announcements - Cornell post-harvest research group is looking for a mature block of Honeycrisp with a high incidence of bitter pit to collect samples for CA conditioning research (sent on Sept. 16).

Applied Research Projects/Collaborations

On-farm Rootstock/Training Systems (Motts/Robinson and LOF team)

- Trellis was installed at both sites this Q₃.
- Spenser Howden and Terence helped Spanish employees with trellis installation at the Verbridge site.

SCRI – POM project (T. Robinson)

- **DeMarree site (Wayne County):**
 - Partial results were presented during the WNY fruit summer tour on July 28.
 - Grower cooperator Kristen DeMarree scanned the research block with the Orchard Robotic scanner several times this Q₃.
 - Liz Tee scanned the research block with Pometa technology (cell phone) this Q₃.
 - Yu Jiang (Cornell faculty), Luis Gonzalez (Cornell postdoc), and Daniel Acquilano (past LOF summer helper) scanned several times the research block with the Outfield drone (UK drone technology).
 - Liz Tee made final fruit counts/tree before and after hand thinning.
- **Publication:**
 - A research paper was published this Q₃.
 - Partial results of this research were presented during the WNY fruit tour on July 28.

Statewide 'Honeycrisp' bitter pit project -ARDP funds (L. Cheng)

- **For peel sap and colorimetric analysis conducted in Ithaca**
 - Collected fruitlets at Cornell AgriTech (block 28) for nutrient timing study on July 3, 10, 17, and 24.
 - Collected fruitlets for ARDP research sites in Wayne and Lafayette on July 11-12.

- Squeezed peels in Ithaca on July 18-19.
- Conducted colorimetric analysis for peel sap N on July 20-21.
- Peel sap data results was compiled by Liz Tee and Daniel Acquilano the week of July 24.
- **Bitter pit passive evaluations, bitter pit on-tree evaluations, and fruit sample collection for bitter pit evaluation after cold storage**
 - Collected fruit from research sites (Wayne, Lafayette) on August 22 and 23.
 - Evaluated bitter pit on-tree and harvested fruit for cold storage on Sept. 13 and 18.
 - Conducted passive evaluations on Sept. 14.
 - Fruit samples were conditioned and stored in room 113 at Cornell AgriTech Raw Products Building.
 - BP evaluations after cold storage should be conducted during the week of Dec. 18.

Determining if beneficial fungi increase tree growth and reduce the need for fertilization and irrigation of newly planted apple trees – NE SARE project (M. Basedow, J. Londo, and M. Miranda Sazo)

- **Greenhouse study at Cornell AgriTech:**
 - Tree data collection conducted by Hanna Martens (Londo's lab).
 - Liz took some photography and videos.
 - Potted trees will be planted in an experimental orchard at Cornell AgriTech this fall.
- **On-farm experiment with mycorrhizal fungi inoculation (Hermetet site in Wayne County):**
 - Tree growth measurements will be taken by Jason Londo this fall.
- **SARE project team meeting:**
 - A zoom meeting was organized by PI Mike Basedow with advisors and the entire research group on Aug. 21.

Paired soil sampling 'comparison' of several 'Honeycrisp' blocks in WNY – Unfunded (led by Deborah Aller and supported by JvZ and MMS)

- There was a second Wayne County sampling for collembola populations this season organized/conducted by Janet.
- Liz and the rest of SH team helped Janet on Sept. 20.

Long-term defoliation research study – Unfunded (led by L. Cheng, Kaspar Kuehn 'new M.S. graduate student via EDP', and Mario Miranda Sazo)

- **Justification:**
 - We began a new research project to study the effects of defoliation before fruit harvest to improve fruit color for high value apple cultivars in WNY.
 - This research is being approached from a tree reserve nutrient perspective.
 - As several growers have adopted manual (leaf pruning) or pneumatic defoliation with European machines, and defoliation levels have ranged from 20-30% to until very high levels of 60-80% at the bottom half of the tree canopy, we are concerned that this practice may not be sustainable because leaf removal at high levels would reduce both tree reserve nitrogen and reserve carbohydrates.
 - ***There are two main objectives for this study:***
 - Determine what is the optimal level of defoliation.

- If foliar urea application after fruit harvest would compensate for the loss of nitrogen in those green leaves removed to sustain spur quality and productivity in the lower half of the tree canopy while improving fruit color.
 - This work is a continuation of the previous work done by Dr. Cheng on apple nursery trees where he found it is reserve nitrogen, not reserve carbohydrates that determine tree growth after establishment. The work his lab did on fruit-bearing trees also showed the same trend in the past.
- **2023 research work and activities:**
 - The on-farm study was started with grower Kristen DeMarree (DeMarree Fruit Farms, Williamson, Wayne County) on a mature block of Minneiska™ on G.935 on August 29.
 - To precisely study different levels of defoliation on high value cultivars, we manually defoliated trees at 4 different levels (0%, 20%, 40%, and 60%). Defoliation was made on both sides of the canopy and until around 6.5ft tree height. The field work was led by Kaspar Kuehn, a new M.S. graduate student in Dr. Cheng's lab. Liz and Mario helped to defoliate trees.
 - A more aggressive 80-90% defoliation treatment was conducted in just one 2-tree plot by Mario on Sept. 6.
 - Fruit harvest was collected on Sept. 6 and fruit color was evaluated by a Greefa machine on Sept. 7.
 - Half of the defoliated trees received one (Sept. 24) or two foliar urea sprays (October 4) this fall.
- **Future work and grant application for funding:**
 - Tree nutrient status (spur N and carbohydrate levels), return bloom, spur leaf area, fruit set per cluster, fruit size, and final yield will be evaluated next 2024 year.
 - We envision that this type of new research should be conducted for several more years in our region.
 - We hope to get some funding support through the Apple Research and Development Fund and/or other funding sources in the next seasons.
 - A research proposal will be submitted to ARDP this November 29, 2023.

Writing progress for the submission of a Ph.D. dissertation to Graduate School:

- **We are currently writing three manuscripts (due by the end of December/early January 2024, ASAP)**
 - One peel sap method paper to introduce the Cornell peel sap and colorimetric analytical methods.
 - A second paper to describe the dry matter accumulation from year 2017 to 2021 (only from budbreak to harvest).
 - A third paper to describe the seasonal patterns of dry matter accumulation and partitioning of mature 'Honeycrisp' trees on four rootstocks: B.9, M.9, G.11, and G.41'.
 - The above three papers and an appendix for peel sap and colorimetric analytical methods will be included in the dissertation.
- **We are planning to write 3 additional manuscripts (due by May 1, 2024)**
 - Two papers to describe the accumulations of macro- and micro-nutrients in 'Honeycrisp' as influenced by rootstocks.
 - And one last paper to describe the practical use of peel sap, implementation, extension activities, and the most current recommendations for 'Honeycrisp' in NY.

Team and Other Duties

- Attended zoom meetings as needed for the planning of:
 - WNY tour and other CCE LOF program activities as needed.
 - Cornell Latino conference (to be conducted in Syracuse on Dec. 7-8).
 - Farmer grant application with Debbie Aller and Ted Furber (due on Nov. 14).
 - Cornell soil health initiative in tree fruit perennial systems.
 - SCRI POM project.
 - DATA initiative.
 - 2023 orchard virtual meetups
- Attended dry-run tour with team, Terence on July 24.
- Helped organize, hosted two stops, and attended WNY summer fruit tour on July 28.
- Travelled to Florida and attended ASHS conference, gave one talk on August 3.
- Attended LaGasse tour and connected Yu Jiang and Maggie McHugh on August 8.
- Started the planning of a meeting between Cornell Engine and Wayne County teams (meeting scheduled for Nov. 21).
- Met with Peter Landre and CK on August 15.
- Submitted contact list for reappointment on Sept. 1.
- Submitted abstract for an oral presentation at the ASHS conference in Florida in August.
- Met with M. Basedow and J. Londo for the myco-greenhouse study in Geneva.
- Planned/coordinated/conducted the Spanish summer fruit tour on August 16.
- Reported fleet mileage as needed during this quarter, changed oil, tires, etc..
- Authored/submitted three articles to LOF newsletter editor.
- Submitted Q₂ (April-June 2023, quarterly report).
- Continued working closely with Basedow, Londo, Jiang, Aller, Calixto, Obregon, van Zoeren for SH initiative and other DA projects.
- Communicated and strategically worked with Cornell Small Farm Program (mainly with M. Alvarado).
- Developed apple-tech idea/connected Cornell Engine and Wayne County Economic Development teams for a potential funded collaboration in the next years.

Professional Development

- Attended 2023 ASHS Conference in Florida – Aug. 1-4.

Stakeholder Contacts

- Assisted 15 growers/farm employees via farm visits (7 Wayne, 3 Niagara, 4 Orleans, and 1 Monroe County), 50-60 emails, 20 phone communications, 40 texts (pics, videos, voice messages, etc.).



Integrated Pest Management – Janet van Zoeren

Educational Programs/Presentations

- Co-presented with Christy Hoepting and Maria Bess Lewis “*Special Permit Training*” in English and Spanish (127 total attendees, Newark NY, Apr 11).
- Co-presented with Maria Bess Lewis “*Special Permit Training*” in Spanish (91 attendees, Albion NY, Apr 12).
- “*Principles of IPM*” at Bilingual Fruit School (9 attendees, Sodus NY, June 14).

Publications

Fruit Facts Articles Written:

- 27 issues

Fruit Notes Articles Written:

- Wallis, A, van Zoeren, J and M Rivera. *Diazinon and Ziram Restrictions for the Canadian Market*. Fruit Notes, Volume 23, Issue 5.
- Basedow, M and J van Zoeren. *Spring Orchard Pre-Emergent Herbicides*. Fruit Notes, Volume 23, Issue 5.
- van Zoeren, J and C Hoepting. *How to Look Up Pesticide Labels and DEC Licensing Information in New York*. Fruit Notes, Volume 23, Issue 7.
- Miranda Sazo, M and J van Zoeren. *First Cornell System-wide Education Strategy for the Planning and Delivering of Two Bilingual IPM Fruit Schools in NY State*. Fruit Notes, Volume 23, Issue 8. P
- Basedow, M and J van Zoeren. *Post-Emergent Herbicide Reminders*. Fruit Notes, Volume 23, Issue 10.
- Björkman, T, Aller, D, van Zoeren, J, and M Miranda Sazo. *The Use of Cover Crops in the Summer for a Future Orchard*. Fruit Notes, Volume 23, Issue 10.

Tree Fruit News Articles Written:

- Basedow, M and J van Zoeren. *Post-Emergent Herbicide Reminders*. Tree Fruit News, Blog posted June 26 2023.

Applied Research Projects/Collaborations

- ARDP funded Project “*Optimizing Herbicide Strategies for Weed Control*” (PI-Mike Basedow)
 - Flagging treatments plots – grass selective (Apr 10).
 - Weed assessment and herbicide application – grass selective (Apr 15).
 - Flagging treatment plots and weed assessment – Stinger (Apr 18).
 - Herbicide application – Stinger (Apr 21).
 - Weed assessment – Stinger (May 10).
 - Weed assessment – grass selective (May 15).
 - Herbicide application – Stinger (May 17).
 - Herbicide application – grass selective (May 26).
 - Weed assessment – Stinger (June 8).
 - Herbicide application – Stinger (June 17).
- ARDP funded Project “*Assessing the Significance of Brown Marmorated Stink Bug Damage to New York Apple Production*”, Part 2: threshold and spray timing” (PI-van Zoeren).

- Project coordination; ordering supplies; meeting with growers and choosing sites.
- ARDP funded Project “*Mating Disruption*” (PI-Rivera).
 - Farm visit and flagging at Orchard Dale (May 22).
 - Hang mating disruptors and traps at AgriTech (May 24).
 - Hang mating disruptors and traps at Orchard Dale (May 25).
 - Farm visit and flagging at Windmill and DeMarree (May 30).
 - Hang mating disruptors at Windmill (May 31).
 - Hang mating disruptors at DeMarree (June 1).
 - Weekly trap monitoring (June).

Team and Other Duties

- Served as Fruit Program Working Team Co-chair; organized Fruit PWT summer tour.
- Organized Statewide “pink” Meeting (Apr 19).
- Helped organize and facilitate Bilingual Fruit School (June 14).
- Helped organize WNY Fruit Grower Tour.
- Attended team meetings.

Professional Development

- Attended “Morning Brew” conversations led by Peter Jentsch, Poma Tech (April-June; 13 total).
- Attended “NE Berry” conversations led by Laura McDermott and Anya Osatuke (April-June; 6 total).

Stakeholder Contacts

- 35 site visits to assist growers (3 Niagara, 12 Orleans, 3 Monroe, 12 Wayne, 5 Oswego).
- Assisted stakeholders via texts, phone, and email (118).

Other Area-Wide Education and Advocating

- Weekly insect trapline and orchard scouting (April – June).
- Organized and presented at Twilight Meetings (Apr 27 at Orchard Dale Fruit Farm in Orleans – 15 attendees; May 26 at Coulter Farm in Niagara county - 21 attendees; Jun 29 at Cornell AgriTech in Ontario county - 3 attendees).
- Helped coordinate and provided Spanish translation services for Wayne co respirator fit test clinic (Apr 24).
- Advisory meetings with Keurig Dr Pepper Motts facility to discuss regenerative ag initiative.

Business Management – Bonalyn (Bonnie) Nelsen

Educational Programs/Presentations

- None yet

Publications

Email Blasts

- *“USDA Economic Injury Disaster Loans for Losses Due to Frost: What are the FAQs?”* Published on 9/20/2023.
- *“Relationships with Packers: 8 Questions that Every Grower Should Ask?”* Published on 9/18/2023.
- *“Application Process for The Farm Labor Stabilization and Protection Pilot Program Now Open”* Published on 10/5/2023.
- *“NY’s Pay Transparency Law Now in Effect”* Published on 10/2/2023.

Applied Research Projects/Collaborations

- Conducting case study of four apple growers who use weather stations and NEWA models on their farm with Anna Wallis, NYS Integrated Pest Management Program’s fruit coordinator. The purpose of the study, which will eventually be published in Fruit Quarterly or Fruit Notes, is to illustrate the financial and non-financial benefits of these systems, for the purpose of educating and persuading non-users to adopt the technology. To date, four interviews have been conducted with the individuals listed below. Case scenarios will be selected, and financial data collected and presented when harvest is completed:
 - Bobby Brown (Orchard Dale Fruit Co, Waterport).
 - Jay Toohill (Chazy Orchards, Chazy, Champlain Valley).
 - Chris Carballeira (Indian Ladder Farms, Altamont).
 - Kristen, Alison, and Tom DeMarree (DeMarree Fruit Farms, Williamson).

Team and Other Duties

- Represented LOFT during interviews for three Executive Director candidates at Wayne County CCE on 9/11/23 (2 interviews) and 9/12/2023 (1 interview).
- Assisted Janet with BMSB and mating disruption trial on 9/1/2023 and 9/5/2023.
- Assisted with Craig’s irrigation, harvest maturity and bitter pit trials on 9/14-15/2023, 9/21/2023, 9/23-24/2023.
- Attended LOF team meeting conducted on Zoom on 10/13/2023.
- Helped host Itai Kanot, co-founder of BeeHero, on July 24, 2023.

Professional Development

- Attended the Summer Growers Tour sponsored by Reality Research and Nutrien Ag Systems held in Lyons, NY on August 9, 2023.
- Attended the Cornell Storage Workshop, Cornell University, Ithaca, NY, on August 16, 2023.
- Attended the NERME Applicant Training Webinar (training to apply for Northeast Extension Risk Management Education grants) on 10/4/2023.
- Attended NE Juice Coop meeting held at Ontario Golf Club, 8/29/2023.

Stakeholder Contacts

- Assisted several stakeholders via email with questions:
 - About locating components and contractors for deer fencing (July 2023) .
 - Labelling requirements for unfermented pear cider (Fang Zhou on August 17, 2023).
 - Jinny St. Goar about packouts/packout sheets (9/21/2023).
 - James Percell about frost-related EIDL reporting requirements (10/5/2023).
 - Julie Larson on orchard planning.
- Prepared a letter of support attesting to 2023 frost-related economic injury for Dave DeFisher, for the purpose of obtaining an H-2A contract exemption from NYSDOL.
- On-farm grower/stakeholder visits:
 - 10 farms/processors (4 Wayne, 1 Monroe, 5 Orleans).

