

**JEFFREY B. ENDELMAN**  
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## **APPOINTMENTS**

2013–Present     Assistant Professor, Potato Breeding & Genetics  
                         Department of Horticulture  
                         Plant Breeding and Plant Genetics Graduate Program  
                         University of Wisconsin, Madison

2011–2013        Postdoctoral Researcher, Cornell University & USDA-ARS, Ithaca, NY

## **EDUCATION**

PhD Crop Science, 2011. Washington State University, Pullman, WA.  
    Thesis: Advances in barley genomics: Association analysis, breeding values, and consensus mapping

MS Plant Science, 2009. Utah State University, Logan, UT.  
    Thesis: Optimal compost rates for organic crop production based on a decay series

PhD Bioengineering, 2005. California Institute of Technology, Pasadena, CA.  
    Thesis: Design and analysis of combinatorial protein libraries created by site-directed recombination

MA Physics, 2002. University of California, Santa Barbara, CA.

BS Chemical Engineering & Applied Math, 2000. Northwestern University, Evanston, IL.

## **AWARDS**

2014     Elton and Carrie Aberle Faculty Fellow Award

2005     Caltech Demetriades-Tsafka Prize in Biotechnology

2000     National Defense Science and Engineering Graduate Fellowship

1999     Barry Goldwater Scholarship

## **TEACHING**

Hort/Agron 360 Genetically Modified Crops: Science, Regulation & Controversy (Spring 2015, Spring 2016)

Hort/Agron 875 Genetic Analysis with R (Spring 2015, Spring 2017)

Agron/Hort 812 Selection Theory for Quantitative Traits in Plants (Spring 2014, Spring 2016)

Agron/Hort 875 Topics in Advanced Plant Breeding: Polyploid Genetics (Spring 2016)

## INVITED TALKS

- Seminar in Plant Breeding, Wageningen University, The Netherlands. Nov 16, 2016. *Automated tetraploid genotype calling and its application to pedigree reconstruction in potato.*
- 100th Annual Meeting of the Potato Association of America, Grand Rapids, MI. Aug. 1, 2016. *Genome-wide prediction of complex traits in tetraploid potato: Empirical results and implications for breeding.*
- Plant Breeding Symposium, Texas A&M University. Sept. 3, 2015. *Genomic selection: Using pedigrees and genome-wide markers to maximize genetic gain.*
- Seminar in Plant Breeding, Wageningen University, The Netherlands. June 26, 2014. *New directions in potato breeding and quantitative genetics at the University of Wisconsin.*
- Plant Breeding and Genetics Symposium, University of Nebraska-Lincoln. April 1, 2014. *Genome-wide selection with the realized relationship matrix.*
- 4<sup>th</sup> International Workshop on Next Generation Genomics and Integrated Breeding for Crop Improvement, ICRISAT, Hyderabad, India. Feb. 21, 2014. *LPmerge: an R package for merging genetic maps by linear programming.*
- University of Florida Genetics Institute Symposium, Gainesville, FL. Aug. 19, 2013. *Genome-wide selection in crops.*

## REFEREED PUBLICATIONS

- Wang Y, Snodgrass LB, Bethke PC, Bussan AJ, Holm DG, Novy RG, Pavek MJ, Porter GA, Rosen CJ, Sathuvalli V, Thompson AL, Thornton MT, Endelman JB (submitted) Reliability of measurement and genotype x environment interaction for potato specific gravity.
- Braun SR, Endelman JB, Haynes K, Jansky S (submitted) Quantitative trait loci for resistance to common scab and cold-induced sweetening in diploid potato.
- Schmitz Carley CA, Coombs JJ, Douches DS, Bethke PC, Palta JP, Novy RG, Endelman JB (submitted) Automated tetraploid genotype calling by hierarchical clustering.
- Endelman JB, Schmitz Carley CA, Douches DS, Coombs JJ, Bizimungu B, De Jong WS, Haynes KG, Holm DG, Miller JC, Novy RG, Palta JP, Parish DL, Porter DA, Sathuvalli VR, Thompson AL, Yencho GC (in press) Pedigree reconstruction with genome-wide markers in potato. *American Journal of Potato Research*, doi:10.1007/s12230-016-9556-y
- Endelman JB, Jansky SH (2016) Genetic mapping with an inbred line-derived F2 population in potato. *Theoretical & Applied Genetics* 129:935–943.
- Rosyara UR, De Jong WS, Douches DS, Endelman JB (2016) Software for genome-wide association studies in autopolyploids and its application to potato. *Plant Genome* 9, doi:10.3835/plantgenome2015.08.0073
- Wang Y, Bethke PC, Bussan AJ, Glynn MT, Holm DG, Navarro FM, Novy RG, Palta JP, Pavek MJ, Porter GA, Sathuvalli VR, Thompson AL, Voglewede PJ, Whitworth JL, Parish DL, Endelman JB (2016) Acrylamide-forming potential and agronomic properties of elite U.S. potato germplasm from the National Fry Processing Trial. *Crop Science* 56:30–39.

- Olsen DJR, Endelman JB, Jacobson AR, Reeve JR (2015) Compost carryover: Nitrogen, phosphorus and FT-IR analysis of soil organic matter. *Nutrient Cycling in Agroecosystems* 101:317–331.
- Sallam AH, Endelman JB, Jannink J-L, Smith KP (2015) Assessing genomic selection prediction accuracy in a dynamic barley breeding program. *Plant Genome* 8, doi:10.3835/plantgenome2014.05.0020.
- Mohammadi M, Endelman J, Nair S, Chao S, Jones SS, Muehlbauer GJ, Ullrich SE, Baik B-K, Wise ML, Smith KP (2014) Association mapping of grain hardness, polyphenol oxidase, total phenolics, amylose content, and beta-glucan in US barley breeding germplasm. *Molecular Breeding* 34:1229–1243.
- Muñoz-Amatriaín M, Cuesta-Marcos A, Endelman JB, Comadran J, Bonman M, Bockelman H, Chao S, Russell J, Waugh R, Hayes PM, Muehlbauer GJ (2014) The USDA barley core collection: Genetic diversity, population structure, and potential for genome-wide association studies. *PLoS ONE* 9(4):e94688.
- Plomion C, Chancerel E, Endelman J, Lamy J-B, Mandrou E, Lesur I, Ehrenmann F, Isik F, Bink M, van heerwaarden J, Bouffier L (2014) Genome-wide distribution of genetic diversity and linkage disequilibrium in a mass-selected population of maritime pine. *BMC Genomics* 15:171.
- Endelman JB, Plomion C (2014) LPmerge: an R package for merging genetic maps by linear programming. *Bioinformatics* 30:1623–1624.
- Endelman JB, Atlin GN, Beyene Y, Semagn K, Zhang X, Sorrells ME, Jannink J-L (2014) Optimal design of preliminary yield trials with genome-wide markers. *Crop Science* 54:48–59.
- Dawson JC, Endelman JB, Heslot N, Crossa J, Poland J, Dreisigacker S, Manes Y, Sorrells ME, Jannink J-L (2013) The use of unbalanced historical data for genomic selection in an international wheat breeding program. *Field Crops Research* 154:12-22.
- Riedelsheimer C, Endelman JB, Stange M, Sorrells ME, Jannink J-L, Melchinger AE (2013) Genomic predictability of interconnected biparental maize populations. *Genetics* 194:493–503.
- Endelman JB, Jannink J-L (2012) Shrinkage estimation of the realized relationship matrix. *G3: Genes, Genomes, Genetics* 2:1405-1413.
- Poland J\*, Endelman J\*, Dawson J, Rutokoski J, Wu S, Manes Y, Dreisigacker S, Crossa J, Sanchez-Villeda H, Sorrells H, Jannink J-L (2012) Genomic selection in wheat breeding using genotyping-by-sequencing. *Plant Genome* 5:103–113. \*Contributed equally
- Reeve JR, Endelman JB, Miller BE, Hole DJ (2012) Residual effects of compost on soil quality and dryland wheat yield sixteen years after compost application. *Soil Science Society of America Journal* 76:278–285.
- Endelman JB (2011) Ridge regression and other kernels for genomic selection with R package rrBLUP. *Plant Genome* 4:250-255.
- Endelman JB (2011) New algorithm improves fine structure of the barley consensus SNP map. *BMC Genomics* 12:407.

- Endelman JB, Reeve JR, Hole DJ (2010) Economically optimal compost rates for organic crop production. *Agronomy Journal* 102:1283–1289.
- Endelman JB, Reeve JR, Drost DT (2010) A new decay series for organic crop production. *Agronomy Journal* 102:457–463.
- Otey CR, Landwehr M, Endelman JB, Hiraga K, Bloom JD, Arnold FH (2006) Structure-guided recombination creates an artificial family of cytochromes P450. *PLoS Biology* 4(5):e112.
- Endelman JB, Silberg JJ, Wang Z-G, Arnold FH (2004) Site-directed protein recombination as a shortest-path problem. *Protein Engineering Design & Selection* 17:589–594.
- Meyer MM, Silberg MM, Voigt CA, Endelman JB, Mayo SL, Wang Z-G, Arnold FH (2003) Library analysis of SCHEMA-guided protein recombination. *Protein Science* 12:1686–1693.

## **SERVICE**

- Editorial Boards of *Crop Science* (2016 – ), *Theoretical and Applied Genetics* (2016 – )
- USDA-NIFA Proposal Review Panelist, Summer 2015
- Chair of the Breeding & Genetics Section, Potato Association of America, 2015–16
- Member of AAAS, Crop Science Society of America, National Association of Plant Breeders, Potato Association of America

## **SOFTWARE** (Available at <http://potatobreeding.cals.wisc.edu/software>)

- rrBLUP: Ridge regression and other kernels for genomic selection.
- LPmerge: Merging linkage maps by linear programming.
- GWASpoly: Genome-wide association studies in autopolyploids.
- ClusterCall: Automated tetraploid genotype calling by hierarchical clustering

## **ABSTRACTS** (since 2014)

- Smith SD, Endelman JB (2016) Development and application of a bioinformatics pipeline for genotyping-by-sequencing of autotetraploid potato. Annual Meeting of the National Association of Plant Breeders, Aug 15–18, Raleigh, NC.
- Schmitz Carley C, Palta J, Coombs J, Douches DS, Endelman JB (2016) Automated tetraploid genotype calling by hierarchical clustering. Potato Association of America Annual Meeting, July 31–Aug 4, Grand Rapids, MI.
- Schmitz Carley C, Palta J, Coombs J, Douches DS, Endelman JB (2016) GWAS of tetraploid potato with automated genotype calls. 5<sup>th</sup> International Conference on Quantitative Genetics, June 12–17, Madison, WI.
- Rosyara UR, Endelman JB (2016) Haplotype inference in autotetraploids and its application to genome-wide association studies. Plant and Animal Genome XXIV, Jan 9–13, San Diego, CA.

- Rosyara, UR, DeJong WS, Douches DS, Endelman JB (2015) Software for genome-wide association studies in autopolyploids and its application to potato. Breeding Section Meeting of the European Association for Potato Research, Nov 15–18, Vico Equense, Italy.
- Jansky SH, Douches DS, Endelman JB (2015) Progress toward the development of recombinant inbred lines. Breeding Section Meeting of the European Association for Potato Research, Nov 15–18, Vico Equense, Italy.
- Schmitz C, Douches D, Endelman J (2015) Population structure of the National Chip Processing Trial. Potato Association of America Annual Meeting, July 19–22, Portland, ME.
- Wang Y, Endelman JB, Bethke PC (2015) A national effort to identify fry processing clones with low acrylamide-forming potential. Potato Association of America Annual Meeting, July 19–22, Portland, ME.
- Jansky S, Douches D, Endelman J (2015) Reinventing potato at the diploid level. Plant and Animal Genome XXIII, Jan. 10–14, San Diego, CA.
- Rosyara UR, Endelman JB (2015) Genome-wide association studies for autopolyploids. Plant and Animal Genome XXIII, Jan. 10–14, San Diego, CA.
- Endelman JB, Jansky SH (2015) Genotyping-by-sequencing of a diploid potato F2 population. Plant and Animal Genome XXIII, Jan. 10–14, San Diego, CA.
- Rosyara UR, Endelman JB (2014) Development and application of genome-wide association studies for autotetraploid potato. Potato Association of America Annual Meeting, July 27–31, Spokane, WA.
- Jansky SH, Douches DS, Endelman JB (2014) Progress toward the development of recombinant inbred lines in potato. Potato Association of America Annual Meeting, July 27–31, Spokane, WA.
- Endelman JB, Jansky SH (2014) Genotyping-by-sequencing of a diploid potato F2 population. Potato Association of America Annual Meeting, July 27–31, Spokane, WA.
- Braun SR, Endelman JB, Jansky SH (2014) QTL for resistance to common scab and cold-induced sweetening from the diploid potato *S. chacoense*. Triennial Meeting of the European Association for Potato Research, July 6–11, Brussels, Belgium.

## **EXTENSION TALKS**

- July 28, 2016. The future of potato breeding. Hancock Agricultural Research Station Field Day, Hancock, WI.
- July 21, 2016. UW potato breeding program update. Langlade Agricultural Research Station Field Day, Antgion, WI.
- July 14, 2016. UW potato breeding program update. Rhinelander Agricultural Research Station Field Day, Rhinelander, WI.
- Feb. 4, 2016. Potato breeding and varietal improvement. WPVGA Grower Education Conference, Stevens Point, WI.
- Feb. 2, 2016. Ensuring clean seed for variety development. WPVGA Grower Education Conference, Stevens Point, WI.

- Jan. 28, 2016. UW Breeding Program Update. WI Seed Potato Improvement Association Annual Meeting, Antigo, WI.
- Dec. 8, 2015. Genetic markers and trait mapping in the National Chip Processing Trial. US Potato Board Chip Committee Meeting, Chicago, IL.
- Oct. 15, 2015. Genetic markers for the National Fry Processing Trial. NFPT Project Meeting, East Grand Forks, MN.
- Aug. 20, 2015. New Varieties from the UW Breeding Program, Langlade Research Station Field Day.
- July 29, 2015. Potato breeding in the North Woods. UW-Extension WedNite@theLab Northern Lights Tour.
- July 15, 2015. UW potato breeding program update. Hancock Agricultural Research Station Field Day.
- Feb. 5, 2015. New strategies and varieties in the UW potato breeding program. WPVGA Grower Education Conference, Stevens Point, WI.
- Jan. 7, 2015. Genetic markers for the National Chip Processing Trial. US Potato Board Chip Committee Meeting, Orlando, FL.
- Oct. 14, 2014. Genetic markers for the National Fry Processing Trial. NFPT Project Meeting, East Grand Forks, MN.
- Aug. 21, 2014. New Varieties from the UW Breeding Program, Langlade Research Station Field Day.
- July 22, 2014. New Varieties from the UW Breeding Program, Hancock Agricultural Research Station Field Day.
- July 18, 2014. The UW Potato Breeding Program, Rhinelander Agricultural Research Station Field Day.
- Feb. 11, 2014. Future directions for the UW potato breeding program. WI Seed Potato Improvement Association Annual Meeting, Antigo, WI.
- Feb. 6, 2014. Vision for the UW potato breeding program. WPVGA Grower Education Conference, Stevens Point, WI.
- Feb. 4, 2014. Potato breeding in the genomics era. WPVGA Grower Education Conference, Stevens Point, WI.