

**Christopher Charles Gottschalk**

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**Education**

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| 2015 – 2020 | Michigan State University, East Lansing, MI 48824<br>Plant Breeding, Genetics and Biotechnology – Horticulture<br>Ph.D. Candidate; estimated completion October 2020 |
| 2008 – 2013 | Michigan State University, East Lansing, MI 48824<br>Bachelor of Science – Plant Biology   |

**Funded Proposals – Total \$128,057**

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| 2019        | “Phenomic Applications in Plant Breeding” - 2019 MSU Plant Breeding, Genetics and Biotechnology/NRT/Corteva Symposium<br>Corteva - <b>Co-Organizers: Chris Gottschalk</b> and Natalie Kaiser - \$6,000   |
| 2018 - 2020 | “Identification of Superior Apple Cultivars for Novel Applications in Michigan”.<br>Michigan State Horticulture Society and the Michigan Department of Agriculture and Rural Development, <b>Co-PI: Steve van Nocker and Chris Gottschalk</b> - \$82,813 |
| 2018 - 2019 | “Optimization of Gibberellin- and Cytokinin-Based Programs for Control of Flowering and Crop Load in 'Honeycrisp'”. Michigan Apple Committee, PI: Steve van Nocker - \$29,444  |
| 2016 - 2017 | “Great Lakes Cider Apple Collection and MSU Cider Apple Trait Database”.<br>Michigan State Horticulture Society, PI: Steve van Nocker - \$9,800  |

**Submitted Proposals**

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| 2019 | “Functional characterization of Apple’s ( <i>Malus x domestica</i> ) flowering genes and identification of genomic regions contributing to biennial bearing”.<br>USDA AFRI NIFA Fellowships Grant Program: Predoctoral Fellowships Development<br>PI: <b>Chris Gottschalk</b> - \$106,405 |
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**Academic Awards – Total \$42,975**

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| 2020        | John L. Arend Excellence in Graduate Student Research Scholarship - \$2000             |
| 2019        | Jason and Dana Lilly PBGB Fund for Graduate Student Enhancement- \$1250                |
| 2019        | Horticulture Organization of Graduate Students Travel Award - \$300                    |
| 2017        | John M. Bukovac Outstanding Graduate Student Award - \$2000                            |
| 2017        | Jordan B. Tatter Scholarship - \$2500  |
| 2017        | John L. Arend Excellence in Graduate Student Research Scholarship - \$1500             |
| 2016 – 2017 | Plant Science Fellowship \$30,000  |
| 2017        | College of Graduate Students Professional Development Award - \$500                    |
| 2017        | Horticulture Organization of Graduate Students Travel Award - \$150                    |
| 2017        | Plant Science Graduate Students Research Symposium Poster Award – Basic Science - \$75 |
| 2016        | 1 <sup>st</sup> International Apple Symposium – ISHS Science Poster Award - \$200      |
| 2016        | Michigan State Horticulture Society Fruit & Vegetable Industry Scholarship - \$1500    |
| 2016        | Horticulture Graduate Office Fellowship - \$1000                                       |

**Teaching Experience**

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| 2019        | HRT430: Vines to Wines - One Section<br>Teaching Assistant; Managed attendance, grades, lab materials, and guest lectured                         |
| 2017 – 2019 | HRT891/860: Scientific Writing - Nine Sections<br>Teaching Assistant; Guest lecturer, conducted reviews and editing, and led classroom discussion |
| 2017        | PLB802: Pathways to Scientific Teaching in Biology - Completed  |

	Course on developing skills to conduct an active learning classroom for undergraduate STEM courses. Resulted in a publication <i>see Abeli et al. below</i> .
2016	HRT332: Tree Fruit Production and Management - One Section Volunteer Teaching Assistant; Assisted in laboratory portion and guest lectured

### Undergraduate Mentorship

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2019	Sarah Kerr
2018 – 2019	Cassie Castillo
2018 – 2019	Lauren Larson

### Professional Service/Products

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2019	Reviewer for Nature Horticulture Research
2019	Co-Organizer for the MSU Plant Breeding, Genetics and Biotechnology/NRT/Corteva Symposium
2018	Reviewer for J. Amer. Soc. Hort. Sci.
2018	Graduate Student Representative for Fall 2018 HRT/PRI Faculty Search Committee
2018 – present	Co-Graduate Student Representative to the PGBG Graduate Program Committee
2018 – 2019	Graduate Student Judge at the University Undergraduate Research and Arts Forum
2016 – 2018	Graduate Student Representative to Horticulture Graduate Program Committee
2017 – Present	Administrator for <a href="http://www.ciderapples.msu.edu">www.ciderapples.msu.edu</a>
2016 – Present	Volunteer Graduate Coordinator for the Plant Science Fellowship Recruitment
2016	Co-Evaluation Chair for the Plant Science Graduate Student Research Symposium
2016	Graduate Student Host for the Plant Breeding, Genetics and Biotechnology Symposium
2015 – Present	Member of the Horticulture Organization of Graduate Students
2015 – 2016	Co-Fundraising Chair for Horticulture Organization of Graduate Students

### Professional Awards

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2018	Silver Medal Great Lakes International Cider and Perry Competition
2018	Bronze Medal Great Lakes International Cider and Perry Competition
2017	Silver Medal Great Lakes International Cider and Perry Competition
2017	Bronze Medal Great Lakes International Cider and Perry Competition
2017	Michigan State University Student Art Competition - \$500
2016	Gold Medal Great Lakes International Cider and Perry Competition
2014	Bronze Medal Great Lakes International Cider and Perry Competition

### Press

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2019	Kloosterman, Stephen. "Testing cider cultivars." Fruit Grower News, Sparta, MI. October, 2019.
2017	Mertz, Leslie. "New research aims to learn more about hard cider apples." Good Fruit Grower 68(3): 38-40.
2017	Mertz, Leslie. "Rosé Cider." Good Fruit Grower 68(3): 41-43.

### Presentations - Talks

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2020	<b>Gottschalk, Chris.</b> Red-Juice apple cultivars for hard cider production. Empire State Producers Expo, Syracuse, NY – Invited
2020	<b>Gottschalk, Chris.</b> Cider Varieties and Red Flesh Breeding Program. GLEXPO, Grand Rapids, MI. – Invited
2019	<b>Gottschalk, Chris.</b> Great Lakes Cider Apple Collection. Clarksville Research Center Field Day, Clarksville, MI.
2019	<b>Gottschalk, Chris.</b> Characterization of early floral development in extremely early- and late-blooming <i>Malus</i> species and cultivars. 6 <sup>th</sup> Annual Horticulture Research Conference, Venice, IT.
2019	<b>Gottschalk, Chris.</b> Hard Cider. HRT430 - Vines to Wines, East Lansing, MI.
2019	<b>Gottschalk, Chris.</b> Red-juice apples and their use in rosé ciders. CiderCon, Chicago, IL.
2018	<b>Gottschalk, Chris.</b> Optimization of gibberellin and cytokinin-based programs for control of alternate bearing in 'Honeycrisp'. Michigan Apple Commission, GLEXPO, Grand Rapids, MI.

- 2017 **Gottschalk, Chris.** A molecular framework for the repressive effect of fruit on floral initiation in apple. 4th International Horticulture Research Conference, East Malling, UK.
- 2017 **Gottschalk, Chris.** Great Lakes Cider Apple Collection. CiderCon, Chicago, IL.
- 2016 **Gottschalk, Chris.** Hard Cider. MSU Undergraduate Enology Club, East Lansing, MI.
- 2016 **Gottschalk, Chris** and Steve van Nocker. Great Lakes Cider Apple Collection. Michigan Tree Fruit Commission Winter Meeting, Trevor Nichols Research Center, Fennville, MI.
- 2016 **Gottschalk, Chris.** Construction of the Great Lakes Cider Apple Collection. Fruit Workers Meeting, Collingwood, ON, CA.
- 2016 **Gottschalk, Chris.** A molecular framework for the repressive effect of fruit on floral initiation in apple. 1st International Apple Symposium ISHS, Yanglin, Shaanxi, China.
- 2016 **Gottschalk, Chris.** Research being conducted by the van Nocker Lab at the Clarksville Research Center. Clarksville Research Center Field Day, Clarksville, MI.
- 2015 **Gottschalk, Chris.** Breeding of red-fleshed apples for the Michigan apple industry. HRT332 - Tree fruit production and management, East Lansing, MI.

### **Presentations - Poster**

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- 2019 **Gottschalk, Chris,** Phil Schwallier, and Steve van Nocker. Identification of superior apple cultivars for hard cider production in Michigan. Corteva-PBGB-NRT IMPACTS symposium, East Lansing, MI.
- 2019 Steve van Nocker, **Gottschalk, Chris,** John Bukovac, and Phil Schwallier. Optimization of gibberellin-based programs for control of flowering and crop load in 'Honeycrisp'. GLEXPO, Grand Rapids, MI.
- 2019 **Gottschalk, Chris,** Phil Schwallier, and Steve van Nocker. Identification of superior apple cultivars for hard cider production in Michigan. GLEXPO, Grand Rapids, MI.
- 2019 **Chris Gottschalk,** Charity Goeckeritz, Courtney Hollender, and Steve van Nocker. Characterization of early floral development in extremely early- and late-blooming *Malus* species and cultivars. 6<sup>th</sup> Annual Horticulture Research Conference, Venice, IT.
- 2019 **Gottschalk, Chris,** Phil Schwallier, and Steve van Nocker. Identification of superior apple cultivars for cider production in Michigan. CiderCon, Chicago, IL.
- 2019 van Nocker, Steve and **Chris Gottschalk.** Michigan PureRed - red-juiced apple cultivars for hard cider production. CiderCon, Chicago, IL.
- 2018 **Gottschalk, Chris,** Phil Schwallier, John Bukovac, and Steve van Nocker. Control of crop load and alternate bearing in 'Honeycrisp' apple through regulation of flowering. GLEXPO, Grand Rapids, MI.
- 2018 **Gottschalk, Chris,** Phil Schwallier, and Steve van Nocker. Identification of superior apple cultivars for cider production in Michigan. GLEXPO, Grand Rapids, MI.
- 2018 **Gottschalk, Chris,** Phil Schwallier, John Bukovac, and Steve van Nocker. Optimization of gibberellin and cytokinin-based programs for control of alternate bearing in 'Honeycrisp'. GLEXPO, Grand Rapids, MI.
- 2018 van Nocker, Steve and **Chris Gottschalk.** Michigan PureRed - red-juiced apple cultivars for hard cider production. GLEXPO, Grand Rapids, MI.
- 2018 **Gottschalk, Chris,** and Steve van Nocker. Great Lakes Cider Apple Collection. Plant Science Graduate Student Research Symposium, East Lansing, MI.
- 2017 **Gottschalk, Chris** and Steve van Nocker. Control of alternate bearing in apple by manipulating floral initiation. GLEXPO, Grand Rapids, MI.
- 2017 **Gottschalk, Chris,** Nikki Rothwell, Phil Schwallier, Amy Irish-Brown, and Steve van Nocker. Great Lakes Cider Apple Collection. GLEXPO, Grand Rapids, MI.
- 2017 **Gottschalk, Chris,** Nikki Rothwell, Phil Schwallier, Amy Irish-Brown, and Steve van Nocker. Great Lakes Cider Apple Collection. 4th International Horticulture Research Conference, East Malling, UK.
- 2017 **Gottschalk, Chris** and Steve van Nocker. A molecular framework for the repressive effect of fruit on floral initiation in apple. Plant Science Graduate Student Research Symposium, East Lansing, MI.
- 2017 **Gottschalk, Chris,** Nikki Rothwell, Phil Schwallier, Amy Irish-Brown, and Steve van Nocker. Great Lakes Cider Apple Collection. CiderCon, Chicago, IL.

- 2016 **Gottschalk, Chris** and Steve van Nocker. A molecular framework for the repressive effect of fruit on floral initiation in apple. PBGB Symposium, East Lansing, MI.
- 2016 **Gottschalk, Chris**, Nikki Rothwell, Phil Schwallier, Amy Irish-Brown, and Steve van Nocker. Great Lakes Cider Apple Collection. GLEXPO, Grand Rapids, MI.
- 2016 **Gottschalk, Chris** and Steve van Nocker. Control of alternate bearing in apple by manipulating floral initiation. GLEXPO, Grand Rapids, MI.
- 2016 **Gottschalk, Chris**, Nikki Rothwell, Phil Schwallier, Amy Irish-Brown, and Steve van Nocker. Great Lakes Cider Apple Collection. Fruit Workers Meeting, Collingwood, ON, Canada.
- 2016 **Gottschalk, Chris** and Steve van Nocker. A molecular framework for the repressive effect of fruit on floral initiation in apple. 1st International Apple Symposium ISHS, Yangling, Shaanxi, China.
- 2016 **Gottschalk, Chris** and Steve van Nocker. Transcriptional Landscape of the apple shoot apex. American Society of Horticulture Science Conference, Atlanta, GA.
- 2016 **Gottschalk, Chris** and Steve van Nocker. A molecular framework for the repressive effect of fruit on floral initiation in apple. Plant Science Graduate Student Research Symposium, East Lansing, MI.

### Publications (\* - equal contributions)

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- Gottschalk, Chris**, Yinpeng Xie, Miguel Flores, Nicholas Provart, Sean Rogers, Qingmei Guan, and Steve van Nocker. Gene expression atlas of development in a wild apple species. (*in prep*)
- Gottschalk, Chris**, Songwen Zhang, Phil Schwallier, M. John Bukovac and Steve van Nocker. Efficacy of plant growth regulator application in controlling floral initiation and fruit quality in 'Honeycrisp'. (*in prep*)
- Gottschalk, Chris**, Songwen Zhang, Phil Schwallier, Sean Rogers, M. John Bukovac and Steve van Nocker. Genetic mechanisms associated with the repressive effect of fruit on floral initiation in apple (*Malus x domestica* Borkh). (*in prep*)
- Gottschalk, Chris**, Charity Goeckeritz, Courtney Hollender, and Steve van Nocker. Morphological and molecular bases of diversity in spring bloom time in apple (*Malus*). (*in prep*)
- Abeli, Patrick\*, Shelby Dechow\*, **Chris Gottschalk\***, John Williams\*. Peppered Moths and the Mutation Mechanisms of Transposons. In: Pathways to Scientific Teaching (2<sup>nd</sup> Edition) (Eds) Diane Ebert-May and Emily Holt. Macmillan Publishing, London, UK. (*Accepted - in review*)
- 2020 Miles, Carol, Travis Alexander, Suzette Galinato, Nikki Rothwell, Greg Peck, **Chris Gottschalk**, and Steve van Nocker. Growing apples for hard cider production in the U.S. - Trends and research opportunities. HortTechnology (*Accepted - in press*)
- 2019 Peace, Cameron, Luca Bianco, Michela Troggio, Eric van de Weg, Nicholas Howard, Amandine Cornille, Charles Eric Durel, Sean Myles, Zoë Migicovsky, Robert Schaffer, Evelyn Costes, Gennaro Fazio, Hisayo Yamane, Steve van Nocker, **Chris Gottschalk**, Fabrizio Costa, David Chagné, Xingzhong Zhang, Andrea Patocchi, Susan Gardiner, Craig Hardner, Satish Kumar, Francois Laurens, Etienne Bucher, Dorrie Main, Sook Jung, and Stijn Vanderzande. Apple whole genome sequences: recent advances and new prospects. Horticulture Research 6:59.
- 2019 Zhang, Songwen, **Chris Gottschalk**, and Steve van Nocker. Genetic mechanisms in the repression of flowering by gibberellins in apple (*Malus x domestica* Borkh.). BMC Genomics 20:747.
- 2018 van Nocker, Steve and **Chris Gottschalk**. Red-juiced apples cultivars for Great Lakes production Fruit Quarterly - New York State Horticultural Society. Winter 2018.
- 2017 **Gottschalk, Chris**, Nikki Rothwell, and Steve van Nocker. Apple varieties for production of hard cider in Michigan. Michigan State University Extension. Bulletin E3364.
- 2013 **Gottschalk, Chris** and Steve van Nocker. Diversity in Seasonal Bloom Time and Floral Development among Apple Species and Hybrids. J. Amer. Soc. Hort. Sci. September 2013 138:367-374.

## Referees

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Steve van Nocker

Professor

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Relationship: Ph.D. supervisor

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Paolo Sabbatini

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Relationship: TA Supervisor