# JEFFREY B. ENDELMAN

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## APPOINTMENTS

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| 2023– | Associate Professor, University of Wisconsin-Madison<br>Plant & Agroecosystem Sciences Department<br>Plant Breeding & Plant Genetics Graduate Program |
| 2019–2023 | Associate Professor, Dept. Horticulture, UW-Madison |
| 2013–2019 | Assistant Professor, Dept. Horticulture, UW-Madison |
| 2011–2013 | Postdoctoral Researcher, Cornell University & USDA-ARS, Ithaca, NY |

## EDUCATION

PhD Crop Science, 2011. Washington State University, Pullman, WA.
MS Plant Science, 2009. Utah State University, Logan, UT.
PhD Bioengineering, 2005. California Institute of Technology, Pasadena, CA.
MA Physics, 2002. University of California, Santa Barbara, CA.
BS Chemical Engineering & Applied Math, 2000. Northwestern University, Evanston, IL.

## AWARDS

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| 2019 | Vilas Faculty Early Career Investigator Award, UW-Madison |
| 2018 | Early Career Scientist Award, National Association of Plant Breeders |
| 2017 | Excellence in Research Award, UW-Madison Agricultural Research Stations |
| 2017 | Researcher of the Year, Wisconsin Potato and Vegetable Growers Association |

## TEACHING

- Genetically Modified Crops: Science, Regulation & Controversy (HORT/AGRON 360)
- Genetic Mapping (HORT/AGRON/AN SCI/GENETICS 615)
- Selection Theory for Quantitative Traits in Plants (AGRON/HORT 812)

Served on 33 graduate student committees, including 6 MS and 3 PhD as major advisor

## ACHIEVEMENTS

- Director of the UW-Madison potato breeding program since 2014, including multiple varieties with commercial adoption (e.g., Red Prairie, Plover Russet, Portage Russet)
- Developer of multiple software packages for genomics-assisted breeding (rrBLUP, GWASpoly, LPmerge, ClusterCall, diaQTL, polyBreedR, StageWise)
- Leadership team (PD/co-PD) for multiple national projects funded by USDA NIFA
  - *Creating a New Paradigm for Potato Breeding*, 2019–2023, $6.0M
  - *Tools for Genomics-Assisted Breeding in Polyploids*, 2020–2024, $4.3M

- Associate Editor for *Genetics* (2019–), *Theoretical & Applied Genetics* (2016–), *Plant Genome* (2019–) and formerly *Crop Science* (2016–2018)

## **INVITED RESEARCH TALKS** (last 4 years)

University of Florida Plant Science Symposium, January 30, 2023. *Genomics-assisted breeding of potato.*

Plant and Animal Genome XXX, San Diego, CA, Jan. 17, 2023. *Allelic diversity for maturity and skin color in dihaploids of potato.*

Cornell Corteva Symposium in Plant Sciences, April 22, 2022. *Haplotype reconstruction and QTL mapping in tetraploid diallel populations.*

New Zealand MapNet Conference, March 15, 2022. *Haplotype reconstruction and QTL mapping in tetraploid diallel populations.*

Plant and Animal Genome XXIX, Jan. 11, 2022. *Haplotype reconstruction and QTL mapping in tetraploid diallel populations.*

Plant and Animal Genome XXIX, Jan. 8, 2022. *Fully efficient, two-stage analysis for genomic selection and GWAS.*

International Potato e-Conference. ICAR-Central Potato Research Institute, Shimla, India. November 23, 2021. *Genomic selection in potato.*

Corteva Plant Sciences Symposia Series (Virtual). April 24, 2020. *Genomic selection in potato.*

Plant and Animal Genome XXVIII, San Diego, CA. Jan. 13, 2020. *Joint QTL analysis of a tetraploid potato diallel population.*

Dept. Crop Sciences, University of Illinois, Urbana, IL. Nov. 20, 2019. *Genomics-assisted breeding of autotetraploid potato.*

James Hutton Institute, Dundee, UK. Nov. 12, 2019. *Genomics-assisted breeding of autotetraploid potato.*

Roslin Institute, University of Edinburgh, UK. Nov. 11, 2019. *Genomics-assisted breeding of autotetraploid potato.*

Dept. Plant Sciences, Montana State University, Bozeman, MT. Oct. 22, 2019. *Genomics-assisted breeding of autotetraploid potato.*

National Association of Plant Breeders Annual Meeting, Pine Mountain, GA. Aug. 28, 2019. *Genomics-assisted breeding in potato.*

Polyploid Genomics Data Management and Analysis (EiB Working Group), International Potato Center (CIP), Lima, Peru. May 8, 2019. *Genotype quality in polyploids.*

## **REFEREED PUBLICATIONS** (last 4 years)


Sorensen PL, Christensen G, Karki HS, Endelman JB (2023) A KASP Marker for the Potato Late Blight Resistance Gene *RB/Rpi-blb1*. *American Journal of Potato Research.* doi:10.1007/s12230-023-09914-6

Labroo MR, Endelman JB, Gement DC, Werner CR, Gaynor RC, Covarrubias-Pazaran GE (2023) Clonal diploid and autopolyploid breeding strategies to harness heterosis: insights from stochastic simulation. *Theoretical & Applied Genetic* 136:147. doi: 10.1007/s00122-023-04377-z

Kumar P, Kaplan Y, Endelman JB, Ginzberg I (2023) Epigenetic modifications related to potato skin russeting. *Plants* 12:2057. doi:10.3390/plants12102057

Song L, Endelman JB (2023) Using haplotype and QTL analysis to fix favorable alleles in diploid potato breeding. *Plant Genome* e20339. doi:10.1002/tpg2.20339

Endelman JB (2023) Fully efficient, two-stage analysis of multi-environment trials with directional dominance and multi-trait genomic selection. *Theoretical & Applied Genetics* 136:65. doi:10.1007/s00122-023-04298-x

Pandey J, Scheuring DC, Koym JW, Endelman JB, Vales MI (2023) Genomic selection and genome-wide association studies in tetraploid chipping potatoes. *Plant Genome* e20297. doi:10.1002/tpg2.20297

Caraza-Harter MV, Endelman JB (2022) The genetic architectures of vine and skin maturity in tetraploid potato. *Theoretical & Applied Genetics* 135: 2943–2951. doi:10.1007/s00122-022-04159-z

Hoopes G, Meng X, Hamilton JP et al. (2022) Phased, chromosome-scale genome assemblies of tetraploid potato reveal a complex genome, transcriptome, and proteome landscape underpinning phenotypic diversity. *Molecular Plant* 15: 520-536. doi:10.1016/j.molp.2022.01.003

Zheng C, Amadeu RR, Muñoz PR, Endelman JB (2021) Haplotype reconstruction in connected tetraploid F1 populations. *Genetics* 219(2). doi:10.1093/genetics/iyab106

Amadeu RR, Muñoz PR, Zheng C, Endelman JB (2021) QTL mapping in outbred tetraploid (and diploid) diallel populations. *Genetics* 219(3). doi:10.1093/genetics/iyab124

Karki HS, Halterman DA, Endelman JB (2021) Characterization of a late blight resistance gene homologous to R2 in potato variety Payette Russet. *American Journal of Potato Research* 98:78–84. doi:10.1007/s12230-020-09811-2

Matias FI, Caraza-Harter MV, Endelman JB (2020) FIELDimageR: An R package to analyze orthomosaic images from agricultural field trials. *Plant Phenome Journal* 3:e20005. doi:10.1002/ppj2.20005

Amadeu RR, Ferrão LFV, de Bem Oliveira I, Benevenuto J, Endelman JB, Muñoz PR (2020) Impact of dominance effects on autotetraploid genomic prediction. *Crop Science* 60:656–665. doi:10.2135/csc2.20075

Caraza-Harter MV, Endelman JB (2020) Image-based phenotyping and genetic analysis of potato skin set and color. *Crop Science* 60:202-210. doi:10.1002/csc2.20093

Matias FI, Alves FC, Meireles KGX, Barrios SCL, do Valle CB, Endelman JB, Fritsche-Neto R (2019) On the accuracy of genomic prediction models considering multi-trait and allele dosage in *Urochloa* spp. interspecific tetraploid hybrids. *Molecular Breeding* 39:100.

Matias FI, Meireles KGX, Nagamatsu ST, Barrios SCL, do Valle CB, Carazzolle MF, Fritsche-Neto R, Endelman JB (2019) Expected genotype quality and diploidized marker data from genotyping-by-sequencing of *Urochloa* spp. tetraploids. *Plant Genome* 12:190002. doi:10.3835/plantgenome2019.01.0002

de Bem Oliveira I, Resende Jr. MFR, Ferrão LFV, Amadeu RR, Endelman JB, Kirst M, Coelho ASG, Muñoz PR (2019) Genomic prediction of autotetraploids; Influence of relationship matrices, allele dosage, and continuous genotyping calls in phenotype prediction. *G3* (Bethesda) 9:1189–1198.

Schmitz Carley CA, Coombs JJ, Clough ME, De Jong WS, Douches, Haynes KG, Higgins CR, Holm DG, Miller Jr. JC, Navarro FM, Novy RG, Palta JP, Parish DL, Porter GA, Sathuvalli VR, Thompson AL, Yencho GC, Zotarelli L, Endelman JB (2019) Genetic covariance of environments in the Potato National Chip Processing Trial. *Crop Science* 59:107–114.