**2019 NC-140 PUBLICATIONS**

**Books and Book Chapters**

Fazio, G and Robinson, T. 2019. Chapter 2: Advances in the development and utilization of rootstocks: a case study for apple. In: G. Lang (ed.) Achieving sustainable cultivation of temperate zone tree fruits and berries. Volume 1: Physiology, genetics and cultivation Burleigh Dodds.

Kon, T. M., and J. R. Schupp. 2019. Chapter 6. Apple crop load management with special focus on early thinning strategies: A USA perspective. Hort. Rev. 46:255-298. Wiley, Oxford, UK.

Musacchi S. and Neri, D., 2019. Optimizing production of quality nursery plants for fruit tree cultivation. Achieving sustainable cultivation of temperate zone tree fruits and berries. Burleigh Dodds Science Publishing. Book Chapter.

**Refereed Journal Articles**

Anthony B., Serra S., Musacchi S., 2019. Optimizing Crop Load for New Apple Cultivar: 'WA38'. Agronomy MDPI, 9(2), p.107

Beckman, T.G., A. Rollins, J. Pitts, D. Chavez, and J.X. Chaparro. 2019. Disease resistance of ‘MP-29’, a clonal interspecific hybrid rootstock of peach, in post-release trials. HortScience 54:638-641.

Chen, C. and T.G. Beckman. 2019. Effect of a late spring application of Hydrogen Cyanamide on high-chill peaches. Agronomy 9(11), 726

Cline, J.A., 2019. Planting density and size-controlling rootstocks influence the performance of ‘Montmorency’ Tart Cherry (Prunus cerasus L.). Canadian Journal of Plant Science <https://doi.org/10.1139/CJPS-2019-0045>

Dintelmann, B.R., M.R. Warmund, M.D. Bish, and K. W. Bradley. 2019. Investigations of the sensitivity of ornamental, fruit, and nut plant species to driftable rates of 2,4-D and dicamba. Weed Technology 1-35. doi:10.1017/wet.2019.118.

Fallahi, E., S. Mahdavi, C. Kaiser, and B. Fallahi. 2019. Phytopigments, Proline, Chlorophyll Index, Yield and Leaf Nitrogen as Impacted by Rootstock, Training System, and Girdling in “Aztec Fuji”. American Journal of Plant Sciences, 10: 1583-1598. <http://www.scirp.org/pdf/AJPS_2019091617081766.pdf>

Fazio, G., J. Lordan, M.A. Grusak, P. Francescatto, T.L. Robinson. 2019. I. Mineral nutrient profiles and relationships of ‘Honeycrisp’ grown on a genetically diverse set of rootstocks under Western New York climatic conditions. Scientia Hort. <https://doi.org/10.1016/j.scienta.2019.05.004>

Frankel, C. and G.L. Reighard. 2019. Oxygen and ethylene-induce germination in dormant peach seeds. European Journal of Horticulture (in press).

Hansen, S. and B. Black. 2019 The response of ‘Montmorency’ tart cherry to renewal pruning strategies in a high-density system. Journal of the American Pomological Society. 73(1): 53-61.

Kalcsits L, G van der Heijden, S Waliullah, L Giordani. 2019. S-ABA induced changes in root to shoot partitioning of soil-applied 44Ca in apple (Malus x domestica (Borkh.)). Trees: Structure and Function 33(2); 433-442.

Liu, J., O. Lindstrom, and D.J. Chavez. 2019. Differential thermal analysis of ‘Elberta’ and ‘Flavorich’ peach flower buds to predict cold hardiness in Georgia. HortScience 54:676-683

Lordan, J., M. Gomez, P. Francescattoand T.L. Robinson. 2019. Long-term effects of tree density and tree shape on apple orchard performance, a 20-year study - Part 2: Economic analysis. Scientia Horticulturae 244:435-444.

Lordan, J., G.H. Reginato, A.N. Lakso, P. Francescatto, T.L. Robinson. 2019. Natural fruitlet abscission as related to apple tree carbon balance estimated with the MaluSim model. Scientia Horticulturae. 247:296-306.

Lordan, J., G. Fazio, P. Francescatto, T.L. Robinson. 2019. II. Horticultural performance of ‘Honeycrisp’ grown on a genetically diverse set of rootstocks under Western New York climatic conditions. Scientia Hort. 257:108686.

Marini, R. P., J. R. Schupp, T. A. Baugher and R. Crassweller. 2019. Relationships between fruit weight and diameter at 60 days after bloom and at harvest for three apple cultivars for three years in three Pennsylvania orchards. HortScience 54:86-91.

Marini, R. P., J. R. Schupp, T. A. Baugher and R. Crassweller. 2019. Sampling apple trees to accurately estimate mean fruit weight and fruit size distribution. HortScience 54:1017-1022.

Marini, R., J. Schupp, T. Baugher and R. Crassweller. 2019. Estimating fruit size distribution on individual trees from early-season fruit diameter measurements. HortScience 54: 1947-1954.

Miller ST, Otto KL, Sterle D, Minas IS, Stewart JE. 2019. Preventive Fungicidal Control of Cytospora leucostoma in Peach Orchards in Colorado. Plant Disease 103, 1138-1147. <https://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-05-18-0801-RE>

Reig, G., J. Lordan, M. Miranda Sazo, S.A. Hoying, M. Fargione, G. Reginato, D. Donahue, P. Francescatto,Gennaro Fazio, and T.L. Robinson. 2019. Long term performance of ‘Gala’, Fuji’ and ‘Honeycrisp’ apple trees grafted on Geneva® rootstocks and trained to four production systems under New York State climatic conditions. Scientia Horticulturae. 244:277-293.

Reig, G., J. Lordan, M. Miranda Sazo, S.A. Hoying, M. Fargione, G. Reginato, D. Donahue, P. Francescatto,G. Fazio, and T.L. Robinson. 2019. Effect of tree type and rootstock on the long-term performance of ‘Gala’, ‘Fuji’ and ‘Honeycrisp’ apple trees trained to Tall Spindle under New York State climatic conditions. Scientia Horticulturae 246:506-517.

Reighard, GL, W Bridges Jr., D Archbold, A Atucha, W Autio, T Beckman, B Black, D Chavez, E Coneva, K Day, M Kushad, RS Johnson, T Lindstrom, J. Lordan, I Minas, D Oulette, ML Parker, R Pokharel, TL Robinson, J Schupp, M Warmund, and D Wolfe. 2018. Rootstock performance in the 2009 NC-140 Peach Trial across 11 states. Acta Hortic. 1228:181-186.

Reighard, G.L., W.G. Henderson, S.O. Scott and S.A. Subbotin. 2019. First report of the root-knot nematode, Meloidogyne floridensis infecting Guardian® peach rootstock in South Carolina, USA. J. Nematology 51: 3 pp. DOI: 10.21307/jofnem-2019-061

Reighard, G.L., W.G. Henderson and D. Ouellette. 2019. Prunus rootstock testing for peach tolerance to Pseudomonas and Armillaria diseases in South Carolina. Acta Hort 1242:357-362

Roper, T., B. Black, M. Stasiak, R. Marini, J. Cline, T. Robinson, G. Lang, L. Anderson, R. Andersen, J. Freer, F. Eady, G. Greene, B. Lay, and R. Perry. 2019. Performance of ‘Montmorency’ tart cherry (Prunus cerasus L.) on potential size-controlling rootstocks at six locations in North America: Results of the 1998 NC-140 Trial. Journal of the American Pomological Society 73:168-177.

Schupp, J. R., H. E. Winzeler and M. A. Schupp. 2019. Stub length and stub angle did not influence renewal shoot number or branch angle of tall spindle ‘Gala/ M.9 apple trees. HortTechnology 29:46-49.

Souza, F., E. Alves, R. Pio, E. Castro, G. Reighard, A.I. Friere, N.A. Mayer and R. Pimental. 2019. Influence of temperature on the development of peach fruit in a subtropical climate region. Agronomy 2019, 9, 20; doi:10.3390/agronomy9010020.

Stott, L., B.L. Black and B. Bugbee. 2019. Differences in drought tolerance among Gisela® cherry rootstocks determined using automated weighing lysimeters. HortScience. 54(10): 1847-1852.

Thompson, A.A., M. Williams, and G.M. Peck. 2019. Compost and Geneva® series rootstocks increase young ‘Gala’ apple tree growth and change root-zone microbial communities. Scientia Horticulturae 256: 108573.https://doi.org/10.1016/j.scienta.2019.108573

Valverdi N, Cheng L, Kalcsits L. 2019. Rootstock and scion genotype shape nutrient uptake and partitioning under different belowground environments. Agronomy 9: 415. <https://doi.org/10.3390/agronomy9080415>.

Wheeler, W., R. Wytsalucy, B. Black, G. Cardon and B. Bugbee. 2019. Navajo peach trees tolerate drought better than Lovell peach trees: Precision stress using automated weighing lysimeters. HortScience.54(5): 799-803.

**Thesis**

Al Farqani, Ali. 2019. Growth and fruiting performance of Honeycrisp™ apple trees grafted on 8 rootstocks in response to soil pH. Ph.D. Thesis. Cornell University, Ithaca, NY.

Enfeng Xu.2019.Investigations to Determine Rootstock Cultivar Performance for Sustainable Apple and Bunch Grape Production in Alabama. M.S. thesis.

Dintelmann, B.R. 2019. Evaluations of driftable fractions of dicamba and 2,4-D to selected herbaceous and woody plant species. M.S. Thesis. Univ. of Missouri, Columbia, MO.

Wytsalucy, Reagan. 2019. Explorations and Collaborations on Two Under-Recognized Native American Food Crops: Southwest Peach (Prunus persica) and Navajo Spinach (Cleome serrulata). M.S. Thesis. <https://digitalcommons.usu.edu/etd/7612/>

**Poster Presentations**

Coneva, E. 2019. Five -Year Assessment of Fire Blight Resistant Apple Rootstocks in Alabama. Sixth International Horticultural Research Conference, Venice, Italy, Sept. 30 - October 5, 2019.

Coneva, E. 2019. Fire Blight Resistant Rootstocks - A New Technology for Sustainable Apple Production in Alabama. Auburn University Faculty Research Symposium, Auburn, AL, October 4, 2019.

Coneva, E. 2019. Exploring Fire Blight Resistant Apple Rootstocks in Alabama. Southern Region Fruit and Vegetable Growers Conference, Savannah, GA, Jan. 10-13, 2019.

Coneva, E. 2019. Assessment of Size Controlling Peach Rootstocks for High Density Orchards in Alabama. 77 Professional Agricultural Workers Conference, Opelika, AL, December 8-10, 2019.

Crassweller, R. M. & D. Smith. 2019. Apple rootstock evaluations at Rock Springs – 2018 Results. Presented at the Mid Atlantic Fruit and Vegetable Conference. January 29 – 31.

Crassweller, R. M. & D. Smith. 2019. Apple cultivar full bloom, first harvest date & days from bloom to harvest at Rock Springs 2014-2018. Presented at the Mid-Atlantic Fruit and Vegetable Conference. January 29-31.

Jarvinen, T., D. Choi, P. Heinemann, J. Schupp & T. Baugher. 2019. Early season crop load estimation of apples using computer vision. Presented at the Mid Atlantic Fruit and Vegetable Conference. January 29 – 31.

Kon, T.M. and C.D. Clavet. 2019. Enhancing ‘Fuji’ apple red fruit color with reflective fabrics. The American Society for Horticultural Science Annual Conference, Las Vegas, NV.

Muehlbauer, M., Magron, M., Cowgill, W. 2019. Assessment of the Effect of Rootstock on Bitterpit Incidence in Mature 'Honeycrisp' Apples Grown in New Jersey. Proceedings of the 4th Annual Northeastern Plant, Pest, and Soils Conference. Hunt Valley, MD. (Poster Presentation)

Robinson, T.L., J. Lordan and P. Francescatto. 2019. Irrigation of apples in a humid climate in wet and dry years. International Symposium on Irrigation June 20-23. Matera, Italy.

Schupp, J., E. Winzeler, M. Schupp, T. Baugher, D. Weber, D. Seifrit and L. Rice. 2019. Managing scarf skin on red strains of Gala. Mid-Atlantic Fruit and Vegetable Conference, Hershey, PA. 29-31.

Sommer, H. J., R. Crassweller & D. Smith. 2019. Buy-and-Fly orchard management using unmanned aircraft (UA). Presented at the Mid-Atlantic Fruit and Vegetable Conference. January 29-31.

Wiepz, R., J. Schupp, M. Schupp and E. Winzeler. 2019. Research and applications of artificial spur extinction in Pennsylvania orchards. Mid-Atlantic Fruit and Vegetable Conference, Hershey, PA. 29-31.

**Published Abstracts**

Fazio G, Robinson T. 2019. Designer rootstocks: the basis for precision management of apple orchards. International Symposium on Precision Management of Orchards and Vineyards October 7-11. Palermo, Italy. Book of abstracts

Francescatto, P., B. Carra, G. Fontanella and T. Robinson. 2019. Ethylene evolution of different apple cultivars varies in timing and intensity. ASHS Annual Conference. Las Vegas, NV, USA. Abstracts.

Robinson T., P. Francescatto and J. Lordan. 2019. Precision crop load management of apple. International Symposium on Precision Management of Orchards and Vineyards October 7-11. Palermo, Italy. Book of abstracts

Robinson, T.L., J. Lordan and P. Francescatto. 2019. Irrigation of apples in a humid climate in wet and dry years. International Symposium on Irrigation June 20-23. Matera, Italy. Book of abstracts

Robinson, T.L., J. Lordan, P. Francescatto, M. Gomez. 2019.The Economics of Apple Orchard Systems Great Lakes Fruit Workers Annual Meeting Guelph, ON, Canada 2019. Abstracts.

Robinson, T.L., P. Francescatto , and J. Lordan. 2018. Precision Crop Load Management in Apples. Great Lakes Fruit Workers Annual Meeting Ithaca, NY, 2018. Abstracts.

**Technical Reports/Commercial Industry Reports**

Muehlbauer, M., W. Cowgill, J. Clements, and W. Autio. 2019. Update on the 2014 NC-140 Honeycrisp and Aztec Fuji rootstock trials in New Jersey and Massachusetts. Fruit Notes 84(2):15-18. Horticultural News 99(2):15-18. http://www.umassfruitnotes.com/ v84n2/a3.pdf http://www.horticulturalnews. org/99-2/a3.pdf

Muehlbauer, M., W. Cowgill, J. Clements, and W. Autio. 2019. Update on the 2014 NC-140 Honeycrisp and Aztec Fuji rootstock trials in New Jersey and Massachusetts. Fruit Notes 84(2):15-18. Horticultural News 99(2):15-18. http://www.umassfruitnotes.com /v84n2/a3.pdf <http://www.horticulturalnews.org/99-2/a3.pdf>

Robinson, T.L., P. Francescatto and J. Lordan. 2019. Precision pruning of Gala apples. Fruit Quarterly 27:(1):5-8.

Robinson, T.L., J. Lordan, P. Francescatto and L. Rufatto. 2019. Effects of training system and rootstock on Bosc pears. Fruit Quarterly 27:(1):29-32.

Robinson, T.L. and G. Fazio. 2019. Choosing the right rootstock for fresh and processing apple orchards. Fruit Quarterly 27:(4):3-7.

Sherif, S. and K. Yoder. 2019. Evaluation of growth and productivity characteristics of free-standing apple rootstocks. Project Support for 2018. Virginia Fruit. 4 pp. (May 2019).

Yoder, K. and S. Sherif. 2019. Apple rootstock susceptibility to Tomato Ring Spot Virus (TmRSV) and latent viruses. Project Support for 2018. Virginia Fruit. 3 pp. (May 2019).

**Extension Fact Sheet Publications**

Agnello, A.M., A. Landers, D.A. Rosenberger, T.L. Robinson, J.E. Carroll, L. Cheng, P.D. Curtis, D.I. Breth, and S. Hoying. 2019. Pest management guidelines for commercial tree-fruit production 2019, p. 252. Cornell University, Ithaca, NY, USA.

Coneva, E. 2019. Assessment of Size Controlling Fire Bligh Resistant Apple Rootstocks for Alabama. Alabama Cooperative Extension System IPM Communicator Newsletter: <https://www.aces.edu/blog/topics/crop-production/assessment-of-size-controlling-fire-blight-resistant-apple-rootstocks-for-alabama/>

Crassweller, R. 2019. Apple crop load management: Ensuring the net year’s apple crop. https://extension.psu.edu/apple-crop-load-management-ensuring-the-next-years-apple-crop June 4, 2019.

Crassweller, R., R. Marini & T. Baugher 2019 Predicting potential for bitter pit incidence in Honeycrisp apples. https://extension.psu.edu/predicting-potential-for-bitter-pit-incidence-in-honeycrisp-apples July 25, 2019.

Crassweller R. 2019. Factors affecting chemical thinning response. https://extension.psu.edu/factors-affecting-chemical-thinning-response June 4, 2019.

Crassweller, R. 2019. Carbohydrate model run for May 28, 2019. <https://extension.psu.edu/carbohydrate-model-run-for-may-28-2019>

Crassweller, R. 2019. Spring planting of fruit trees. https://extension.psu.edu/spring-planting-of-fruit-trees May 14, 2019.

Kon, T. 2019. Apple thinning update: 4/30/19. Southern Appalachian Apples. <https://apples.ces.ncsu.edu/2019/04/apple-thinning-update-4-30-19/>

Kon, T. 2019. Post-bloom thinning update: 4.28.19. Southern Appalachian Apples. <https://apples.ces.ncsu.edu/2019/04/post-bloom-thinning-update-4-28-19/>

Kon, T. and J. Schupp. 2019. Blossom Thinning Apples with Lime Sulfur: Old Dog – New Trick. Southern Appalachian Apples. <https://apples.ces.ncsu.edu/2019/03/blossom-thinning-apples-with-lime-sulfur-old-dog-new-trick/>

Kon, T.M. and M.L. Parker. 2019. Growth-regulating chemicals for apples. In: North Carolina Agricultural Chemicals Manual. North Carolina Cooperative Extension Service.

Kon, T.M. 2019. Growth-regulating chemicals. In: Integrated Orchard Management Guide for Commercial Apples in the Southeast. North Carolina Cooperative Extension Service.

Marini, R. 2019. Orchard management: Summer pruning of peach trees. https://extension.psu.edu/orchard-management-summer-pruning-peach-trees 8, June 28, 2019

Marini, R. 2019. Advances in rootstock genetics and breeding. Pennsylvania Fruit Times. Jan. 2019. <https://extension.psu.edu/advances-in-rootstock-genetics-and-breeding>

Marini, R. 2019. Can peach consumption be increased. [https://extension.psu.edu/peach-marketing-can-peach-consumption-be-increased 3/12/2019](https://extension.psu.edu/peach-marketing-can-peach-consumption-be-increased%203/12/2019).

Parker, M. 2019 Integrated orchard management guide for commercial apples in the Southeast. Edited by J. Walgenbach. NC Cooperative Extension Service, Raleigh. AG-572. 100 pp.

Robinson, T.L. 2019. Precision Crop load Management for Apples. Proceedings of the 2019 Cornell Indepth Fruit School. Syracuse, NY March 25-27, 2019. 70pages Cornell University, Geneva, NY, USA.

Robinson, T.L. and M. Miranda Sazo. 2019 Blossom Thinning in 2019. Lake Ontario Fruit Newsletter 2019(13):1-2.

Robinson, T.L. and M. Miranda Sazo. 2019 Blossom Thinning Wednesday -Friday. Lake Ontario Fruit Newsletter 2019(13):1-2.

Robinson, T.L. 2019.Precision Pruning with Bud Load Targets. Lake Ontario Fruit Newsletter 2019(13):1-2.

Robinson, T.L. and M. Miranda Sazo. 2019. Petal Fall Thinning 2019. Lake Ontario Fruit Newsletter 2019(13):1-2.

Robinson, T.L. and M. Miranda Sazo. 2019. Precision Chemical Thinning in 2019 for Gala and Honeycrisp. Lake Ontario Fruit Newsletter 2019(13):1-2.

Schupp, J. 2019. Post-bloom apple thinning advisory 2019. Fruit Times alert. https://extension.psu.edu/post-bloom-apple- thinning-advisory-may-2019

Schupp, J., and T. Kon. 2019. Blossom thinning apples with lime sulfur: Old dog-new trick. Penn State Extension Fruit Times. Posted 6 May 2019. https://extension.psu.edu/apple-crop-load-management-blossom-thinning-apples-with-lime-sulfur

Schupp, J., E. Winzeler, T. Baugher, D. Weber, D. Seifrit. 2019. Fruit disorders: Prevention of scarf skin on apple fruit. https://extension.psu.edu/fruit-disorders-prevention-of-scarf-skin-on-apple-fruit Nov. 12, 2018.

Schupp, J. and T. Kon.2019. Apple crop load management: Blossom thinning apples with lime sulfur. <https://extension.psu.edu/apple-crop-load-management-blossom-thinning-apples-with-lime-sulfur>

Schupp, R. 2019. Orchard establishment: Runting out of apple orchards. https://extension.psu.edu/orchard-establishment-runting-out-of-apple-orchards June 28, 2019

Warmund, M. 2019. Salvaging trees after heavy snowfall. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/1/salvagingTrees/>

Warmund, M. 2019. Pruning and spring care help winter-damaged trees. Missouri Morning Ag Clips Feb., 5, 2019 <https://www.morningagclips.com/pruning-and-spring-care-help-winter-damaged-trees/>

Warmund, M. 2019. Polar vortex whirls through Missouri affecting trees and shrubs. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/2/PolarVortex/>

Warmund, M. 2019. Cedar apple rust. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/5/cedarAppleRust/>

Warmund, M. 2019. Apple russet only a surface blemish. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/7/tableGrapes/>

Warmund, M. 2019. Flooding injury and subsequent disease infection of fruit crops. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/6/flood/>

Warmund, M. 2019. Harvesting apples in October. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/10/harvestingApples/>

Warmund, M. 2019. Bitter rot on apples. Missouri IPM Newsletter. <https://ipm.missouri.edu/MEG/2019/10/bitterRot/>

Wolfe, D. 2019. New NC-140 apple rootstock trial established at UKREC, Princeton, KY. Kentucky Fruit Facts, November-December Newsletter: 2019 (6):3.

Wolfe, D., D. Archbold, D. Becker, J. Johnston, and G. Travis. 2019. Rootstock Effects on Apple and Peach Tree Growth and Yield. Fruit and Vegetable Crops 2018 Research Report. University of Kentucky College of Agriculture, Agricultural Experiment Station publication. PR-739:14-16. <http://www2.ca.uky.edu/agcomm/pubs/PR/PR757/PR757.pdf>

**Popular Articles**

Marini, R., and J. Schupp. 2019.How pruning affects cold hardiness. Amer. Fruit Grower 139(1):24-25. January 2019.

Schupp, J., H. E. Winzeler and Melanie Schupp. 2019. Development of a High Density, Highly Mechanized, Pedestrian Peach System. PA Fruit News 99(1):24-25

Wiepz, R., J. Schupp, M. Schupp, and H. E. Winzeler.2019. Research and Applications of Artificial Spur Extinction in Pennsylvania Orchards. PA Fruit News 99(1):22-23.

**Scientific and Outreach Oral Presentations**

Autio, W.R. Update on NC-140 Rootstock Research. January 10, 2019. Massachusetts Fruit Growers’ Association Annual Meeting. Fitchburg, MA. Attendance: 100.

Black, B. “Fruit Crops as a Sustainable Small-Acreage Opportunity”, Salt Lake County Sustainable Agriculture Field Day, Wheeler Historic Farm, Murray, UT. 26 Jun 19 (attendance: 26).

Black, B. “Precision Orchard Management: Research Update.” USHA annual conference, Spanish Fork, UT 24 Jan 19 (attendance: 75).

Bradshaw, T. 2019. Rootstocks, organic disease management, unique tree training systems, and cider apples: Current research projects from the UVM Apple Program. UVM Horticulture Research & Education Center Research Open House. South Burlington, VT. 8/6/2019

Bradshaw, T. 2019. Preharvest vineyard management and current viticulture research. UVM Horticulture Research & Education Center Research Open House, Vermont Beginning Fruit Grower Program.. South Burlington, VT. 8/6/2019

Bradshaw, T. 2019. Cider apple production in Vermont: Constraints and Opportunities (Production de pommes à cidre). Congrès Cidres, vins et alcools d'ici. St Hyacinthe, PQ, Canada. 3/28/2019.

Bradshaw, T. 2019. Constraints & Opportunities in Producing Cider Apples in the New Market. Montana Grape & Winery Association Annual Conference. Helena, MT. 3/23/2019

Bradshaw, T. 2019. Orchard & Vineyard Practice that Improve Farm Sustainability. Montana Grape & Winery Association Annual Conference. Helena, MT. 3/22/2019

Casagrande-Biasuz E, Kalcsits L. 2019. Associating Rootstock-Based Variation in Whole Plant Physiological Traits with Leaf Carbon and Oxygen Isotope Composition in Malus x domestica borkh. American Society for Horticultural Sciences Annual Meeting. Laz Vegas, NV. July 22-25, 2019. 2nd Place Winner in the Conference Poster Competition.

Cline, J. A. 2019. Size controlling apple rootstocks. IFTA Summer Tour, Ontario. 250 in attendance

Cline, J.A. 2019. A group from Unifruit (Mexico) toured the NC-140 research plots Nov 1, 2019.

Coneva, E. 2019. Assessment of Fire Blight Resistant Apple Rootstocks in Alabama. Annual Meeting of the SR ASHS, Birmingham, AL, Feb. 1-4, 2019.

Coneva, E. 2019. Effect of Fire Blight Resistant Apple Rootstocks on ‘Aztec Fuji’ Fruit Quality and Yield Efficiency. XV International Eucarpia Symposium on Fruit Breeding and Genetics, 3-7 June, 2019, Prague, Czech Republic.

Coneva, E. 2019. Five-Year Performance of Fire Blight Resistant Apple Rootstocks in Alabama. ASHS Annual Meeting, LV, NV, July 20-25, 2019.

Coneva, E. 2019. Testing Fire Blight Resistant Apple Rootstocks for Sustainable Production in Alabama. National Association of County Agricultural Agents Annual Conference, Fort Wayne, IL, August, 2019.

Coneva, E. 2019. New High Density Peach Orchard Systems for Alabama. Chilton Area Annual Peach Production Meeting, Jan. 29, 2019, Chilton, AL.

Coneva, E. 2019. Orchard Systems Research Update. Alabama Cooperative Extension System, Commercial Horticulture Team Plan of Work and Professional Development Meeting, Auburn, AL, October 25, 2019.

Coneva, E. 2019. Fire Blight Resistant Rootstocks – A New Technology for Sustainable Apple Production in Alabama. Alabama Fruit and Vegetable Growers Association Annual Conference, Clanton, AL, November 20-22, 2019.

Courtney Ross, 2019. ‘Rooting out solutions’ – Good Fruit Grower, Sept 3, 2019 (v70, no 14, p14-16)

Crassweller, R. & D. Smith. 2019. 2018 Rootstock trials at Penn State University – Rock Springs. Proc. 94th Cumberland Shenandoah Fruit Workers Conf. 43-47.

Cowgill, W.P. Jr., Muehlbauer, M. 2019. “Updates on Improving Branching of Apple Trees with PGR’s.” North East PGR Meeting- 38 professionals attending, 2019 Wilkes-Barre, PA

Evans, K., Amit Dhingra, Soon Li The, 2019. PNW pear review, Hood River, OR, Feb 21, 2019 ‘WSU pear rootstock breeding – long term vision’.

Fallahi,. E. A video conference was presented to the participants at the Tree Fruit Association annual Conference, Rochester, NY in February 2019.

Fallahi,. E. On February 20, 2019, we had a daylong educational tour in Parma, Idaho and showed growers how to design the new tree architectures and training in several rootstocks to commercial apple growers of Idaho (48 growers and 98 horticulturalists participated).

Fallahi,. E. Presented the results of rootstock performance in ‘Fuji’ and ‘Honeycrisp’ at 67 Idaho and Utah apple growers during the Idaho State Horticultural Society Summer on July 11, 2019.

Fallahi,. E. Participated a ½ day educational tour at Parma Research Center where results of our rootstock performance were presented to 530 apple growers from the entire Pacific Northwest and Intermountain West region on September 6, 2019. Three TV stations, one radio station, and three newspapers covered this event.

Fallahi,. E. We participated in educational meetings and presented tours to the apple growers, Parma, Idaho, October 12, 2019.

Kalcsits L, Fatuthi L, Knipfer T, McElrone A, McNear D. 2019. Synchrotron and isotope-based approaches to understand the association between disorder incidence and nutrient uptake and allocation in apple. Cornell University CALS Seminar Series. January 15, 2019. Invited Presentation

Kalcsits L, Valverdi N, Casagrande-Biasuz E. 2019. Rootstock and scion shape water status, nutrient uptake and partitioning under abiotic stress. International Fruit Tree Association Annual Meeting. Rochester, NY. February 25, 2019. Invited Presentation.

Kalcsits L. 2019. Moving beyond calcium sprays: integrated bitter pit management in Honeycrisp. Syracuse, NY. January 16, 2019. Invited Presentation

Kon, T.M. 2019. Apple crop load management: new tools and technologies. University of Florida Horticultural Sciences Department Seminar Series, Gainesville, FL

Kon, T.M. 2019. Minimizing Stem-End Splitting of Gala with ReTain. Mid-Atlantic Fruit and Vegetable Convention, Hershey, PA

Kon, T.M. 2019. Enhancing Apple Red Fruit Color with Reflective Fabrics. Mid-Atlantic Fruit and Vegetable Convention, Hershey, PA

Kon, T.M. 2019. Review of Early Apple Thinning Practices for Apples. Mid-Atlantic Fruit and Vegetable Convention Pre-Conference Workshop, Hershey, PA

Kon, T.M. 2019. Apple crop load management: new tools and technologies. North Carolina State University Department of Horticultural Science Seminar Series, Raleigh, NC

Kon, T.M. and C. D. Clavet. 2019. Bloom and post-bloom thinner effects on 'Gala' fruit set, fruit growth rate, and yield. Northeast Plant Growth Regulator Working Group, Wilkes Barre, PA

Kon, T.M. and C. D. Clavet. 2019. AVG formulation and application number on 'Red Delicious'. Northeast Plant Growth Regulator Working Group, Wilkes Barre, PA

Kon, T.M. and C. D. Clavet. 2019. Effects of ReTain application patterns on red fruit color development and stem-end splitting of 'Gala'. Northeast Plant Growth Regulator Working Group, Wilkes Barre, PA

Kon, T. Chemical thinning research. 01 Aug 2019. 2019 Apple Field Day, Mountain Horticultural Crops Research and Extension Center, Mills River, NC

Kon, T. Plant growth regulator research. 01 Aug 2019. 2019 Apple Field Day, Mountain Horticultural Crops Research and Extension Center, Mills River, NC

Kon, T. Apple Thinning Update. 07 May 2019. Stepp’s Hillcrest Orchards, Edneyville, NC

Kon, T. Apple Thinning Workshop. 19 Mar 2019. Henderson County Extension Office, Hendersonville, NC

Kon, T. Experience with “New” ReTain use patterns in NC. 05 Mar 2019. Northwest Winter Tree Fruit Meeting, Wilkes County Agricultural Center, Wilkesboro, NC

Kon, T. Apple Tree Pruning Workshop. 19 Feb 2019. Transylvania County Master Gardeners Program, Mountain Horticultural Crops Research and Extension Center, Mills River, NC

Kon, T. Experience with “New” ReTain use patterns in NC. 06 Feb 2019. Western District Winter Apple School, Hendersonville, NC

Kon, T. Thinning Apples Early: New Tools and Technologies for the Southeast. 09 Jan 2019. Southeastern Apple Growers Meeting, Asheville, NC

Minas, I.S. 2019. The peach industry in USA: challenges & opportunities. Keynote Speaker, International Peach Conference, Freskon 2019, April 11th, 2019, Thessaloniki, Greece.

Minas, I.S. 2019. Peach Cold Hardiness & Rootstock Research Update. Invited Speaker, 2019 Michigan Spring Peach Meeting, Michigan Peach Sponsors & Michigan Horticultural Society, March 5, 2019, SW Michigan Research and Extension Center, Benton Harbor, MI.

Minas, I.S. 2019. Environmental bases for cold hardiness & damage in peach. Invited Speaker, Indiana Horticultural Congress & Trade Show, Departments of Horticulture and Landscape Architecture, Purdue University & Purdue Cooperative Extension Service, February 14th, 2019, Indianapolis, IN.

Minas, I.S. 2019. Pre- & postharvest factors affecting peach fruit quality. Invited Speaker, Indiana Horticultural Congress & Trade Show, Departments of Horticulture and Landscape Architecture, Purdue University & Purdue Cooperative Extension Service, February 14th, 2019, Indianapolis, IN.

Minas, I.S. 2019. Environmental Bases for Cold Hardiness and Damage in Peach. Invited Speaker, Western Colorado Horticultural Society 2019 Annual Meeting, Western Colorado Horticultural Society, January 16, 2019, Grand Junction, CO.

Minas, I.S. 2019. CSU Pomology Research Program Update. Invited Speaker, Western Colorado Horticultural Society 2019 Annual Meeting, Western Colorado Horticultural Society, January 17, 2019, Grand Junction, CO.

Musacchi S., 2019 Utilizing key rootstock traits to optimize canopy and crop load management. 62nd IFTA 2019 Annual Conference in Rochester (NY), Washington (USA). February 25th, 2019.

Musacchi S., 2019. Field day in Sunrise WSU orchard (08/07/2019)

Musacchi S., 2019. Field day with NNII & nurseries in SRO (05/09/2019)

Musacchi S., 2019. New Training System and Optimization of Fruit Quality. Henan Agriculture University, May 22nd, 2019. ZhengZhou (China). Invited seminar

Musacchi S., 2019. Physiological approaches of fruit production towards sustainability: Apple and Pear production in Washington State. University of Ancona. Invited seminar. April 4th, 2019.

Musacchi S., 2019. SCRI Root To Fruit meeting in Rochester (02/25/2019)

Obermiller, J.D. and T. Kon. Site selection/ Planting Establishment. 12 Mar 2019. Upstate Fruit Meeting, Oconee Extension Office, Walhalla, SC

Muehlbauer, M. 05/08/19 North Jersey Tree Fruit Twilight Meeting Series/North Jersey Tree Fruit Twilight Meeting II and Tour of the Snyder Research Farm/ Pittstown, NJ Overview of Rootstock Research Trials and Hard Cider Apple Variety Trials at the Snyder Research Farm

Parker, M.L. January 2019. North Carolina Peach Growers Society. Carthage, NC. Commercial grower audience. Attendance 85.

Parker, M.L. February 2019. Western District Apple School, Hendersonville, NC. Commercial grower audience. Attendance 110.

Reighard, G.L. 2019. Global warming trends and future implications for southeastern peach production. Southeastern Professional Fruit Workers Conference, Tifton, GA. November 5-7, 2019.

Reighard, G.L. 2019. Climate change and 21st Century temperate fruit production. NIBIO Research Institute, Lofthus, Norway, Sept. 16. 2019.

Reighard, G.L. 2019. Climate change and 21st Century temperate fruit production. Aarhus University, Arslev, Denmark, Sept. 12, 2019.

Reighard, G.L. 2019. Global warming and inadequate chill accumulation in temperate fruit trees. American Society of Hort. Sci. Annual Meeting. Las Vegas, NV. July 22-26, 2019.

Robinson, T.L. and G. Fazio. 2019. Geneva® rootstocks and their economic effects. Brazilian fruit growers conference, NY Jan 10, 2019.

Robinson, T.L.., P. Francescatto, J. Lordan. 2019. Precision crop load management in apple. NY State Hort. Expo. Syracuse, NY Jan 15, 2019.

Robinson, T.L., P. Francescatto, J. Lordan. 2019. Crop load management for best economic results. Utah State Hort. Association Meeting. Spanish Fork, Utah, Jan 23-25, 2019.

Robinson, T.L., P. Francescatto, J. Lordan. 2019. A vision for future apple orchards. Utah State Hort. Association Meeting. Spanish Fork, Utah, Jan 23-25, 2019.

Robinson, T.L.., P. Francescatto, J. Lordan. 2019. The next step in precision chemical thinning. Western NY Fruit Schools. Lockport and Newark, NY Feb. 4-5, 2019.

Robinson, T.L., P. Francescatto, J. Lordan. 2019. A vision for future apple orchards. Chihuahua, Mexico Apple Growers Conference. Cuauhtémoc, Chihuahua, Mexico, Feb. 14-15, 2019.

Robinson, T.L.., P. Francescatto, J. Lordan. 2019. Precision chemical thinning. Chihuahua, Mexico Apple Growers Conference. Cuauhtémoc, Chihuahua, Mexico, Feb. 14-15, 2019.

Robinson, T.L.., P. Francescatto, J. Lordan. 2019. The next step in precision chemical thinning. Eastern NY Fruit School. Albany, NY Feb. 18-19, 2019.

Robinson, T.L., P. Francescatto, J. Lordan. 2019. A vision for future apple orchards. Eastern NY Fruit School. Albany, NY Feb. 18-19, 2019.

Robinson, T.L. 2019. Pruning high density apples for precision crop load management. Onondaga County Extension Pruning Demonstration. Feb. 21, 2019.

Robinson, T.L. and G. Fazio. 2019. Rootstocks choice has huge economic consequence. International Fruit Tree Association Meeting, Rochester, NY Feb. 25-28, 2019.

Robinson, T.L. 2019. Chemical thinning in 2019. Regional Extension Petal Fall Meetings, Albion, Alton, New Paltz, Hudson, Saratoga and Peru, NY. May 15, 16, 25, 2528, 2019.

Robinson, T,L. 2019. Blossom Thinning in 2019. Lake Ontario Extension Summer Tour. July 17, 2019.

Robinson, T,L. 2019. Progress with new rootstocks for NY1 and NY2. Lake Ontario Extension Summer Tour in Niagara County. July 17, 2019.

Robinson, T,L. 2019. Precision crop load management. AgriAsistance Summer Tour in Wayne County NY. Aug. 5, 2019.

Shengrui Y., fruit pruning demonstration on March 8, 2019 (with 2015 organic apple rootstock trial included).

Schupp, J. 2019. Apple plant growth regulators- Promoting return bloom. Tree Fruit News, E. NY Commercial Hort. Progr. 7(4):1-2.

Schupp, J., H.E. Winzeler, M. Schupp, and J. Wolf. 2019. Effect of single or split applications of prohexadione, with and without gibberellin 4+7 on scarf skin of Buckeye Gala. Pro. 94th Cumberland Shenandoah Fruit Workers Conf. 50-53.

Sherif, S. 2019. NC-140 Honeycrisp rootstock trial-2018 updates. Saunders Brothers Orchard, Piney River, VA. Attendance: 15

Soon Li Teh, Amit Dhingra, Kate Evans, 2019. WSU Tree Fruit Research Field Day, Sunrise Orchard – ‘Rootstock breeding’ – August 7, 2019.

Tonapi, K. and T. Kon. Enhancing apple fruit size with 6-BA. 01 Aug 2019. 2019 Apple Field Day, Mountain Horticultural Crops Research and Extension Center, Mills River, NC

Valverdi N, Kalcsits L. 2019. Apple rootstock affects scion physiological responses to water limitations. ISHS Symposium on Irrigation of Horticultural Crops. Matera, Italy. June 17-20, 2019.

Walsh, C. 2019. Discussed apple rootstock plantings and possible solutions at the Maryland State Horticultural Society Summer Orchard Tour in Winchester, Virginia on July 10, 2019. This was also discussed at the Mid-Atlantic Orchard Twilight in Howard County on June 6, 2019. About 40 growers attended the Summer Tour and 70 attended the Twilight Meeting.

Walsh, C. The annual orchard twilight at the Western Maryland REC in Keedysville, MD was held on August 15, 2019. The 2019 NC-140 rootstock planting was shown to growers during the evening walking tour led by Bryan Butler. Kari Peter, plant pathologist at Penn State, also discussed problems with apple rootstocks and the current epidemic of RAD (Rapid Apple Decline). About 70 fruit growers and extension educators attended this program.

Warmund, M. 2019 Tree fruit challenges and 2019 opportunities. Great Plants Growers Conference. St. Joseph, MO Jan. 11, 2019.

Warmund, M. Diagnosis and detection of dicamba drift on apple and peach trees. 2019 Commercial Tree Fruit School, Hardin, Illinois on February 7, 2019, and in Mt. Vernon, Illinois for February 8, 2019.