

Terence L. Bradshaw

Curriculum vitae
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University of Vermont
College of Agriculture and Life Sciences
Department of Agriculture, Landscape,
and Environment

Professional Rank:

- 2023-** Chair, Dept of Agriculture, Landscape, and Environment (ALE, formerly Plant and Soil Science) University of Vermont.
- 2023-** Associate Professor with tenure, Dept of Agriculture, Landscape, and Environment.
- 2014-** Director, University of Vermont Horticulture Research & Education Center.

Education

- Ph.D. Plant & Soil Science, University of Vermont, 2015.
- M.S. Plant & Soil Science, University of Vermont. 2011.
- B.S. Plant & Soil Science, University of Vermont, 1997.

Responsibilities:

I serve in a split administrative / faculty position as Chair of the Department of Agriculture, Landscape, and Environment (50%) and Associate Professor (50%) research, teaching, and Extension responsibilities. As Director of the UVM HREC, I oversee a 97-acre agricultural research and teaching facility in South Burlington, VT that supports programming within the UVM College of Agriculture and Life Science in support of the Land Grant Mission.

As chair, I am responsible for leadership within the Agriculture, Landscape, and Environment Department (ALE) with 15 faculty and about 100 undergraduate majors and 20 graduate students. ALE is an applied science department with expertise in agroecology, agronomy, entomology, environmental science, food systems, genetics, horticulture, landscape architecture, and soil science. We are one of the most agriculturally- and environmentally-focused departments at UVM and within our College, with substantial components that support the land grant mission. This role includes providing day-to-day management of department needs while maintaining medium and long-term vision to ensure the success of our faculty, staff, students, and other community stakeholders.

My research and outreach program is designed to address sustainability issues in the specialty crop industry in Vermont. Most work supports tree fruit and grape producers but work also encompasses vegetable and other cropping systems. My Extension program provides technical support to address horticultural and pest management needs of Vermont fruit growers and is supported by the Vermont IPM Extension Implementation Program. As the only such technical advisor and researcher working primarily on apple and grape production in the state, my research and outreach priorities are diverse, and cover multiple topics and disciplines including horticulture, pest management, economics, food safety, and business planning.

My teaching program covers curriculum development and instruction in applied, farm-based courses, including the Diversified Farming series based at the HREC, fruit production courses, agricultural policy and ethics, and oversight of on-farm internships. This instruction covers many topics in Specialty Crop Production and fulfills several requirements for the Agroecology Major as well as elective and capstone requirements for Food Systems, Environmental Studies, and other programs across campus.

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Prior Ranks

2023-2025	Acting Director, UVM Food Systems B.S. Program.
2020-2023	Assistant Professor, Dept of Plant & Soil Science, University of Vermont.
2016-2020	Research Assistant Professor, Dept of Plant & Soil Science, University of Vermont.
2014-2016	Research Associate & Lecturer, Dept of Plant & Soil Science, University of Vermont.
2005-2014	Assistant Director, University of Vermont Horticulture Research & Education Center.
1999-2014	Research Technician / Research Specialist, UVM Apple and Grape Program

Administrative Experience

Trainings In Leadership and Administration

- LEAD 21 Leadership Development for the 21st Century: Linking Research, Academics, and Extension. Class 21. 2025-2026.
- Academic Leadership Experience Program. UVM Office of the Provost. August 2023 – March 2024.
- Strategic Leadership Program Seminar Series. The Chronicle of Higher Education. January 2023.

Teaching Experience

Curriculum Development

- Administrative supervisor, UVM Farmer Training Program. 2019-2024.
- Plant & Soil Science Undergraduate Affairs committee. 2014-present. Chair, 2016-2023.
- UVM Food Systems B.S. advisory committee. 2016-present.
- Developer and Director, UVM Catamount Educational Farm. 2014-present.

Courses Taught

- CDAE 208 Agriculture Policy and Ethics. Course developer and instructor. Spring 2018-present.
- PSS 209 Diversified Farm Operations. Course co-developer and co-instructor. Summer 2014-present.
- PSS 120 Cold Climate Viticulture Course developer and instructor. Summer 2017-present. Biennial, odd-numbered years.
- PSS 221 Sustainable Orchard Management. Course developer and instructor. Fall 2018-present. Biennial, even-numbered years.
Previous iterations of fruit production courses include:
 - PSS 195 Sustainable Orchard and Vineyard Management. Summer 2014, 2015.
 - PSS 195 Cold Climate Viticulture. Summer 2012.
 - PSS 195 Tree Fruit Culture. Summer 2010.
- FS 1930 Food Systems Seminar I. Spring 2025.
- UVM Farmer Training Program. Instructional advisor; instructor for perennial crops rotation. 2018-2024.
- PSS 208 Diversified Farm Planning. Course developer and instructor. Spring 2018-2023.
- FS 101 / NFS 113: U.S. Food Policy and Politics. Interim course instructor. Fall 2019, 2021.
- PSS 190 Catamount Farm Internship. Fall 2019 - present
- PSS 095: Introduction to Laboratory & Research Techniques. Special topics course for 1-3 students who participate in operation of and data collection in UVM apple and grape juice analysis lab. Fall 2015, 2016.
- PSS 298 Independent Study. Seven independent study projects overseen since 2014.
- Master Gardeners' Basic Course. Fruit Trees in the Home Orchard. 2006-2008, 2015-2020, 2023-.

Graduate Students Advised

- Bethany Pelletier, PSS, Ph.D. Major advisor. 2021-

- Joseph Leahy, PSS, M.S. Major advisor. 2021-
- Andrea Swan, PSS, Ph.D. Committee member. 2021-
- Emmanuel Brefo, PSS, M.S. Committee member. 2023-2024
- Eli Wilson, PSS, M.S. Major advisor. 2022-
- Alisha Utter, PSS, Ph.D. Committee member. 2018-2024.
- Laney Williams, BIO, M.S. Committee member. 2021-2023.
- Jessica Foster, PSS, M.S. Major advisor. 2018-2021.
- Grace O'Neil, PSS, M.S. Committee member. 2019-2020.
- Elizabeth Garofalo, Stockbridge School of Agriculture, UMASS, M.S. Committee member. 2017-2018.
- Bethany Brown, CDAE, M.S. Committee member and thesis defense committee chair. 2016.

Undergraduate Student Projects Advised

- Ethan Pezzini, 2022-2023. UVM Summer Undergraduate Research Fellowship. "Top grafting established apple trees to manage endemic fire blight infection."
- Nathaniel Fortin, 2021-2022. UVM Summer Undergraduate Research Fellowship. "Northeast Cider Apple Cultivar Examination: Analyzing Known and Feral Varieties to Supplement the Burgeoning Vermont Cider Market."
- Joanna Santoro, 2021. UVM Honors College Thesis committee member.
- Emily Piersack, 2020. UVM Honors College Thesis committee member.
- Ben Crosby, 2020. PSS 192 Independent Study: Sustainable Orchard Management.
- Lizzy Holiman, 2019-2020. UVM Honors College Thesis Advisor.
- Natalie Palmer, 2019. PSS 192 Independent Study: Practical Applications in Raising Meat Rabbits
- Christian Pages, 2018. PSS 192 Independent Study: Orchard & Vineyard Management.
- Harrison Greene, 2015. Sustainable Entrepreneurship MBA Project. Technical consultant for polyculture orchard project.
- Melissa Sullivan, Fall 2014. PSS 158 Ecological Agriculture Internship host.
- Scott Welch, 2014 UVM Environmental Studies Program Senior Thesis. "Common Ground Composting: Back-haul of food scraps for the improvement of soil conditions on a small community supported agriculture farm." Co-advisor.
- Spencer Fitz-Gerald, Spring 2014. PSS 158 Ecological Agriculture Internship Host.
- Zachary Noel, 2013 UVM Distinguished Undergraduate Research Award. "Evaluation of the Efficacy of Natural Resistance in 'Honeycrisp' to Reduce Fungicide Applications for *Venturia inequalis* (Cooke) Wint. Co-advisor.

Other Students Advised

- Joseph Balkan, Fall 2017. South Burlington High School, Science Fair mentor.
- Zebediah Dartt, Fall 2016. Vermont Commons School, Internship host.
- Calais Elementary School, 2014-2016. Hands on Nature science program volunteer instructor.
- Vermont Commons School, 2014-2015. Facilitated HREC use by two classes for field mapping and invasive species identification and removal projects. VCS faculty collaborators: P. Goff, J.B. Materick.
- Ellen White, Spring 2015. Essex High School Career Education Program, Internship host.

Guest Lectures (Course instructor)

- ENG 005 Food & Writing (Miles). 2017, 2018.
- ENSC 160 Pollutant Movement/ Air, Land, & Water (Ross). Facilitated research project for 4-6 students. 2015, 2017-2022.

- ENVS 095 Environmental Thought and Action (Abatemarco). 2018.
- PSS 238 Ecological Landscape Design (Hurley). Introduction to the Horticulture Research & Education Center; project reviewer. 2017.
- PSS 208 Organic Farm Planning (Chen). Field Equipment and Farm Operations; Farm Plan Project Evaluator. 2010-2015, 2017.
- PSS 010 Home and Garden Horticulture (Starrett). Introduction to apple and grape projects. 2010-2019, 2021.
- PSS 21 Introduction to Agroecology (Waterman, Morris, Izzo). Sustainable Orchard Systems. 2010, 2014-2022.
- PSS 112 Weed Science and Ecology (Bosworth, Izzo, von Wettberg, Kretzler). Groundcover Management in Orchard Systems Field Lecture. 2005-present.
- ENSC 009 Orientation to Environmental Sciences (Wang, Ross). Introduction to Catamount Educational Farm. 2014-2019.
- UVM Farmer Training Program. Introduction to Orchard Management 2011-2017; Context in Modern vs Alternative Agriculture. 2018; Genetic Engineering in Agriculture. 2018-2019.
- ASCI 156 Dairy Management Seminar (Davis). Farm-Neighbor Relations. 2013, 2015, 2017.
- FS 395 Ethics and the Food System (Doggett & Trubek). Organic and IPM Production Systems for Apples in the Northeast. 2013.
- Vermont Youth Conservation Corps, Forest Management Unit. Invasive Species Management and Apple Pruning at the UVM Horticulture Research Center. Two-week intensive, Jan 2012.
- UVM HCOL Agroecology in Food Systems (Costa). Sustainable Apple Production. 2011.

Trainings in Pedagogy and Course Delivery

- UVM Inclusive Teaching Workshop. Center for Teaching and Learning, CALS, CEMS, Office of the Provost, and the Division of Diversity, Equity & Inclusion. September, 2023.
- Concepts and their Applications Related to Curriculum & Pedagogy for STEM Faculty. UVM Center for Teaching & Learning, January 2022.
- Teaching the Hidden Curriculum & Promoting Student Support Resources with the Center for Academic Success. UVM Center for Teaching & Learning, January 2022.
- Teaching Effectively Online. UVM Center for Teaching & Learning, June 2020.
- Teaching with Teams. UVM Center for Teaching & Learning, April 2020.
- One-on-one training, using Blackboard in the classroom. UVM Center for Teaching & Learning, Blackboard trainings. Six sessions, 2017-2020.
- UVM Sustainability Faculty Fellow. 2018-2019
- Rubrics 101. UVM Writing in the Disciplines Program. November 2019.
- Center for Teaching & Learning: Features Every Blackboard User Should Know. January 2018.
- Curriculum Assessment Training. Assessment at UVM Program. January 2018.
- Small Changes, Big Impact: Small Teaching changes that Build Analysis and Reflection. UVM Writing in the Disciplines Program. January 2018.

Research Experience

[Terence Bradshaw - Google Scholar](#)

<https://orcid.org/0000-0002-0162-6027>

<https://www.webofscience.com/wos/author/record/974793>

Publications

Peer-Reviewed Scientific Publications - Journal Articles and Proceedings

1. Pelletier, B. and T. Bradshaw. 2024. Experience and understanding of concepts surrounding 'natural wine' in Vermont. *Acta Hortic.* 1387, 39-48 DOI: 10.17660/ActaHortic.2024.1387.6
<https://doi.org/10.17660/ActaHortic.2024.1387.6>
2. Pelletier, B. and T. Bradshaw. 2024. Biorational pesticide efficacy in northern New England vineyards. *Acta Hortic.* 1387, 269-276, DOI: 10.17660/ActaHortic.2024.1387.37
<https://doi.org/10.17660/ActaHortic.2024.1387.37>
3. Bradshaw T., Autio, W. Blatt, S. Clements, J. Einhorn, T. Elkins, R. Fallahi, E., Francescatto, P., Lordan, J., Minas, I., Peck, G., Robinson, T., and Yao, S. 2023. Performance of 'Modi' apple trees after 5 years under Organic management as affected by several dwarf rootstocks in the 2015 NC-140 Apple Rootstock Trial. *J Am Pom Soc. (APS)* 77:14-27 http://www.pubhort.org/aps/77/v77_n1_a2.htm
4. Foster, J., Kingsley-Richards, S.L. and Bradshaw, T.L. (2022). Summer applications of NAA and ethephon show little effect on return bloom, yield, tree growth, and juice quality of cider apple cultivars. *Acta Hortic.* 1346, 511-518 DOI: 10.17660/ActaHortic.2022.1346.65.
5. Foster, J. Kingsley-Richards, S.L., and Bradshaw, T. 2022. Effect of Summer Hedging on Return Bloom, Yield, Tree Growth, and Juice Quality of Apples Grown for Cider. *Acta Hortic.* 1346, 439-446. DOI: 10.17660/ActaHortic.2022.1346.56
6. Bradshaw, T., and Hagen, K. 2022. Wool pellets are a viable alternative to commercial fertilizer for organic vegetable production. *Agronomy* 12(5), 1210. Special issue on *Agroecology for Organic Vegetable Systems Redesign*. DOI:10.3390/agronomy12051210
7. Hazelrigg, A. L., T. L. Bradshaw and G. S. Maia. 2021. Disease Susceptibility of Interspecific Cold-Hardy Grape Cultivars in Northeastern U.S.A. *Horticulturae* 7(8): 216. Special issue on *Grape Responses to Abiotic and Biotic Stresses*. DOI:10.3390/horticulturae7080216
8. Bradshaw, T. and Foster, J. 2020. Plant growth regulators do not affect biennial bearing of two cider apple cultivars in Vermont, U.S.A. *Acta Hortic.* 1281, 273-278. DOI: 10.17660/ActaHortic.2020.1281.37
9. Bradshaw, T.L. and Foster, J. 2020. Modified pruning intensity may reduce labor costs and improve profitability of growing dessert apple cultivars for cider production. *Acta Hortic.* 1281, 243-250. DOI: 10.17660/ActaHortic.2020.1281.33
10. Bradshaw, T.L., Berkett, L.P., Kingsley-Richards, S.L., and Foster, J.A. 2018. Horticultural Performance and Juice Quality of Cold-Climate Grapes in Vermont, U.S.A. *European Journal of Horticultural Science* 83:1, 42-48. *Invited paper*.
11. Hazelrigg, A., Bradshaw, T.L., Berkett, L.P., Maia, G., and Kingsley-Richards, S.L. 2018. Disease Susceptibility of Cold-Climate Grapes in Vermont, U.S.A. *Acta Hortic.* 1205, 477-482. DOI: 10.17660/ActaHortic.2018.1205.58
12. Bradshaw, T.L., Kingsley-Richards, S.L., and Foster, J.A. 2018. Apple Cultivar Evaluations for Cider Making in Vermont, U.S.A. *Acta Hortic.* 1205, 453-460. DOI: 10.17660/ActaHortic.2018.1205.55
13. Bradshaw, T.L., Hazelrigg, A., and Berkett, L.P.. 2018. Characteristics of the cold-climate winegrape industry in Vermont, U.S.A. *Acta Hortic.* 1205, 469-476. DOI: 10.17660/ActaHortic.2018.1205.57
14. Becot, F.A., Bradshaw, T.L., and Conner, D.S. 2018. Growing apples for the cider industry in the U.S. Northern Climate of Vermont: Does the math add up? *Acta Hortic.* 1205, 461-468. DOI: 10.17660/ActaHortic.2018.1205.56
15. Bradshaw, T.L., Hazelrigg, A., Kingsley-Richards S.L., and Foster, J.A. 2016. Field assessment of salicylic acid to aid in reduction of sulfur to manage apple scab. *Plant Dis. Manag. Rep.* 10:PF031.
16. Bradshaw, T.L., Hazelrigg, A., Kingsley-Richards S.L., and Foster, J.A. 2016. Biological disease management of Vf-gene scab resistant organic apples, 2015. *Plant Dis. Manag. Rep.* 10:PF032.

17. Becot, F.A., Bradshaw, T.L., and Conner, D.S. 2016. Apple Market Optimization and Expansion through Value-Added Hard Cider Production. *HortTechnology* 26:220-229.
18. Bradshaw, T.L., Berkett, L.P., Moran, R.E., Garcia, M.E., Darby, H.M., Parsons, R.L., Kingsley-Richards, S.L., Griffith, M.C., Bosworth, S.C. and Görres, J.H. 2016. Disease and arthropod pest incidence in two organic apple orchard systems in Vermont, USA, 2008-2013. *Acta Hortic.* 1137, 129-136. DOI: 10.17660/ActaHortic.2016.1137.18.
19. Bradshaw, T.L., Berkett, L.P., Moran, R.E., Garcia, M.E., Darby, H.M., Parsons, R.L., Kingsley-Richards, S.L., Griffith, M.C., Bosworth, S.C. and Görres, J.H. 2016. Tree growth and crop yield of five cultivars in two organic apple orchard systems in Vermont, USA, 2006-2013. *Acta Hortic.* 1137, 299-306. DOI: 10.17660/ActaHortic.2016.1137.42
20. Bradshaw, T.L., Berkett, L.P., Moran, R.E., Garcia, M.E., Darby, H.M., Parsons, R.L., Kingsley-Richards, S.L., Griffith, M.C., Bosworth, S.C. and Görres, J.H. 2016. Long-term economic evaluation of five cultivars in two organic apple orchard systems in Vermont, USA, 2006-2013. *Acta Hortic.* 1137, 315-322. DOI: 10.17660/ActaHortic.2016.1137.44
21. Noel, Z.A., Bradshaw, T.L., Kingsley-Richards, S.L., and L.P. Berkett. 2014. Evaluation of the efficacy of natural resistance in 'Honeycrisp' to reduce fungicide applications for *Venturia inaequalis*, 2012-2013. *Plant Dis. Manag. Rep.* 9:PF004.
22. Berkett, L.P., Bradshaw, T.L., Kingsley-Richards, S.L., and M.C. Griffith. 2013. Disease evaluation of selected cold climate wine grape cultivars in Vermont, USA. *IOBC-WPRS Bulletin* 105:29-33.
23. Bradshaw, T.L., Berkett, L.P., Griffith, M.C., Kingsley-Richards, S.L., Darby, H.M., Parsons, R.L., Moran, R.E. and Garcia, M.E. 2013. Assessment of Kelp Extract Biostimulants on Arthropod Incidence and Damage in a Certified Organic Apple Orchard. *Acta Hortic.* 1001:139-145.
http://www.actahort.org/books/1001/1001_14.htm
24. Garcia, M.E., Moran, R.E., Berkett, L.P., Bradshaw, T.L., Darby, H.M., Kingsley-Richards, S.L. and Parsons, R.L. 2013. Performance in the Early Production Years of Two Organic Orchards Established By Different Methods: Newly-Planted and Top-Grafted. *Acta Hortic.* 1001:161-165.
http://www.actahort.org/books/1001/1001_17.htm
25. Bradshaw, T.L., Berkett, L.P., Griffith, M.C., Kingsley-Richards, S.L., Darby, H.M., Parsons, R.L., Moran, R.E. and Garcia, M.E. 2013. Assessment of Kelp Extract Biostimulants on Tree Growth, Yield, and Fruit Quality in a Certified Organic Apple Orchard. *Acta Hortic.* 1001:191-198.
http://www.actahort.org/books/1001/1001_21.htm
26. Berkett, L.P., Bradshaw, T.L., Griffith, M.C., Kingsley-Richards, S.L., Darby, H.M., Parsons, R.L., Moran, R.E. and Garcia, M.E. 2013. Disease and Arthropod Evaluation of Five Apple Cultivars under Organic Management in Vermont, USA. *Acta Hortic.* 1001:235-248.
http://www.actahort.org/books/1001/1001_26.htm
27. Bradshaw, T.L., Berkett, L.P., Griffith, M.C., Kingsley-Richards, S.L., Darby, H.M., Parsons, R.L., Moran, R.E. and Garcia, M.E. 2013. Assessment of Kelp Extract Biostimulants on Disease Incidence and Damage in a Certified Organic Apple Orchard. *Acta Hortic.* 1001:265-271.
http://www.actahort.org/books/1001/1001_30.htm
28. Autio, W., T. Robinson, B. Black, T. Bradshaw, J. Cline, R. Crassweller, C. Embree, E. Hoover, S. Hoying, K. Iungerman, R. Johnson, G. Lang, M. Parker, G. Reighard, J. Schupp, M. Stasiak, M. Warmund, and D. Wolfe. 2011. Performance of Fuji and McIntosh apple trees after 10 years as affected by several dwarf rootstocks in the 1999 NC-140 Apple Rootstock Trial. *J. Amer. Pomol. Soc.* 65(2):2-20. http://www.pubhort.org/aps/65/v65_n2_a1.htm
29. Autio, W., T. Robinson, B. Black, T. Bradshaw, J. Cline, R. Crassweller, C. Embree, E. Hoover, S. Hoying, K. Iungerman, R. Johnson, G. Lang, M. Parker, R. Perry, G. Reighard, M. Stasiak, M. Warmund, and D. Wolfe. Performance of Fuji and McIntosh apple trees after 10 years as affected by

- several semidwarf rootstocks in the 1999 NC-140 Apple Rootstock Trial. 2011. J. Amer. Pomol. Soc. 65(2):21-38. http://www.pubhort.org/aps/65/v65_n2_a2.htm
30. Garcia, M.E., Berkett, L.P., Bradshaw, T.L., Kingsley-Richards S.L., Moran, R.E., and B. Parsons. 2010. Horticultural options when starting an organic orchard. *Acta Hortic.* 873:277-282. http://www.actahort.org/books/873/873_30.htm
 31. Autio, W., Robinson, T., Bradshaw, T., Cline, J., Crassweller, R., Embree, C., Hoover, E., Lang, G., Masabni, J. and Parker, M. 2008. Performance of several dwarfing rootstocks with 'Fuji' and 'McIntosh' as scion cultivars in the 1999 NC-140 dwarf apple rootstock trials. *Acta Hortic.* (903):319-326.
 32. Berkett, L.P., Garcia, M. E., Moran, R.E., Parsons, R.L., Darby, H.M., Hayden, J.P., Bradshaw, T.L., Kingsley-Richards, S.L., and M. L. Cromwell. 2008. Apple cultivar disease evaluation under organic management in Vermont, 2006. *Plant Dis. Manag. Rep.* 02:PF049.
 33. Cromwell, M.L., Berkett, L.P., Ashikaga, T., Darby, H.M., Bradshaw, T.L., and S.L. Kingsley-Richards. 2008. Evaluation of alternative fungicides for organic apple production in Vermont, 2007. *Plant Dis. Manag. Rep.* 02:PF048. <http://www.plantmanagementnetwork.org/pub/trial/pdmr/reports/2008/PF048.pdf>
 34. Garcia, M.E., Berkett, L.P., and T.L. Bradshaw. 2005. Preliminary results on the application of Surround WP on apple productivity and fruit quality. *HortScience* 39(4): 876.
 35. Berkett, L.P., Garcia, M.E., Eddy, M.E., Kingsley-Richards, S.L., and T.L. Bradshaw. 2005. Evaluation of disease susceptibility of two 'new' cold-hardy wine grapes. *Biological and Cultural Tests for Control of Plant Disease*. Vol. 20: N002. <http://www.plantmanagementnetwork.org/pub/trial/bctests/Vol20/>
 36. Garcia, M.E., Berkett, L.P. and Bradshaw, T. 2004. First year results of the impact of a novel pest management technology on apple fruit quality. *Acta Hortic.* 638:85-88.
 37. Berkett, L.P., M.E. Garcia, and T.L. Bradshaw. 2003. Non-target impact of an organic alternative in apple disease management. *Phytopathology* 93: 8.
 38. Berkett, L.P., Garcia, M.E., Bradshaw, T.L. and C. Benedict. 2003. Green pug moth management. *Arthropod management tests*. Entomological Society of America. Vol. 28: A2. <http://www.entsoc.org/Protected/AMT/AMT28/>

Published Non Peer-Reviewed Abstracts

1. Hazelrigg, A., Bradshaw, T., Darby, H., Skinner, M. and Kingsley-Richards, S. 2025. The Vermont IPM Extension Implementation Program Addressing Stakeholder Priorities and Needs for 2021-2024. National IPM Symposium, San Diego, CA. 3.3.25. Poster
2. Bradshaw, T. Question those assumptions: Success with modern orchard systems demands attention to the details. *Proc. 2022 New England Vegetable & Fruit Conference*. Manchester, NH. <https://newenglandvfc.org/proceedings/>
3. Bradshaw, T. and L.P. Berkett. Vineyard disease management that works: Using IPM to minimize pesticide applications while managing diseases in cold climate winegrape varieties. *Proc. 2022 New England Vegetable & Fruit Conference*. Manchester, NH.
4. Schattman, R. E., Faulkner, J. W., & Bradshaw, T., Eds. (2020). *Proceedings of the Northeast Specialty Crop Water Symposium* Burlington, Vermont. <https://www.climatehubs.usda.gov/content/northeast-specialty-crop-water-symposium-conference-proceedings>
5. Bradshaw, T. Management Considerations for Growing Cider Apples in New England. *Proc. 2019. New England Vegetable & Fruit Conference*. Manchester, NH. 12/11/2019.

6. Bradshaw, T & Kingsley-Richards, S. 2018. Integrated Pest Management (IPM) Assessment for Apples and Wine Grapes, Pilot Program 2016 -2017.
<http://www.uvm.edu/~fruit/pubs/20162017IPMassessmentpilot.pdf>
7. Hazelrigg, A., Bradshaw, T., Darby, H., Skinner, M., Bosworth, S., and Kingsley-Richards, S. 2018. Vermont's Extension IPM program addresses diverse stakeholder needs. National IPM Meeting, Baltimore, MD. March 21, 2018. <https://www.uvm.edu/sites/default/files/media/pdc-poster-ipm-national.pdf>.
8. Bradshaw, T. Constraints & Opportunities for Selling Apples to the Cider Market. Proc. 2017. New England Vegetable & Fruit Conference. Manchester, NH. 12/13/2017.
9. Fabien-Oullet, N., Conner, D., Becot, F., Bradshaw, T. & Trubek, A. 2017. Apple Market Expansion through Value-Added Hard Cider Production: Supply Chain Coordination in Vermont. *Journal of Food Distribution Research* 48(1):116-117.
10. Bradshaw, T., Weicht, T., & Foster, J. 2016. Biological Management of Apple Replant Disease. *In* A. Gover (Ed.). *Proceedings of Northeast Plants, Pests, and Soils Conference*. 1:64. Philadelphia, PA. 1/6/2016.
11. Bradshaw, T. Horticulture and Disease Management of Cold Climate Grapes in Vermont. Proc. 2015 New England Vegetable & Fruit Conference. Manchester, NH. 12/17/2015.
http://www.newenglandvfc.org/2015_conference/20_4_Bradshaw.pdf
12. Bradshaw, T. Cider Apple Research in Vermont. Proc. 2015 New England Vegetable & Fruit Conference. Manchester, NH. 12/16/2015.
http://www.newenglandvfc.org/2015_conference/23_1_Bradshaw.pdf
13. Becot, F., Bradshaw, T. and Conner, D. 2015. Apple Market Optimization and Expansion through Value-Added Hard Cider Production in Vermont. Presentation at Beereconomics. Seattle, WA. September 8-9, 2015
14. Becot, F., Bradshaw, T. and Conner, D. 2015. Apple Market Optimization and Expansion through Value-Added Hard Cider Production in Vermont. Presentation at the Annual Meeting of the Agriculture, Food and Human Values Society. Pittsburgh, PA. June 24-28, 2015.
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16. Berkett, L.P., Bradshaw, T.L., and S.L Kingsley-Richards. 2013. Cold Climate Wine Grape Cultivars: A New Crop in the Northeast and Upper Midwest Regions of the USA. Book of Abstracts of the IOBC-WPRS Working Group Meeting on "Integrated Protection and Production in Viticulture." Ascona, Switzerland:123.
17. Berkett, L.P., Bradshaw, T.L., Kingsley-Richards, S.L. and M.C. Griffith. 2013. Disease evaluation of selected cold climate wine grape cultivars in Vermont, USA. Book of Abstracts of the IOBC-WPRS Working Group Meeting on "Integrated Protection and Production in Viticulture." Ascona, Switzerland:132.
18. Bradshaw T.L., L.P. Berkett, and S.L. Kingsley-Richards. 2013. Horticultural Assessment of Eight Cold-Hardy Wine Grape Cultivars in Vermont. Oral presentation. Proceedings of 2013 Northeast Region American Society of Horticultural Science Annual Meeting. January 2-4, 2013, New Brunswick, NJ. http://hortsci.ashspublications.org/content/suppl/2013/10/17/48.9.DC1/HS-Sept_2013-Conference_Supplement.pdf
19. Bradshaw T.L., L.P. Berkett, and S.L. Kingsley-Richards. 2013. Horticultural Assessment of Eight Cold-Hardy Table Grape Cultivars in Vermont. Poster presentation. Proceedings of 2013 Northeast Region American Society of Horticultural Science Annual Meeting. January 2-4, 2013, New

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20. Berkett, L.P, R.E. Moran, M.E. Garcia, H.M. Darby, R.L. Parsons, T.L. Bradshaw, S.L. Kingsley-Richards, and M.C. Griffith. 2012. The OrganicA Project - Evaluating New Opportunities for Organic Apple Production with Five Apple Cultivars in the New England Region of the USA. Proc. 2nd International Organic Fruit Symposium, Leavenworth, WA. ISHS.
 21. Moran, R.E., M.E. Garcia, L.P. Berkett, T.L. Bradshaw, H.M. Darby, R.L. Parsons, S.L. Kingsley-Richards, and M.C. Griffith. 2012. The OrganicA Project: Research on Weed Management Options for Organic Apple Production. Proc. 2nd International Organic Fruit Symposium, Leavenworth, WA. ISHS.
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 24. Berkett, L., Moran, R., Garcia, M. E., Darby, H., Parsons, R., Bradshaw, T., Kingsley-Richards, S., and Griffith, M. 2012. The OrganicA Project – IPM Research Results and Insights from Two Certified Organic Apple Production Systems. Northeast Organic Research Symposium Proceedings. NOFA-NY Northeast Organic Research Symposium, January 19-20, 2012, Saratoga Springs, NY.
 25. Bradshaw, T.L., Kingsley-Richards, S., Griffith, M., Berkett, L., Moran, R., Garcia, M. E., Darby, H., Parsons, R. 2012. The OrganicA Project – Multi-Year Research Results on Tree Growth, Productivity, and Fruit Quality in Two Certified Organic Apple Production Systems. Northeast Organic Research Symposium Proceedings. NOFA-NY Northeast Organic Research Symposium, January 19-20, 2012, Saratoga Springs, NY.
 26. Moran, R., Bradshaw, T., Garcia, M. E., Berkett, L., Darby, H., Parsons, R., Kingsley-Richards, S., and Griffith, M. 2012. The OrganicA Project – Research on Weed Management Options for Organic Apple Production. Northeast Organic Research Symposium Proceedings. NOFA-NY Northeast Organic Research Symposium, January 19-20, 2012, Saratoga Springs, NY.
 27. Darby, H., Berkett, L., Bradshaw, T., Parsons, R., Moran, R., Garcia, M. E., Kingsley-Richards, S., and Griffith, M. 2012. OrganicA Project: Evaluation of Soil Health in Two Vermont Organic Apple Orchards. Northeast Organic Research Symposium Proceedings. NOFA-NY Northeast Organic Research Symposium, January 19-20, 2012, Saratoga Springs, NY.
 28. Autio, W., T. Robinson, T. Bradshaw, J. Cline, R. Crassweller, C. Embree, E. Hoover, G. Lang, J. Masabni, M. Parker, G. Reighard, J. Schupp and M. Warmund. 2008. Performance of several dwarfing rootstocks with Fuji and McIntosh as scion cultivars in the 1999 NC-140 dwarf apple rootstock trials. ISHS 9th International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems. Geneva, NY. Page 128.
 29. Berkett, L.P., T. L. Bradshaw, S. L. Kingsley-Richards, and M. L. Cromwell. 2008. Grape bud survival on eight winegrape cultivars in Vermont. Proceedings of the 2nd Annual National Viticulture Research Conference. Univ. of California, Davis. pp. 1011. <http://groups.ucanr.org/nvrc/files/55209.pdf>
 30. L. Berkett, M. Garcia, R. Moran, H. Darby, R. Parsons, J. Hayden, T. Bradshaw, S. Kingsley-Richards and M. Cromwell. 2008. The OrganicA Project: Organic Disease Management in Orchards with 'Newer' Cultivars. VII International Conference on Integrated Fruit Production. Avignon, France. October 2008.

31. Berkett, L.P., Garcia, M. E., Eddy, M.E., Kingsley-Richards, S.L. and T.L. Bradshaw. 2007. Relative Susceptibility of Cold-Hardy Winegrape Cultivars to Powdery Mildew in Vermont, USA. Proceedings of the First Annual National Viticulture Research Conference. Davis, California. 18-19.
32. Garcia, M.E., R.E. Moran, T.L. Bradshaw, L.P. Berkett, H.M. Darby, R.L. Parsons, J.P. Hayden, S.L. Kingsley-Richards, and M.L. Cromwell. 2007. The OrganicA Project: Preliminary "Top-Grafting" Results in a Transitional Organic Apple Orchard. Proceedings of 4th International Organic Tree Fruit Research Symposium, Kellogg Center, East Lansing, Michigan, March 3-6, 2007.
33. Berkett, L.P., M.E. Garcia, H.M. Darby, R.L. Parsons, J.P. Hayden, R.E. Moran, T.L. Bradshaw, S.L. Kingsley-Richards and M.L. Cromwell. 2007. The OrganicA Project: An Integrated Apple Research, Education, and Extension Project. Proceedings of 4th International Organic Tree Fruit Research Symposium, Kellogg Center, East Lansing, Michigan, March 3-6, 2007.
34. Garcia, M. E., L.P. Berkett, and T. Bradshaw. 2005. Preliminary results on the application of Surround WP on apple productivity and fruit quality. HortScience 39(4): 876.
35. Berkett, L.P., M.E. Garcia, and T. Bradshaw. 2005. Evaluation of potential non-target impacts of kaolin on apple disease incidence. Phytopathology 95: 8.
36. Berkett, L.P., M.E. Garcia, Eddy, M., Kingsley-Richards, S., and T. Bradshaw. 2005. Comparison of disease susceptibility of two 'new' cold-hardy wine grape cultivars with two standard wine grape cultivars. Phytopathology 95: 8.
37. Garcia, M. E., Berkett, L.P., and T. Bradshaw. 2004. Preliminary results on the application of Surround WP on apple productivity and fruit quality. HortScience 39(4): 876.
38. Berkett, L.P., M.E. Garcia, and T.L. Bradshaw. 2003. IPM Alternatives: Investigating potential non-target impacts of an organic biopesticide in apple production. Proceedings of 4th National Integrated Pest Management Symposium. Indianapolis: 84.
39. Garcia, M. E., Berkett, L.P., and T. Bradshaw. 2003. Preliminary results of non-target impacts of surround® on New England orchards. Proceedings Second National Tree Fruit Research Symposium. Grand Junction, CO. 19-22.
40. Garcia, M., Berkett, L., and T. Bradshaw. 2002. First year results of the impact of a novel pest management technology on apple fruit quality. XXVI International Horticultural Congress. Toronto, Canada. Proceedings: 277.
41. Berkett, L.P., MacHardy, W.E., Sutton, S., Neff, G., and T. Bradshaw. 1997. 'Whole farm' apple scab IPM project. Phytopathology 87: 8.
42. Berkett, L.P., Costante, J.F., Gotlieb, A., Clements, J., Schmitt, D., Heleba, D., Bergdahl, J., Bradshaw, T. and G. Neff. 1996 Vermont Apple IPM program: Integration of research & extension produces innovation and success. Proceedings of the Third National IPM Symposium/Workshop. Washington, D.C., 225-226.

Ph.D. Dissertation

Bradshaw, T.L. 2015. Comprehensive assessment of organic apple production in Vermont: Experience from two orchard production systems, 2006-2013. Ph. D. Dissertation, University of Vermont Plant and Soil Science. <http://scholarworks.uvm.edu/graddis/327>. Co-advisors Josef Gorres, Lorraine Berkett.

M.S. Thesis

Bradshaw, T.L. 2011. Assessment of Kelp Extract Biostimulants in a Temperate-climate Organic Apple Orchard. M.S. Thesis, University of Vermont Plant & Soil Science. https://library.uvm.edu/collections/theses?search_type=item&bid=2164660. Advisor: Lorraine Berkett.

Manuscripts in Preparation (Intended journal)

Extramural Funding (\$2,440,716 total)

USDA Multistate Projects

USDA Multistate project proposals do not come with direct funding, but rather authorize collaborative research among participants multiple states' Agriculture Experiment Stations under the Hatch Act. Project participants may receive Hatch funding from their home institutions either as salary support, graduate student support, or in the form of cash grants.

1. NE1720: Multi-state Coordinated Evaluation of Winegrape Cultivars and Clones. Bradshaw, T.L., lead author and editor. 10/2017-9/2022.
2. NE2220: Multi-state Coordinated Evaluation of Winegrape Cultivars and Clones. Bradshaw, T.L., contributing editor. 10/2022-9/2027

Current Funded Projects

(\$883,751; **\$713,745 External)

1. Coordinated research supporting orchard and vineyard crops in Vermont. Vermont Agriculture Experiment Station Hatch Grants Program, Oct 2025 -Sep 2028. \$63,214. PI: T. Bradshaw
2. **NEWA: System upgrade and expansion to support resilience and profitability of specialty crop producers. Vermont Specialty Crops Block Grants Program. Sep 2025 – Aug 2027. PD: T. Bradshaw. \$42,305
3. **Vermont IPM Extension Implementation Program (VT EIP): 2024-2027. USDA CPPM. PD: A. Hazelrigg. Co-PIs: T. Bradshaw, H. Darby, M. Skinner. September 2024 – August 2027. \$628,734 total, \$87,783 for Fruit emphasis area.
4. **Northeast Tree Fruit IPM Working Group: Support for Emerging Professionals. Northeast IPM Center. Apr 2024-Mar 2026. PD: T. Bradshaw, co-PIs Wallis, A., Pinero, J., van Zoeren, J. and M. Basedow. \$19,995.
5. **Research validation for alternative viticulture systems in Vermont. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program 02200-SCBGP-20-03. PI: T. Bradshaw. January 2024 – December 2025. \$39,998.
6. **Master Planning and Infrastructure Improvements for UVM Horticulture Research and Education Center. USDA NIFA Research Facilities Act Program. PI: T. Bradshaw. Oct 2023 – Sep 2025. \$481,756.
7. Evaluating systems components for orchard and vineyard crops in Vermont. Vermont Agriculture Experiment Station Hatch Grants Program, Oct 2020 -Sep 2025. \$106,792. PI: T. Bradshaw

Past Funded Projects (\$1,556,965; **\$1,394,868 External)

1. ** Vertical Bifacial Solar Panels: A Winning Solution for Agrivoltaics and Farmers. NESARE Novel Approaches Program LNE22-454R. PD: B. Parker, Co-PIs: T. Bradshaw, M. Skinner, J. Kolodinsky. \$199,936. March 2022 – February 2025.
2. ** Enhanced digital communications platform for Vermont fruit producers and next-generation food systems professionals. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program 02200-SCBGP-19-03. PI: T. Bradshaw. Oct. 2022 – Dec. 2023. \$17,129.
3. **Vermont IPM Extension Implementation Program: 2021-2024. USDA CPPM 2021-70006-35509. PD: T. Bradshaw August 2021 - July 2024. \$499,574 total, \$91,677 for Fruit emphasis area.
4. **VitiNord 2022: A pivotal opportunity for education, collaboration, and innovation among Vermont grape and wine producers. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program 02200-SCBGP-17-03. PI: T. Bradshaw. October 2021 – March 2023. \$20,548.
5. **Next Generation Support for Northeast Tree Fruit IPM Working Group. Northeast IPM Center. Apr 2021-Mar 2023. PD: T. Bradshaw, co-PIs Wallingford, A., Pinero, J., and J. van Zoeren. \$19,760

6. **New England Cider Apple Program: Optimizing Production for High-Value Markets. Northeast SARE Research and Demonstration Grants Program. PD: T. Bradshaw; Co-PIs: J. Clements, C. Cooley, R. Moran, J. Pinero. September 2019 – August 2022. \$229,867.
7. **Exploring Low-Phosphorous Wool Pellets as Fertilizer and Soil Conditioner for Vegetables. Northeast SARE Partnership Grants Program. Aug 2020 – May 2022. PI: T. Bradshaw. \$28,329.
8. Improvements for HREC Irrigation System. UVM OVPR Core Infrastructure Fund. Jan 2021 – Dec 2021. PD: T. Bradshaw. \$23,013.
9. **Vermont IPM Extension Implementation Program: 2017-2020. USDA CPPM EIP. PD: A. Hazelrigg. Co-PIs: S. Bosworth, T. Bradshaw, H. Darby, M. Skinner. September 2017 – August 2021. \$1,092,524 total, \$208,630 for Fruit emphasis area. (Extended through FY 22 due to COVID disruption)
10. **Responding to Need for On-Farm Technical Support for Vermont Apple and Grape Growers. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program. PI: T. Bradshaw. January 2019 – March 2021. \$25,963.
11. **Winegrape cultivar evaluation and virus screening to support the Vermont grape industry. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program. PI: T. Bradshaw. October 2017 – September 2020. \$34,849.
12. Rootstock and tree training systems for unique apple production systems. Vermont Agriculture Experiment Station Hatch Grants Program, Oct 2017-Sep 2020. \$64,084. PI: T. Bradshaw
13. **A New England Tree Fruit Management Guide for the Next Generation. Northeast IPM Center Partnership Grants Program. PDs: D. Cooley & J. Clements (UMASS). UVM Cooperator: TL. Bradshaw (unfunded contributor). March 2017-February 2019.
14. **Addressing Unique IPM Needs in Northeast Cider Orchards. Northeast IPM Center Partnership Grants Program. PIs: T. Bradshaw and A. Hazelrigg. April 2016-June 2018. \$48,426.
15. **Orchard Pruning for Cider Apple Production. Northeast SARE Partnership Grants Program. May 2016- April 2018. PI: T. Bradshaw. \$14,889.
16. **Northern Grapes: Integrating Viticulture, Winemaking, and Marketing of New Cold-Hardy Cultivars Supporting New and Growing Rural Wineries. USDA Specialty Crops Research Initiative. Sep 2014- Aug 2016 (continued funding of previously awarded project beginning Sep 2012 under previous UVM co-PI L.P. Berkett). PD T.E. Martinson (Cornell), UVM Co-PI T.L. Bradshaw. Includes 24 co-PIs from 10 institutions. Total \$2.6 million (\$41,367 for UVM).
17. **Orchard Economic Assessment to Support Vermont Hard Cider Production. USDA Federal-State Marketing Improvement Program (FSMIP), Sep 2014 - Sep 2017. \$75,830 (\$2,000 matching funds each from Vermont Hard Cider Company and Vermont Tree Fruit Growers Association). PIs: T. Bradshaw, D. Conner.
18. NE-1020 Multi-State Evaluation of Winegrape Cultivars and Clones. Vermont Agriculture Experiment Station Hatch Grants Program, Oct 2014-Sep 2017. \$75,000. PI: T. Bradshaw.
19. **The Multidisciplinary Vermont Extension Implementation Program Addressing Stakeholder Priorities and Needs for 2014-2017. USDA NIFA CPPM EIP Program. Sep 2014 – Aug 2017. \$577,800 (\$141,396 for Specialty Crops Emphasis Areas Apple and Grape). PD: A. Hazelrigg. Co-PIs: S. Bosworth, T. Bradshaw, H. Darby, M. Skinner.
20. **Apple Market Optimization and Expansion through Value-Added Hard Cider Production. Vermont Working Lands Enterprise Initiative, June 2014 – June 2016. \$40,000 (\$10,000 matching funds grant from Vermont Hard Cider Co.) PIs: T. Bradshaw, D. Conner.
21. **Field Assessment of Biostimulants for Organic Apple Scab Management. Leahy Orchards, Inc. (private funder). May 2015 - April 2016. \$11,720.
22. **Biological Management of Apple Replant Disease. Northeast SARE Partnerships Grant Program, May 2014 – April 2016. \$14,314 (\$9,625 matching funds from Novozymes, Inc./Monsanto BioAg). PI: T. Bradshaw.

23. **Creating Interdisciplinary Extension and Research (CIDER) Programs to Redevelop the North American Hard Cider Industry. USDA Specialty Crops Research Initiative Planning Grant 2014-07549. Sep 2014-Sep 2015. \$50,000. PDs: Peck, G.M, Miles, C. Pls: Bradshaw, T. (UVM), Conner, D. (UVM), Ferreira, G., Neilson, A., Stewart, A., Galinato, S., Tozer, P., Rothwell, N.
24. **The Transdisciplinary Vermont Extension IPM Program Addressing Stakeholder Priorities and Needs for 2013-2016. USDA NIFA EIPM Program. Sep 2013 – Aug 2016. \$109,002 (\$29,360 for Specialty Crops Emphasis Areas Apple and Grape). Funded for first year (FY 14) only, USDA changed the grant program for FY 15. PD: A. Hazelrigg. Co-Pls: S. Bosworth, T. Bradshaw, H. Darby, M. Skinner.
25. **Improved Technical Support Programming for Vermont Apple Growers. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program. Oct 2013 – Dec 2014. \$10,000. PI: T. Bradshaw.
26. **Upgrading Vermont Weather Stations to Improve Crop Pest Management. USDA Rural Business Enterprise Grant administered through USDA to Vermont Tree Fruit Growers Association. VTFGA President and PI: T. Bradshaw. July 2011 – July 2013. \$11,000.
27. **Modernization of Research Orchards at the UVM Horticultural Research Center. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program to Vermont Tree Fruit Growers Association. VTFGA President and PI: T. Bradshaw. Dec 2009 – Oct 2012. \$19,950.
28. **Establishment of On-Farm Weather Stations and IPM Modeling Systems for Vermont Orchards. USDA/Vermont Agency of Agriculture Specialty Crops Block Grants Program to Vermont Tree Fruit Growers Association. VTFGA President and PI: T. Bradshaw. Dec 2009 – Oct 2012. \$10,000.
29. **Research Support for the UVM Apple Program. Annual support from Vermont Tree Fruit Growers Association. \$22,340 total, 2013-2023.

Grants Submitted and Pending Funding

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Grants Submitted but not Funded

1. **New England 'Natural' Wine: Evaluation of and Support for Alternative Viticulture Practices for Cold-Hardy Grapes. NESARE Novel Approaches Program. PD: T. Bradshaw, Co-PI: E. Petit (UMASS). \$197,620. March 2023 - February 2025.
2. ** Vermont Natural Wine: Exploring Alternative Viticulture. Northeast SARE Partnership Grants Program. PI: T. Bradshaw. Aug 2022 – Jul 2024. \$29,975.
3. **Economic, Agronomic and Ecological Impacts of Pelletized Wool in Northeast Vegetable Production. NESARE Novel Approaches Program. PD: S. Hodgson, Co-Pls: T. Bradshaw, K. Hagen, C. Herrick, D. Neher, E. Roy. \$199,998. March 2022 – February 2025.
4. **Developing Strawberry Seed Varieties for Organic Agriculture. USDA Organic Research and Extension Initiative. Sep 2020-Aug 2025. PD: Mahoney, L., Pls: Davis, T. Bradshaw, T. Total request \$1,304,856 total, \$191,510 for UVM / Bradshaw.
5. **Effects of wood mulch and nitrogen fertilization on soil properties, plant growth, and yield in conventional and organic potato production. Northeast SARE Graduate Student Grants Program. Dec 2020- Nov 2020. PI: T. Bradshaw, co-PI (grad student) B. Johnson. \$14,934.
6. **Woody Perennial Crop System Dynamics in a Changing World. NSF CNH-L Program. Co-PDs: D. Lutz, A. Ahmed; Co-Pls T. Bradshaw, M. Cannella, A. van den Berg. January 2019 – December 2022. \$1.5 million.
7. **Putting Recommendations into Action: Pollinator Protection and Outreach Program. FFAR Pollinator Health Fund. Pls: T. Bradshaw, S. Alger, A. Brody, T. Rickets, B. Voigt. January 2018 – August 2020. \$240,000.

8. ****Creating Interdisciplinary Extension and Research Programs to Redevelop the American Cider Industry.** USDA Specialty Crops Research Initiative. PDs: G. Peck & Carol Miles. Pls: T. Bradshaw et. al. October 2017 – September 2021. \$3.75 million (\$173,023 for UVM).
9. ****Northern Grapes Project II: Optimizing Crop Management, Enology, and Marketing.** USDA Specialty Crops Research Initiative. PD: P. Sabbatini. Pls: T. Bradshaw, A. Hazelrigg, et. al. October 2017 – September 2021. \$7.0 million (\$178,168 for UVM).
10. ****On-Farm Technical Support for Enhanced Integrated Pest Management Implementation by Vermont Apple Growers.** Vermont Working Lands Enterprise Fund. PI: T. Bradshaw. July 2017 – December 2018. \$45,338.
11. ****Web-Enhanced IPM Decision Support for New England Tree Fruit.** USDA NIFA Specialty Crops Multi-state Program. PD: T. Bradshaw. Co-Pls: D. Cooley, G. Koehler, M. Niles. July 2016 - June 2019. \$825,338.
12. ****Creating Interdisciplinary Extension and Research (CIDER) Programs to Redevelop the North American Hard Cider Industry.** USDA Specialty Crops Research Initiative Coordinated Agricultural Projects Grant Program. Submitted July 2015. PDs: Peck, G.M, Miles, C. Pls: Bradshaw, T. (UVM), Conner, D. (UVM), Ferreira, G., Neilson, A., Stewart, A., Galinato, S., Tozer, P., Rothwell, N. \$4.5 million, (\$702,447 for UVM).
13. ****Apple Market Optimization and Expansion through Customer Analysis and Assessment of Value-Added Cider Production.** Vermont Working Lands Enterprise Initiative. Submitted February 2013. \$53,697. Pls: T. Bradshaw, D. Conner.
14. ****High-Value Processing Orchards as a Means to Advance IPM Implementation in the Northeast.** Northeast IPM Center Partnership Grants. Submitted December 2013. \$45,828. PI: T. Bradshaw.

Project Technical Consultant

1. Evaluation of Apple Cultivars for Hard Cider Production in the Northeast. (FNE20-960) Primary Investigator: Todd Parlo, Walden Heights Nursery. 2020 Northeast SARE Farmers Grants Program
2. Agriculture and Food Research Initiative. (United States Department of Agriculture, NIFA), 2017. "The Climate Adaptation Fellowship: A Collaborative Curriculum Design Project." Award Number 2016-11174. Lead PI: Dr. Joshua Faulkner. Curriculum reviewer.
3. Poultry and Grape Sector Business Model Research & Development. Primary Investigator: Mark Cannella, UVM Extension. 2014 Vermont Working Lands Enterprise Fund Service Providers Grants.
4. Evaluation of Apple and Pear Varieties for Cold Humid Climates under Certified Organic Management. Primary Investigator: Todd Parlo, Walden Heights Nursery. 2014 Northeast SARE Farmers Grants Program. http://mysare.sare.org/sare_project/fne14-812/?page=final.
5. VT Farm to Plate Fruit & Vegetable Strategic Planning Session. Vermont Sustainable Jobs Fund. 2013-2015.

Extension Experience

Professional Extension Technical Publications

PR = peer-reviewed.

1. 2007-2022. Reviewer and coauthor, New England Tree Fruit Production Guide. *Lead author*, Organic and Cider Apple Sections. Coop. Extension of Systems of CT, ME, MA, NH, RI, and UVM College of Ag. & Life Sci. <http://netreefruit.org/> *PR*
2. UVM Extension Tree Fruit Website, <https://www.uvm.edu/extension/horticulture/tree-fruit>. Outreach website for tree fruit-related horticultural and IPM information for commercial growers. 2001-present; lead author 2013-present.

3. UVM Extension Grape Website, <https://www.uvm.edu/extension/horticulture/grapes>. Outreach website for viticulture-related horticultural and IPM information for commercial growers. 2003-present; lead author 2013-present.
4. Cider Apple Section, eXtension Apples Community of Practice. Primary author, developed under NESARE Grant LNE19-373 (New England Cider Apple Project). 2020-present.
<https://apples.extension.org/category/cider-apples/>.
5. Bradshaw, Terence and Lorraine P. Berkett, 2020. "Relative Disease Ratings for Wine Grape Varieties Grown in Vermont." ASHS HortIM (49).
https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT003_relativeGrapeDisease.pdf
6. Kingsley-Richards, S. and T. Bradshaw. 2019. "Pre- Harvest Winegrape Juice Testing". UVMFRT006 Fact Sheet.
https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT006_preharvestGrapeTesting.pdf
7. Bradshaw, T., J. Foster, & S. Kingsley-Richards. "2018 IPM 'Quick' Summary for Monitoring Apple Arthropod Pests". http://www.uvm.edu/~fruit/treefruit/tf_meetings/2018IPMScoutingGuide.pdf
8. Bradshaw, T., 2017. "Non-Chemical Weed Management in Apple Orchards," ASHS HortIM (52), https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT005_nonChemWeedMgmt.pdf
9. Bradshaw, Terence and Lorraine P. Berkett, 2017. "An Initial IPM Strategy for New Cold Climate Winegrape Growers," ASHS HortIM (48).
https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT004_initialIPMStrategy.pdf
10. Becot, F., Bradshaw, T., Conner, D. 2016. Cost of Production, Prices, and Economic Performance for the Cider Market in Vermont.
https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT002_ciderAppleProductionCosts.pdf
11. Bradshaw, T.L. Berkett, L.P., and J. Foster. 2016. IPM 'Quick' Summary for Monitoring Apple Arthropod Pests. UVM Apple Program.
http://www.uvm.edu/~fruit/treefruit/tf_ipm/IPMQuickGuidetoMonitoring2016.pdf
12. Becot, F., Bradshaw, T., Conner, D. 2016. Fact Sheet: Long-Term Contracts in the UK Cider Industry.
https://www.uvm.edu/~orchard/fruit/pubs/Factsheets/UVMFRT001_ciderAppleContracts.pdf
13. USDA National Agricultural Statistics Service Weather Reporter. 2005-2022.
http://www.nass.usda.gov/Statistics_by_State/New_England/index.asp.
14. Bradshaw, T. Biological management of apple replant disease. Northeast SARE Project ONE14-199 final report. <https://projects.sare.org/project-reports/one14-199/>. *PR*
15. Moran R., Koehler, G., Cooley, D., Tuttle, A., Clements, J., Smith, C., Hamilton, G., MacHardy, W., Berkett, L., Bradshaw, T., Faubert, H.H. and Concklin, M. 2016. The New England Apple Scab-Control Practices Survey. *Fruit Notes* 81(1): 1-6. *PR*
16. Peck, G., Miles, C., King, J., Bradshaw, T., Rothwell, N., & I. Merwin. (2014). An Introduction to Hard Cider in the U.S.. eXtension article. <http://www.extension.org/pages/70601/an-introduction-to-hard-cider-in-the-us#.U4vToihmi2J>. *PR*
17. Bradshaw, T. L. and L.P. Berkett. 2013. Considerations for Starting a Commercial Winegrape Vineyard in Vermont. <http://go.uvm.edu/vineyardconsiderations>
18. Bradshaw, T.L. 2010. Getting Started in Apple Orchard Management. <http://go.uvm.edu/introapple>
19. Autio, W., T.L. Robinson, B. Black, T. Bradshaw, J.A. Cline, R.M. Crassweller, C.G. Embree, E.E. Hoover, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, J.R. Schupp, and M. Warmund. 2008. 1999 NC-140 Fuji and McIntosh dwarf apple rootstock trials: An update after eight growing seasons. *Compact Fruit Tree* 41(1): 23-25. *PR*
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Garcia, M.E., Moran, R.E., Berkett, L.P., Bradshaw, T.L., Kingsley-Richards, S., Darby, H.M., Parsons, R.L., Hayden, J.P., and M.L. Cromwell. 2007. Pictorial Guide to Top-Grafting an Orchard. <http://www.uvm.edu/~organica/OrganicOrchardInformation/Horticulture/howtotopgraft.html>
22. Berkett, L.P., Garcia, M. E., and T. Bradshaw. 2004. Relative Susceptibility of New Apple Cultivars to Insects and Diseases in Vermont. UVM Extension Program. <http://orchard.uvm.edu/uvmapple/pest/1995NE183DiseaseAndInsect2000&2001.pdf>
23. Garcia, M. E., Berkett, L.P., and T. Bradshaw. 2003. Does Surround® Have Non-target Impacts on New England Orchards? Proceedings of the 2003 New England Fruit School. Mass Fruit Growers Association. Vol 109. <http://www.massfruitgrowers.org/nefrmtg/proc--2002-03/a03.pdf> *PR*
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Book contributions

1. Bradshaw, T. 2021. Green Mountain Grapes. Vermont Almanac, Vol. II. <https://vermontalmanac.org>
2. Bradshaw, T. 2021. Grapevine Pruning. Vermont Almanac, Vol. II. <https://vermontalmanac.org>
3. Bradshaw, T. 2020. Vermont's Evolving Apple Industry. Vermont Almanac. <https://vermontalmanac.org>

Articles in Industry Trade Journals

1. Bradshaw, T. 2019. New England Cider Apple Project. 2019-2020 Scott Laboratories Cider Handbook.
2. Bradshaw, T. 2019. Best Practices for Non-Chemical Orchard Weed Management. American Fruit Grower / Growing Produce. January 2019. <https://www.growingproduce.com/fruits/apples-pears/best-practices-for-non-chemical-orchard-weed-management/>
3. Bradshaw, T. 2017. A Moving Target: Growers seek best way to supply fruit to the cidery market. Fruit Growers News. June 2017, 56:6.
4. Bradshaw, T. 2016. Cider Apple Evaluations in Vermont. 2016-17 Scott Laboratories Cider Handbook. <http://www.scottlab.com/pdf/2016CiderHB.pdf>

Curriculum and Policy Development White Papers

1. Bradshaw, T. (lead author). 2021. Grapes and Wine. Vermont Sustainable Jobs Fund Farm to Plate 2.0 Product Brief. https://www.vtfarmtoplate.com/sites/default/files/2022-03/vermont_food_system_plan_product_brief_grapes.pdf
2. Bradshaw, T. (lead author). 2019. Apples. Vermont Sustainable Jobs Fund Farm to Plate 2.0 Product Brief. Issue briefs drafted by statute for presentation to Vermont legislature in 2019-2020 session. https://www.vtfarmtoplate.com/sites/default/files/2022-03/vermont_food_system_plan_product_brief_apples.pdf
3. Bradshaw, T.L. (committee chair). 2019. Vermont Pollinator Protection Plan: Agricultural Landscapes: Voluntary Best Management Practices to Protect Managed and Native Pollinators. Report to submitted Vermont Agency of Agriculture (*not posted publicly*).

4. Bradshaw, T.L. and Hazelrigg, A. 2018. Status of IPM Practice Adoption in Vermont Apple Orchards, 2017. <http://www.uvm.edu/~fruit/2017AppleIPMstatus.pdf>
5. VT Pollinator Protection Committee, Bradshaw, T.L., Chair. 2017. Report to the Vermont Legislature as Required by Act 83 of the 2016 Session. <https://agriculture.vermont.gov/sites/agriculture/files/documents/Pollinator%20Protection%20Report-FINAL.pdf>
6. Bradshaw, T.L. 2013. Coordinated Teaching, Research and Outreach Programs at the University of Vermont Horticulture Research Center: A Proposal to Improve Student Experiential Learning in Applied Farm Management. http://www.uvm.edu/~tbradsha/UVM_SummerFarmCurriculumSpring2013.pdf
7. Bradshaw, T.L., Vermont Tree Fruit Growers Association. 2013. Strategic Planning for the Vermont Apple Industry: Planning for Success in the 21st Century. <http://www.uvm.edu/~orchard/2013VermontAppleIndustryStrategicPlan.pdf>

Meetings Organized and Directed

1. New England Winter Fruit Seminar Series. Series of five webinars co-presented by New England Extension Fruit professionals. Co- organizer, coordinator of pesticide applicator's license credits across all New England states. Feb-Mar, 2025.
2. New England Winter Fruit Seminar Series. Series of six webinars co-presented by New England Extension Fruit professionals. Primary organizer, coordinator of pesticide applicator's license credits across all New England states. Jan-Mar, 2024.
3. VitiNord 2022. Lead local organizer of the premier international cold-climate winegrape industry conference to be held in Burlington, VT. December 4-7, 2022.
4. New England Agriculture Teachers. Summer professional development meeting of high school agriculture teachers. Local coordinator. June 2022.
5. New England Winter Fruit Seminar Series. Series of ten webinars co-presented by New England Extension Fruit professionals. Primary organizer, coordinator of pesticide applicator's license credits across all New England states. Jan-Mar, 2022.
6. Northeast Tree Fruit IPM Workshop. Annual meeting of research, extension, and professional colleagues to share and collaborate on fruit IPM projects in the region. October, 2021.
7. New England Winter Fruit Seminar Series. Series of ten webinars co-presented by New England Extension Fruit professionals. Primary organizer, coordinator of pesticide applicator's license credits across all New England states. Jan-Mar, 2021.
8. UVM Apple Program and Vermont Tree Fruit Growers Association Annual meeting. 2009-2024. Organizer, convener, and presenter. Middlebury, VT.
9. Northeast Specialty Crop Water Symposium. Co PI, organizer, convener, speaker. Burlington, VT. 12/18-19/2019.
10. Hard Cider Session (Seven speakers, 2.5 hrs), New England Vegetable and Fruit Meetings. 12/11/2019. Organizer, convener, and presenter. Manchester, NH.
11. UVM Horticulture Research & Education Center Farm tour. Organized facility tour for undergraduate students. South Burlington, VT. 10/11/2019.
12. UVM Horticulture Research & Education Center Research Open House. Organized facility tour and ten presentations by researchers hosted at the farm; delivered one tour and one workshop. South Burlington, VT. 8/6/2019.
13. Vermont Beginning Fruit Growers Program. Ten workshops held at UVM and Commercial Orchards / Vineyards in VT. 2019-2020.
14. Apple Scouting/IPM Meeting. UVM Fruit Program. 5/16/2019. South Burlington, VT.

15. Commercial Cider Making Workshop. Organized by Center for an Agricultural Economy, UVM Extension, and UVM Apple Team. 8/24/2018. Walden, VT.
16. Hard Cider Session (Seven speakers, 2.5 hrs), New England Vegetable and Fruit Meetings. 12/13/2017. Organizer, convener, and presenter. Manchester, NH.
17. Cornell University Program Working Team Champlain Valley Orchard Tour, Granville, NY to Burlington, VT. 8/1/2017. Program co-organizer.
18. Cider Apple Production in Vermont: Field Research and Cider Quality. 6/28/2016. Middlebury, VT.
19. Hard Cider Session (Five speakers, 2.5 hrs), New England Vegetable and Fruit Meetings. 12/16/2015. Organizer, convener, and presenter. Manchester, NH.
20. Cider Apple Production in Vermont: Market Opportunities and Technical Challenges. 3/30/2015. Organizer, convener, and presenter. Middlebury, VT.
21. Cornell Eastern New York Commercial Horticulture Program & UVM Winter Grape School. Lake George, NY. 2016-2017. Co-organizer and presenter.
22. UVM and Vermont Grape & Wine Council Educational Meeting. 2014-2015. Co-organizer.
23. Vermont Apple Industry Strategic Planning Summit. 3/30/2013. Organizer, convener, and presenter.

Outreach Presentations

1. Fitting Biopesticides into Your Orchard IPM Program. UVM Apple Program & VT Tree Fruit Growers Assn 127th Annual Meeting. Middlebury, VT. 2/14/2024.
2. Non-Chemical Orchard Groundcover Management. UVM Apple Program & VT Tree Fruit Growers Assn 127th Annual Meeting. Middlebury, VT. 2/14/2024.
3. Horticulture 101: Apple Thinning Chemicals. UVM Apple Program & VT Tree Fruit Growers Assn 127th Annual Meeting. Middlebury, VT. 2/14/2024.
4. Stone Fruit in Vermont. Branch Out Burlington January Meeting. 1/09/2024
5. UVM Fruit Program: 2023 in Review. VT Grape and Wine Council Annual Mtg. Waterbury, VT. 1/09/2024.
6. Back to Basics: Core Integrated Pest Management Concepts. UVM Apple Program & VT Tree Fruit Growers Assn 127th Annual Meeting. Middlebury, VT. 2/17/2023.
7. Vineyard disease management that works. 2022 New England Vegetable and Fruit Conference. Manchester, NH. 12/15/2022.
8. Question those assumptions: Success with modern orchard systems demands attention to the details. 2022 New England Vegetable and Fruit Conference. Manchester, NH. 12/14/2022.
9. The Evolution of the Hort Farm: 70 years' of UVM and 28 years of my life at this essential facility. 2022 Vermont Nursery and Landscape Association Annual Meeting. 8/25/2022.
10. Apple Insect Management in Cider Apple Production Systems. West Virginia University Cider School. Online. 6/8/2022
11. Northeast Cider Apple Project. New England Extension Fruit Consortium Winter Webinar Series. 3/22/2022
12. Apple, Cherry and Peach Cultivars- A Panel. T. Bradshaw, moderator. New England Extension Fruit Consortium Winter Webinar Series. 1/25/2022
13. Apple disease identification & management. UVM Master Gardener Summer program. 9/04/2021.
14. Training on apple production. UVM Master Gardener Summer program. 6/16/2021.
15. Farming with neighbors: Planning for conflict & harmony. Champlain Valley Farmer Coalition webinar. 5/5/2021.
16. New England Cider Apple Project: Early results. Northeast Integrated Pest Management (IPM) Research Update Conference (online). 3/31/ 2021
17. All about crabapples. Friends of the UVM Horticulture Farm Workshop. 3/20/2021

18. Tree Row Volume: What it is, why it matters, and how to use it. New England Winter Fruit Seminar Series. 3/23/2021
19. Apples. Vermont Agriculture and Food System Strategic Plan presentation to the House & Senate Agriculture Committee. 2/11/2021
20. Cider apples in 2021: Where do we Stand? New England Winter Fruit Seminar Series. 2/09/2021
21. Adding Tree Fruit to a Diversified Farm. Vermont Vegetable and Berry Grower Webinar Series. 12/9/2020.
22. Research, Teaching, and Outreach on Campus Farms: Paradise or Paradox? Collaborative workshop at 2020 New England Campus Farmer Summit. Easton, MA. 2/22/2020.
23. News from the UVM Apple Program. UVM Apple Program & VT Tree Fruit Growers Assn 124th Annual Meeting. Middlebury, VT. 2/13/2020.
24. Trends in Apple Cultivars in a Post-McIntosh Era. UVM Apple Program & VT Tree Fruit Growers Assn 124th Annual Meeting. Middlebury, VT. 2/13/2020.
25. Introducing the New England Cider Apple Project. 2019 New England Vegetable & Fruit Conference. Manchester, NH. 12/11/2019.
26. New England Cider Apples: What are they, where are we, and how do we support growers and cidermakers? New York Agriculture Experiment Station / Cornell University Plant Pathology Seminar. Geneva, NY. 11/15/2019.
27. Agricultural Biotechnology: History, regulation, and future development. UVM Farmer Training Program. South Burlington, VT. 10/04/2019
28. 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
29. 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
30. 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.
31. Constraints & Opportunities in Producing Cider Apples in the New Market. Montana Grape & Winery Association Annual Conference. Helena, MT. 3/23/2019
32. Orchard & Vineyard Practice that Improve Farm Sustainability. Montana Grape & Winery Association Annual Conference. Helena, MT. 3/22/2019
33. Experiences in Lebanon: Strategies for Improving Apple Markets and Implications for Vermont Growers. UVM Apple Program & VT Tree Fruit Growers Assn 123rd Annual Meeting. Middlebury, VT. 2/14/2019.
34. Recap of the 2018 Season. UVM Apple Program & VT Tree Fruit Growers Assn 123rd Annual Meeting. Middlebury, VT. 2/14/2019.
35. Pollinator Protection Efforts in Vermont: UVM IPM Program & VT Pollinator Protection Committee. Lecture to Greater Cabot Working Landscape Committee, Cabot VT. 01/24/2019.
36. Experiences in Lebanon: Strategies for Improving Apple Markets. UVM PSS Dept Seminar Series. Burlington, VT. 10/12/2018.
37. Sustainability Practices Support Vermont Orchards and Vineyards. Atlantic Seed Association Annual Convention. Burlington, VT. 10/8/2018
38. Cider Mill Setup and Operation. Commercial Cider Making Workshop, Walden, VT. 8/24/2018.
39. Plant growth regulator effects on biennial bearing of two cider apple cultivars in Vermont, U.S.A. XXX International Horticultural Congress. Istanbul, Turkey. 8/15/2018.
40. Dissecting Competing Philosophies in Vermont Agriculture. Panelist. Burlington, VT. 6/26/2018

41. Non-Chemical Weed Management in Northeast Apple Orchards. Maine Pomological Society Annual Meeting. 3/28/2018.
42. Apples, Getting to the Core. The Dish Food & Agriculture Series, Presented by City Market & Intervale. 2/22/2018.
43. Recap of the 2017 Season. UVM Apple Program & VT Tree Fruit Growers Assn 122nd Annual Meeting. Middlebury, VT. 2/15/2018.
44. Trunk Boring Insects in Apple Trees. UVM Apple Program & VT Tree Fruit Growers Assn 122nd Annual Meeting. Middlebury, VT. 2/15/2018.
45. Constraints & Opportunities for Selling Apples to the Cider Market. UVM Apple Program & VT Tree Fruit Growers Assn 122nd Annual Meeting. Middlebury, VT. 2/15/2018.
46. NEWA: It's about Much More than Weather. VT Vegetable & Berry Growers Association. Fairlee, VT. 1/22/2018
47. Pruning and Trellising Options. Introduction to Growing Grapes in Maine Workshop, Maine Pomological Society. Augusta, ME. 1/11/2018.
48. Grape Varieties for New England. Introduction to Growing Grapes in Maine Workshop, Maine Pomological Society. Augusta, ME. 1/11/2018.
49. Constraints & Opportunities for Selling Apples to the Cider Market. 2017 New England Vegetable & Fruit Conference. Manchester, NH. 12/13/2017.
50. Unique IPM Needs for Cider Apple Production. Northeastern IPM Center Advisory Council Meeting. Plainville, MA. 10/31/2017.
51. Non-Chemical Weed Management in Northeast Apple Orchards. Eco-Apple Advisory Group Conference Call. Amherst, MA. 8/08/2017.
52. Post-film discussion facilitator, "Food Evolution" screening. Burlington, VT. 6/29/2017.
53. 2017 Champlain Valley Apple Orchards: Petal Fall Management. 2017 Eastern New York Commercial Horticulture Program Champlain Valley Petal Fall Meeting. Peru, NY. 5/23/2017.
54. Non-Chemical Weed Management in Northeast Apple Orchards. Rhode Island Fruit Growers Association. Cumberland, RI. 4/20/2017.
55. A Minimal Spray Program for Cold Climate Grapes in Vermont & Northeastern New York. 2017 NY & VT Winter Grape School. Lake George, NY. 3/9/2017.
56. Hard Cider: Rediscovering the roots of the trendiest drink on the menu. Vermont Flower Show. Essex, VT. 3/3/2017
57. Recap of the 2016 Vermont Apple Season. UVM Apple Program & VT Tree Fruit Growers Assn 121st Annual Meeting. Middlebury, VT. 2/16/2017.
58. Tales from the NE1020 Coordinated Variety Trials. Northern Grapes Project Webinar. 2/14/2017.
59. Apple Cultivar Evaluations for Cider Making in Vermont. Poster session, 2017 U.S. Association of Cider Makers Conference. Chicago, IL. 2/9/2017.
60. Cost of Production of Cider Apples. Oral presentation. 2017 U.S. Association of Cider Makers Conference. Chicago, IL. 2/9/2017.
61. Reduced Pruning Inputs for Dessert Apples grown for Cider Making. Advanced Cider Orchard Production Workshop. 2017 U.S. Association of Cider Makers Conference. Chicago, IL. 2/9/2017.
62. Management of rusts and other diseases in organically-grown scab-resistant apple cultivars with biopesticides and copper. 78th Ann. New England, New York and Canadian Fruit Pest Management Workshop. Burlington, VT. 10/19/2016.
63. Apple Cultivar Evaluations for Cider Making. Cider Apple Production in Vermont: Field Research and Cider Quality Workshop. Middlebury, VT. 6/28/2016.
64. Cold Climate Varieties, Results from the VT NE 1020 Trial. 2016 NY and VT Grape School. Lake George, NY. 3/17/2016.

65. Orchard IPM 101. UVM Apple Program & VT Tree Fruit Growers Assn 120th Annual Meeting. Middlebury, VT. 2/18/2016.
66. Apple Replant Disease. UVM Apple Program & VT Tree Fruit Growers Assn 120th Annual Meeting. Middlebury, VT. 2/18/2016.
67. The Potential for Cider Apple Production in the Northeast. Northeast NY Commercial Tree Fruit School. Lake George, NY. 2/15/2016.
68. Management of rusts and other diseases in organically-grown scab-resistant apple cultivars with biopesticides and copper. UVM Plant Biology Marvin Series Lecture. Burlington, VT. 1/28/2016.
69. Scab Resistant Apple Cultivars: Potential for Low Input, High-Quality Apple Production. Great Plains Growers Conference. St. Joseph. MO. 1/8/2016.
70. Apple Production for Cider Making. Great Plains Growers Conference. St. Joseph. MO. 1/8/2016.
71. Horticulture and Disease Management of Cold Climate Grapes in Vermont. 2015 New England Vegetable & Fruit Conference. Manchester, NH. 12/17/2015.
72. Cider Apple Research in Vermont. 2015 New England Vegetable & Fruit Conference. Manchester, NH. 12/16/2015.
73. UVM Research: Supporting Vermont Apple and Grape Growers in Vermont. UVM Continuing & Distance Education Staff. Burlington, VT. 7/16/2015.
74. Cider Apple Research at UVM & Other Land Grant Universities. Oral presentation, Cider Apple Production in Vermont: Market Opportunities and Technical Challenges. Middlebury, VT. 3/30/2015.
75. 2014 Apple Season Roundup. Oral presentation, 119th Annual Vermont Tree Fruit Growers Association & UVM Apple Program Annual Meeting. Middlebury, VT. 2/12/2015.
76. Research & Outreach Programs to Support Apple Production for Hard Cider in Vermont. Poster presentation, Vermont Agricultural Experiment Station and UVM Extension Legislative Event. Montpelier, VT. 2/11/2015.
77. Pest Management Programs for Cider Orchards. Oral presentation, 2015 U.S. Association of Cider Makers Conference. Chicago, IL. 2/6/2015.
78. Vermont Apple Production for Hard Cider Markets: Supply, Demand, and Fruit Characteristics. Poster session, 2015 U.S. Association of Cider Makers Conference. Chicago, IL. 2/5/2015.
79. Research & Outreach Programs to Support Apple Production for Hard Cider in Vermont. Vermont Hard Cider Company. Middlebury, VT. 11/16/2014
80. Research & Outreach Programs to Support Apple Production for Hard Cider in Vermont. UVM CALS Board of Advisors. Burlington, VT. 10/31/2014
81. Insights from the 2013 Growing Season in the UVM Orchards. 2014 UVM Apple Program and Vermont Tree Fruit Growers Association Annual Meeting. Middlebury, VT. 2/13/2014.
82. What's Worked for Us: A Panel Discussion on Growing Cider Apples. Panelists Bradshaw, T., Campbell, C., and Flynt, D. 2014 U.S. Association of Cider Makers Conference. Chicago, IL. 2/05/2014.
83. What are Cider Producers Future Research Needs? Panelists Peck, G., Bradshaw, T., Miles, C., and Stewart, A. Panel 2014 U.S. Association of Cider Makers Conference. Chicago, IL. 2/05/2014.
84. Scab Resistant Apple Cultivars: Potential for Low Input, High-Quality Cider Apple Production. 2014 U.S. Association of Cider Makers Conference. Chicago, IL. 2/05/2014.
85. Jack Frost Nipping at Your Nodes: Grapevine Cold Hardiness and Strategies to Handle Winter Cold. 2013 New England Vegetable & Fruit Conference. Manchester, NH. 12/19/2013.
86. Commenting on FSMA Made Easy. Vermont Agency of Agriculture Webinar. Panelists Nickerson, G., Bradshaw, T., Grubinger, V., Justis, S., Rogers, D., and Willard, A. Montpelier, VT. 11/04/2013.
87. Managing Scab-Resistant Apple Cultivars. University of Maine Summer Orchard Tour. Monmouth, ME. 7/31/2013.

88. Introduction to Grape Production for Apple Growers. Monmouth, ME. University of Maine Summer Orchard Tour. 7/31/2013.
89. Vermont Apple Industry Strategic Planning Session. Presenter and meeting organizer. Montpelier, VT. 3/7/2013.
90. Present Research and Outreach Programs from the UVM Apple Team. 2013 Vermont Tree Fruit Growers Association Annual Meeting. 2/14/2013.
91. Cider Orchards: A New Marketing Opportunity? 2013 Vermont Tree Fruit Growers Association Annual Meeting. Panelists: Bradshaw, T.L., Heilenbach, J., MacArthur, J., Pratt, S., Rowell, D., and Suhr, B. 2/14/2013.
92. The OrganicA Project: Assessing the Feasibility of Organic Apple Production in the Northeast. UVM Student Scholars Poster Competition, Finalist. 10/03/2012.
93. Apples and Cider in Vermont: History and Production. Calais-East Montpelier Historical Society. 9/18/2012.
94. Turn Your Lawn into Eden, Pest Management Considerations in Home Fruit Plantings. NOFA-VT Summer Workshop, Elmore, VT. 8/12/2012.
95. Vines and Wines: An Introduction to Grape Growing in Vermont. Friends of the UVM Horticulture Farm Workshop. 4/04/2012.
96. IPM Challenges and Opportunities in Two Organic Apple Orchard Systems containing Ginger Gold, Honeycrisp, Liberty, Macoun, and Zestar!. 2012 Vermont Tree Fruit Growers Association Annual Meeting. 2/16/2012.
97. Challenges and Opportunities in Two Organic Apple Orchard Systems containing Ginger Gold, Honeycrisp, Liberty, Macoun, and Zestar!. CETAB+ Conference: Organic apple Production in the Northeastern United States and in Quebec: Challenges and Opportunities. Victoriaville, QC (Canada). 2/09/2012.
98. The OrganicA Project Webinar. eXtension Webinar Series. <https://learn.extension.org/events/412>. Presenters: Berkett, L.P. and T.L. Bradshaw. 1/24/2012.
99. IPM Challenges and Opportunities in Two Organic Apple Orchard Systems containing Ginger Gold, Honeycrisp, Liberty, Macoun, and Zestar!. 2011 New England Vegetable & Fruit Conference. Manchester, NH. 12/15/2011.
100. Discussion on Economics, Soil Health, and Viewpoints of Organic Apple Growers. Panelists: Berkett, L.P., Garcia, M.E., Bradshaw, T.L., and Moran, R. . 2011 New England Vegetable & Fruit Conference. Manchester, NH. 12/15/2011.
101. Organic Orchard Tour for Centre of Expertise and Technology Transfer in Organic Agriculture and Local Food Systems (Victoriaville, PQ). South Burlington, VT. Presenters: Bradshaw, T.L, Berkett L.P., Moran, R., Cromwell, M.L., and Kingsley-Richards, S.L. 7/21/2011.
102. Current Research in Organic Apples and Winegrapes at UVM. Presenters: Bradshaw, T.L, Berkett L.P., Cromwell, M.L., and Kingsley-Richards, S.L. UVM Food Systems Symposium. 11/1/2010.
103. UVM Vineyard Open House. Presenters: Bradshaw, T.L, Berkett, L.P., Cromwell, M.L., and Kingsley-Richards, S.L. Presentations to 115 prospective and veteran grape growers. 8/20/2010.
104. Organic Apple Production - Lessons Learned To Date In The OrganicA Project. 114th Annual Vermont Tree Fruit Grower's Annual Meeting. 2/18/2010.
105. The OrganicA Project: Organic Apple Production. Northeast Organic Farming Association of Vermont (NOFA-VT) grower workshop. Presentation of horticulture section and overview of current research on field assessment of kelp-based cytokinin compounds in and integrated organic orchard. 8/13/2009.
106. How to Plant and Maintain a Small Organic Home Orchard. Friends of the UVM Horticulture Farm Workshop. 7/11/2009

107. Cider and Vinegar Making on a Moderate Scale. NOFA-VT Annual Winter Conference. 2/16/2008.
108. OrganicA: The Organic Apple Research, Teaching, and Demonstration Project. NOFA-VT Annual Winter Conference. 2/16/2008.
109. The OrganicA Project: Organic Apple Production. Northeast Organic Farming Association of Vermont (NOFA-VT) grower workshop. Presentation of horticulture section. 8/17/2007.
110. Topgrafting Apple Trees: Our Experience. 111th Annual Vermont Tree Fruit Grower's Annual Meeting. 2/08/2007.
111. Successful Vineyard Spraying: Equipment Use and Safety. UVM Grape Program Vineyard Tour, Champlain Valley Vineyard, Benson, VT. 9/8/2006.
112. Pruning Large Apple Trees. Friends of the UVM Horticulture Farm Workshop. 3/16/06.
113. Cider Making Time. Friends of the UVM Horticulture Farm Workshop. Presenters: Bradshaw, T.L. and N. Meyers. 10/22/2005.
114. Non-Target Impacts of Surround®: Horticulture. Vermont Tree Fruit Growers Association 109th Annual Meeting. 2/17/2005.
115. Cider Hard and Sweet. Friends of the Morrill Homestead 19th Century Apple Harvest. 10/10/04.
116. Planting and Maintaining Your Home Orchard. Friends of the UVM Horticulture Farm Workshop. Presenters: Bradshaw, T.L. and N. Meyers. 3/6/2004.
117. Apple Industry and Apple Team Research Update. Vermont Tree Fruit Growers Association 108th Annual Meeting. 2/9/2004.
118. Does Surround® Have Non-target Impacts on New England Orchards? January 2003 New England Fruit Meetings. Presenters: Garcia, M. E., Berkett, L.P., and T. Bradshaw. 1/8/2003.
119. Grafting Fruit Trees at the Justin Smith Morrill Homestead. 5/03/2003.
120. The Electronic New England Apple Pest Management Guide and Survey. Vermont Tree Fruit Growers' 106th Annual Meeting. 2/21/2002.
121. Surround®: First Year Results of the Impact of a Novel Pest Management Technology on Apple Fruit Quality. Vermont Tree Fruit Growers' 106th Annual Meeting. 2/21/2002.
122. Orchard Replanting at the Justin Smith Morrill Homestead. 5/13/2001.
123. Pruning and Topworking Apple Trees. UVM Horticulture Research Center. 4/04/2001.
124. Quality Assessment for Growers and Packers. Vermont Tree Fruit Growers Fruit Quality Workshop. 1/20/2000.

Media Appearances

1. UVM Horticulture Farm and Integrated Pest Management. WGDR Radio. 2/21/2025.
2. [UVM Professor Terry Bradshaw Discusses the Challenges of the 2023 Vermont Apple](#). Across the Fence Television Segment, WCAX TV, Burlington, VT. 9/13/2023.
3. Season Check-In. Vermont Viewpoint radio program, WDEV-FM. 10/11/2021
4. [How to Make Apple Cider at Home](#). Across the Fence Television Segment, WCAX TV, Burlington, VT. 10/08/2021.
5. The 2021 Vermont Apple Season. Across the Fence Television Segment, WCAX TV, Burlington, VT. 9/20/21.
6. Ciderology Vermont Hard Pressed. Vermont Public Television feature film. 9/9/2021.
7. The 2020 Vermont Apple Season. Across the Fence Television Segment, WCAX TV, Burlington, VT. 9/21/20.
8. COVID Farm Market Safety. Across the Fence Television Segment, WCAX TV, Burlington, VT. 9/09/20.
9. Seeds to Society segment. Dave Gram Show, WDEV Radio. 9/8/20.
<https://wdevradio.com/congressman-peter-welch-2020-apple-crop-and-edward-snowden/>

10. As apple harvest begins in Vermont, farmers say COVID is not the problem. VT Digger. 8/30/2020
11. The Robert L. Parsons Fund for Production Agriculture. Across the Fence Television Segment, WCAX TV, Burlington, VT. 11/14/2019.
12. New England Cider Apple Project. Across the Fence Television Segment, WCAX TV, Burlington, VT. 10/16/2019.
13. Seeds to Society segment. Dave Gram Show, WDEV Radio. 9/19/2019. <https://wdevradio.com/state-college-woes-first-responder-crisis-apple-crops/>
14. UVM Horticulture Farm and Integrated Pest Management. WGDR Radio. 5/5/2019.
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25. Apple and grape research and agricultural biotechnology. WGDR Radio. 4/10/2016, 5/8/2016.
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<http://www.wcax.com/story/30166954/vt-top-apple-expert-visits-the-30>
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<http://www.sevendaysvt.com/vermont/uvm-apple-sales-siv414/Content?oid=2919127>
31. Vermonters sow seeds for the 'Napa Valley of hard cider'. Seven Days Newspaper. 11/5/2014.
<http://www.sevendaysvt.com/vermont/vermonters-sow-seeds-for-the-napa-valley-of-hard-cider/Content?oid=2468294>
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<http://www.wcax.com/story/29867184/growers-report-bountiful-apple-season-on-the-way>

33. Hard cider production on the rise, but challenges remain. UVM Food Feed Blog. 5/21/2015.
<https://learn.uvm.edu/blog-sustainability/hard-cider-production-and-cider-apple-yield>
34. UVM research: supporting Vermont apple growers and cider producers. Across the Fence Television Segment, WCAX TV, Burlington, VT. 4/24/2015. <https://youtu.be/B4xp7zhf4ss>
35. UVM apple specialist Terry Bradshaw demonstrates apple tree pruning. Across the Fence Television Segment, WCAX TV, Burlington, VT. 3/30/2015.
36. Cider makers think Vermont could be their Napa Valley. National Public Radio interview. 2/02/2015.
<http://www.marketplace.org/2015/02/02/sustainability/cider-makers-think-vermont-could-be-their-napa-valley>
37. Piecing together the organic puzzle. Growing Produce feature article.
<http://www.growingproduce.com/fruits/piecing-together-the-organic-puzzle/>. 2/6/2014
38. Apple season: UVM research supports growers and consumers. Across the Fence Television Segment, WCAX TV, Burlington, VT. 10/04/2013. <https://youtu.be/N5MfBBwzZFg>
39. Vermont Edition: Vermont Public Radio interview. 9/26/2013. <http://digital.vpr.net/post/apples-apples>
40. UVM farm developing organic apple production. WCAX TV News. 9/12/2013.
<http://www.wcax.com/story/23382195/uvm-farm-developing-organic-apple-production>
41. High-tech tool helping apple growers. WCAX TV News. 7/30/2013.
<http://www.wcax.com/story/22971639/high-tech-tool-helping-apple-growers>
42. Vermont Edition: The 2011 Apple Crop. Vermont Public Radio interview. 9/22/2011.
http://www.vpr.net/news_detail/92050/post-irene-apple-crop-update/
43. Update on Organic Apple Research at the UVM Hort Farm. Across the Fence Television Segment, WCAX TV, Burlington, VT. 8/02/2011.
44. Vermont Edition: Vermont Public Radio interview. 9/08/2010,
http://www.vpr.net/news_detail/88771/2010-apple-crop-ripening-early/
45. The proper pruning of your fruit trees. Across the Fence Television Segment, WCAX TV, Burlington, VT. 4/2/2010.
46. Organic apple research at the UVM Hort Farm. Across the Fence Television Segment, WCAX TV, Burlington, VT. 10/21/2009.

Service

Peer Reviewer

Editorial

Consulting editor, HortTechnology. American Society for Horticultural Science.
Sep 2022-Dec 2027.

Expert system reviewer

Cornell Network for Environment & Weather Applications (NEWA) 2.0 redesign reviewer. June 2019.

Grant proposal reviewer

USDA Value Added Producers Grants Program, 2014-2017.
USDA Capacity Building Grants for Non-Land Grant Colleges of Agriculture Program, 2018, 2023.

Article reviewer

Peer reviewer for Acta Horticulturae; Agriculture; Agronomy; Applied Economics; Applied Sciences; Archives of Phytopathology and Plant Protection; Canadian Journal of Plant Science;

Environmental Research: Food Systems; eOrganic Horticulture; Food Science & Nutrition; Horticulturae; HortScience; HortTechnology; Insects; Journal of American Pomological Society; Journal of the American Society for Horticultural Science; Journal of Horticultural Science & Biotechnology; Plant Disease; Plants, People, Planet; Sustainability; Toxins.

International development:

1. Orchard Management Improvement. ACDI/VOCA USAID Assignment. Khatlon Province, Tajikistan. February – March 2021.
2. Apple Processing for Cider Production. Land O' Lakes International Development / USAID Assignment. Beirut, Douma, & Akourra, Lebanon. May – June 2018.

Expert policy testimony:

1. Invited representative for Specialty Crops Industries for meeting with U.S. Representative Peter Welch on developing 2018 Farm Bill. 10/30/2017.
2. Vermont House and Senate Committees on Agriculture and Forest Products:
 - a. 2024: H.706 An act relating to banning the use of neonicotinoid pesticides
H.813 An act relating to establishing the Tree Fruit Farmer Assistance Program
 - b. 2021: Report to VT House and Senate Agriculture Committees on Vermont Agriculture & Food System Plan 2021-2030.
 - c. 2018: H.688, An act relating to pollinator protection.
 - d. 2016: H.236, An act relating to the use of neonicotinoid pesticides.
H.539, S.200 An act relating to establishment of a Pollinator Protection Committee.
 - e. 2014: H.869, An act relating to miscellaneous agricultural subjects.

Policy

1. Vermont Agricultural Innovations Board member, appointed by VT Secretary of Agriculture. 2022-2023.
2. VT Agriculture Hall of Fame Advisory Panel. Champlain Valley Exposition. 2021-
3. Sodexo Vermont First Advisory Board member. 2022-2024.
4. Chair, Vermont Pollinator Protection Committee authorized under Act 83. Appointed by VT House Speaker. 2016-2017.

Academic Discipline

1. International Society for Horticultural Science. Chair, Beverage Crops Working Group. 2023-
2. International Society for Horticultural Science. Program co-chair, proceedings reviewer. 1st International Symposium on Beverage Crops. Cairns, AU. 2016.

University

1. Dean of Libraries Five-year review committee. 2024.
2. University Financial and Physical Planning Committee. 2020-2023.
3. UVM Extension Director Search Committee. 2020-2021.
4. UVM Catamount Commitment Program, student mentor. 2017-2019.

College

1. Plant and Soil Science Lecturer Search Committee. 2024.
2. Food Systems B.S. Academic Program Review Coordinator. 2023-2024
3. CDAE Department Chair Search Committee, Chair. 2023-2024.
4. UVM Extension Agricultural Economist Search Committee. 2024.

5. CALS Chairs and Deans Performance Metrics Subcommittee. 2023.
6. Vermont Agriculture Experiment Station Hatch Committee. 2023.
7. Plant and Soil Science Lecturer Search Committee. 2022.
8. UVM HREC Operations Coordinator Search Committee, Chair. 2022.
9. UVM Catamount Educational Farm Coordinator Search Committee, Chair. 2022.
10. UVM Miller Farm Manager Search Committee. 2022-2023.
11. UVM CALS Facility Coordinator Search Committee. 2019.
12. Horticulture ReSearch & Education Center Advisory Committee, Chair. 2005-
13. Food Systems Major Advisory Committee. 2016-
14. UVM Real Food Working Group member. 2016-2017.
15. CALS Alumni Award Selection Committee. 2017.

Department

1. PSS Academic Program Review Coordinator. 2023-2024
2. PSS Undergraduate Affairs Committee. 2014-, Chair, 2016-2023.
3. PSS Seminar Committee, 2016-2018.

Et cetera

Awards received

1. UVM CALS Excellence in Teamwork Award, awarded to UVM Extension IPM Program. 2025.
2. North American Colleges and Teachers of Agriculture (NACTA) Educator Award. 2022.
3. U.S. Association of Cider Makers Significant Contribution to the Industry Award, Nominee. 2017.
4. Vermont Agricultural Experiment Station and UVM Extension Legislative Event Highlighted Researcher. 2015, 2017.
5. UVM College of Agriculture and Life Sciences New Alumni Achiever Award. 2016.
6. American Society for Horticultural Science Northeast Division Graduate Student Poster Competition. First Place. 2013.
7. C. Lyman Callahan Horticultural Award, UVM Dept. of Plant & Soil Science. 1997.
8. W.H. Darrow Horticultural Award, UVM Dept. of Plant & Soil Science. 1996.

Professional Social Media

https://www.researchgate.net/profile/Terence_Bradshaw
<http://blog.uvm.edu/tbradsha/>
<https://www.linkedin.com/in/terencebradshaw/>
<https://www.facebook.com/UVM.Fruit/>

Professional Associations

Ex-officio board of directors

Vermont Tree Fruit Growers Association
 Vermont Grape & Wine Council
 Friends of the UVM Hort Farm

President, Vermont Tree Fruit Growers Association 2009-2014.

Lead local organizer

VitiNord 2022 planning committee 2019-2023.

Member VT Specialty Crops Block Grants Program Advisory Board

American Society for Horticultural Science
International Society for Horticultural Science
North American Colleges and Teachers of Agriculture
American Phytopathological Society
Entomological Society of America

Licensure and Training

Produce Safety Alliance Grower Training Certificate. Required for FSMA compliance for produce farms. Class VT-220308-GRRD. March, 2022.

U.S. Association of Cider Makers Certification Program Level 1. February 2017.

Food Safety for the Cider Industry, Michigan State University. September 2009.

Cider Making – Principles and Practice. Mitchell F&D, Peter Mitchell Inst. August 2009, July 2010.

Microinjection Technology Application for the Tree Industry. Mauget, Inc. March 2008.

HACCP for the Juice Industry, University of Connecticut, July 2004.

Vermont State Pesticide Applicator's License, 1995 to present.

Commercial categories include 1A) plant and 10) research and demonstration.

Private categories include 2) tree fruit and 3) vegetables and small fruit.

Previous Relevant Experience and Responsibilities

Proprietor, Lost Meadow Orchard and Cider Mill. Calais, VT.

Fall 2006 to 2014, and presently as I have time and see fit. Owner-operator of a seasonal, home-based commercial retail orchard and cider mill specializing in fresh, unpasteurized apple juice and specific juice blends from apple varieties suited to and grown for fermenting into hard cider.

Proprietor, Pomona Tree Fruit Service. Chelsea, VT.

January 1998 to March 2000. Operation of a complete fruit tree care business. Pruning, fertility management, custom grafting and planting, consultation and site analysis services were offered.

Manager, Golden Apple Orchard. Charlotte, VT.

January 1998 to November 1999. Sole employee responsible for production, harvest, and sale of commercial apple crop at a pick-your-own and small wholesale operation. Duties included pruning, planting, and training of trees, fertility management, monitoring of orchard pests, groundcover management, and harvest, packing, storing, marketing, and delivery of crop. Pest management role involved pesticide selection, application, recordkeeping, and regulatory compliance. Work involved operation and maintenance of agricultural equipment including tractors, sprayers, and mowers. Continuing education in industry practices expected and maintained.

Field Supervisor, Tougas Family Farm, Northboro, MA.

April 1997 to December 1997. Carried out day-to-day production operations of a pick-your-own and retail farm specializing in apples, peaches, and small fruits. Involved in all aspects including field and orchard work as well as customer assistance and employee supervision. Work involved operation of agricultural equipment including backhoe, tractors, sprayers, and mowers. Continuing education in industry practices was expected and maintained.

Research and Outreach Assistant, University of Vermont Apple Team.

May 1995 to April 1997. Duties included maintenance of university orchards, upkeep of pest and weather monitoring programs, and experimental data collection.

Butternut Acres Farm, Chelsea, VT.

1977-1992. Raised on small family-owned, multi-generational hill farm, the kind that one family could run with two kids and a hired hand before the drive for efficiency left farms like that behind. Forty-five Holsteins in a tie stall barn, with square bales and shit shoveled daily by hand, in the old barn at least. There wasn't a better way to grow up and the skills and values learned there inform everything I do today.