

## Timothy M. Beissinger

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CONTACT INFORMATION	203 Curtis Hall University of Missouri Columbia, MO 65211	(608) 320-1913 <a href="mailto:beissingert@missouri.edu">beissingert@missouri.edu</a> <a href="http://beissingerlab.org">http://beissingerlab.org</a>
CURRENT APPOINTMENTS	<b>Research Geneticist</b> USDA-ARS, Plant Genetics Research Unit University of Missouri, Columbia  <b>Adjunct Assistant Professor</b> Division of Plant Sciences Division of Biological Sciences University of Missouri, Columbia	2015 - Present   2015 - Present 2016 - Present
PREVIOUS APPOINTMENTS	<b>Postdoctoral Research Associate</b> Mentored by Professor Jeff Ross-Ibarra Department of Plant Sciences University of California, Davis  <b>Visiting Scientist</b> Mentored by Professor Henner Simianer Department of Animal Breeding and Genetics Georg-August Universität, Göttingen, Germany  <b>Research Assistant</b> Department of Agronomy University of Wisconsin, Madison	2014 - 2015   Jan - Apr 2014  2009 - 2014
EDUCATION	<b>The University of Wisconsin at Madison</b> , Madison, Wisconsin USA  Ph.D., <b>Statistical and Quantitative Genetics</b> Departments: Agronomy and Animal Science Advisors: Professors Natalia de Leon and Daniel Gianola  M.S., <b>Statistics</b>  B.S., <b>Mathematics and Geography</b>	May 2014   May 2011  May 2009
PUBLICATIONS	Morota, G., <b>Beissinger, T.M.</b> , Peñagaricano, F. 2016. MeSH annotation of the chicken genome: MeSH-informed enrichment analysis and MeSH-guided semantic similarity among functional terms and gene products. Genes Genomes Genetics. DOI: 10.1534/g3.116.031096.  <b>Beissinger, T.M.</b> , Wang, L., Crosby, C., Durvasula, A., Hufford, M.B., Ross-Ibarra, J. 2015. Recent demography drives changes in linked selection across the maize genome. Nature Plants. 2(16084). DOI:10.1038/nplants.2016.84.  <b>Beissinger, T.M.</b> , Gholami, M., Erbe, M., Weigend, S., Weigend, A., de Leon, N., Gianola, D., Simianer, H. 2015. Using the variability of linkage disequilibrium	

between subpopulations to scan for selection in a diverse panel of chickens. *Heredity*. DOI: 10.1038/hdy.2015.81.

Haase, N.J., **Beissinger, T.M.**, Hirsch, C.N., Vaillancourt, B., Deshpande, S., Barry, K., Buell, C.R., Kaeppler, S., de Leon, N. 2015. Genetic Dissection of quantitative traits using a bulked segregant analysis (BSA)-sequencing method on a large segregating population of maize. *Genes Genomes Genetics*. DOI: 10.1534/g3.115.017665.

**Beissinger, T.M.**, Rosa, J.G.M., Kaeppler, S.M., de Leon, N., Gianola, D. 2015. Defining window-boundaries for genomic analyses using smoothing spline techniques. *Genetics Selection Evolution*. 47(30). DOI: 10.1186/s12711-015-0105-9.

Lorenz, A. J., **Beissinger, T.M.**, Rodrigues, R., de Leon, N. 2015. Selection for silage yield and composition did not affect genomic diversity within the Wisconsin Quality Synthetic maize population. *Genes Genomes Genetics*. DOI: 10.1534/g3.114.015263.

Foerster, J.M., **Beissinger, T.M.**, de Leon, N., Kaeppler, S.M. 2015. Large effect QTL explain natural phenotypic variation for the developmental timing of vegetative phase change in maize (*Zea mays L.*). *Theoretical and Applied Genetics*. DOI: 10.1007/s00122-014-2451-3.

Hirsch, C.N., Flint-Garcia, S.A., **Beissinger, T.M.**, Eichten, S.R., Deshpande, S., Barry, K., McMullen, M.D., Holland, J.B., Buckler, E.S., Springer, N.M., Buell, C.R., de Leon, N., Kaeppler, S.M. 2014. Insights into the effects of long-term artificial selection on seed size in maize. *Genetics*. 198(1): 409-421.

**Beissinger, T.M.**, Hirsch, C.N., Vaillancourt, B., Deshpande, S., Barry, K., Buell, C. R., Kaeppler, S. M., Gianola, D., de Leon, N. 2014. A genome-wide scan for evidence of selection in a maize population under long-term artificial selection for ear number. *Genetics*. 196(3): 829-840.

\***Beissinger, T.M.**, Hirsch, C.N., Sekhon, R.S., Foerster, J.M., Johnson, J.M., Muttoni, G., Vaillancourt, B., Buell, C.R., Kaeppler, S.M., de Leon, N. 2013. Marker density and read-depth for genotyping populations using genotyping-by-sequencing. *Genetics*. 193: 1073-1081.

\* Selected as a highlighted article by the editorial board.

Wu, X., Chuanyu, S., **Beissinger, T.M.**, Rosa, G., Weigel, K., de Leon, N., Gianola, D. 2012. Parallel Markov chain Monte Carlo - bridging the gap to high performance Bayesian computation in animal breeding and genetics. *Genet Sel Evol*. 44:29.

Wu, X., **Beissinger, T.M.**, Bauck, S., Woodward, B., Rosa, G., Weigel, K., de Leon, N., Gianola, D. 2011. A primer on high-throughput computing for genomic selection. *Frontiers in Genetics*. 2, 4.

PREPRINTS

**Beissinger, T.M.**, Morota, G. 2016. Medical subject heading (MeSH) annotations illuminate maize genetics and evolution. *Biorxiv*. <http://biorxiv.org/content/early/2016/07/13/048132>

SOFTWARE	<p><b>GenWin: Spline Based Window Boundaries for Genomic Analyses</b>  An R package for analyzing genetic data across distinct bins.  <a href="http://cran.r-project.org/web/packages/GenWin/index.html">http://cran.r-project.org/web/packages/GenWin/index.html</a></p>
GRANTS AND FUNDING	<p><b>2015-Present, USDA-ARS</b> Project Number 3622-21000-034-00D. Revolving funds. Budget supports a technician, student employees, supplies, equipment, and space.</p> <p><b>2012, University of Wisconsin Graduate School.</b> Awarded one year of funding and supplies to support dissertation research.</p> <p><b>2012, DuPont-Pioneer and UW Associated Students of Madison.</b> Funding supported the first University of Wisconsin Pioneer Plant Sciences Symposium.</p> <p><b>2011, DuPont-Pioneer.</b> Awarded funding to genotyping 240 samples with the Pioneer Public SNP array.</p>
CONFERENCE, WEBINAR, AND DEPARTMENTAL PRESENTATIONS	<p>Beissinger, T. Seminar for Evolution, Ecology, and Population Biology Program  Washington University in St. Louis, Missouri  November, 2016</p> <p>Beissinger, T. Department of Crop Sciences,  University of Illinois  October, 2016</p> <p>Beissinger, T. <a href="#">Division of Biological Sciences</a>  University of Missouri, Columbia  October, 2016</p> <p>Beissinger, T. Department of Crop Sciences, Chungnam National University  Deajeon, South Korea.  July, 2016</p> <p>Beissinger, T. <a href="#">KWS Seed Company</a>  Einbeck, Germany  April, 2016</p> <p>Beissinger, T. Advanced Seminar for Statistical Genetics  <a href="#">Department of Animal Breeding and Genetics, Georg-August Universitat,</a>  Göttingen, Germany  April 2016</p> <p>Beissinger, T. Corn Breeding Research Meeting, Jacksonville, FL  March 2016</p> <p>Beissinger, T. <a href="#">Plant and Animal Genome Conference 24,</a> San Diego, CA  Maize workshop  January, 2016</p> <p>Beissinger, T. <a href="#">Division of Plant Sciences, University of Missouri</a>  Columbia, Missouri</p>

November, 2015

Beissinger, T. Department of Botany and Plant Sciences, University of California  
Riverside, CA  
April, 2015

Beissinger, T. USDA-ARS Plant Genetics Research Unit, University of Missouri  
Columbia, Missouri  
March, 2015

Beissinger, T., Wang, L., Durvasula, A., Crosby, K., Hufford, M., and Ross-Ibarra,  
J. 57th annual Maize Genetics Conference, St. Charles, IL  
March, 2015

Beissinger, T. Plant and Animal Genome Conference 23, San Diego, CA  
Genomic selection and genome-wide association studies workshop  
January 2015

Beissinger, T. Bay Area Population Genomics Meeting XI. Davis, CA,  
December, 2014.

Beissinger, T. Department of Animal Science, University of California, Davis  
August, 2014

Beissinger, T. Department of Animal Breeding and Genetics,  
Georg-August Universitat, Göttingen, Germany  
February 2014

Beissinger, T. Center of Life and Food Sciences, Technische Universitat Munchen,  
Munich, Germany  
April 2014

Beissinger, T. Animal Science Department, University of Nebraska, Lincoln  
December, 2013

Beissinger, T., Hirsch, C., Buell, R.C., Kaeppler, S., Gianola, D., de Leon, N. Gordon  
Research Seminar in Quantitative Genetics and Genomics. Galveston, TX  
February, 2013.

Beissinger, T. Corn Breeding Webinar Series, hosted by Dr. Rex Bernardo at the  
University of Minnesota. December, 2012.

Beissinger, T., Hansey, C., Sekhon, R., Vaillancourt, B., Buell, C.R., Kaeppler, S.,  
de Leon, N. North Central Regional Corn Breeding Research Meeting. Portland,  
OR, March, 2012.

POSTER  
ABSTRACTS

Beissinger, T., Kruppa, J., Lorenz, L., Simianer, H. 5th International Conference on  
Quantitative Genetics. Madison, WI, June 12-17, 2016.

Beissinger, T. and Ross Ibarra, J. Plant and Animal Genome Conference 23. San  
Diego, CA, January 10-14, 2015.

Beissinger, T., Gianola, D., de Leon, N. Impact of Large-Scale Genomic Data on Statistical and Quantitative Genetics Conference. Seattle, WA, November 23-26, 2013.

Beissinger, T., Hirsch, C., Vaillancourt, B., Buell, R.C., Kaeppler, S., Gianola, D., de Leon, N. Maize Genetics Conference. St. Charles, IL, March 14-17, 2013.

Beissinger, T., Hirsch, C., Buell, R.C., Kaeppler, S., Gianola, D., de Leon, N. Gordon Research Seminar in Quantitative Genetics and Genomics. Galveston, TX, February 16-17, 2013.

Beissinger, T., Hansey, C., Foerster, J., Sekhon, R., Johnson, J., Muttoni, G., Vaillancourt, B., Buell, C.R., Kaeppler, S., de Leon, N. Maize Genetics Conference. Portland, OR, March 15-18, 2012.

Beissinger, T., de Leon, N., Kaeppler, S. Maize Genetics Conference. St Charles, IL, March 17-20, 2011.

## TEACHING

### Co-instructor

Genetics of Populations	Fall 2016
University of Missouri, Division of Animal Sciences	
Systems Biology Reading Group	Spring 2016
University of Missouri, Division of Biological Sciences	
Intoduction to Linux and High Throughput Computing	Fall 2010
University of Wisconsin, Madison <a href="#">Department of Animal Sciences</a>	

### Guest Lectures

Advanced Plant Genetics	December 2016
Lecture on Plant Population Genetics, MU <a href="#">Division of Biological Sciences</a>	
Applied Quantitative and Statistical Genetics	December 2015
Two lectures on Genomic Prediction, MU <a href="#">Division of Plant Sciences</a>	

### Teaching assistant

Biometrical Procedures in Plant Breeding	Fall 2011, 2013
University of Wisconsin, Madison <a href="#">Department of Agronomy</a>	
Experimental Design	Spring 2013
University of Wisconsin, Madison <a href="#">Department of Agronomy</a>	
Advanced Plant Breeding	Spring 2012
University of Wisconsin, Madison <a href="#">Department of Agronomy</a>	

### Tutoring

Statistics	Fall 2010 - Spring 2011
Advanced Placement Statistics	
Calculus	Fall 2006- Spring 2007
Advanced Placement Calculus AB	

## ACADEMIC AND PROFESSIONAL SERVICE

### MU Informatics Institute

Core faculty member	2016 - Present
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### Faculty advisor for student-organized MU Plant Sciences Symposium

Building the Bridge from Fundamental Research to Improving  
 Tomorrows Crops  
 Funded by Pioneer Hi-Bred

February 2017

**“Detox” Evolutionary Genetics Discussion Group**

Faculty organizer and host of extracurricular journal club

Fall 2015 - Present

**Journals reviews**

Nature	Heredity
Nature Genetics	PeerJ
BMC Evolutionary Biology	The Plant Genome
BMC Genomics Crop Science	Theoretical and Applied Genetics
Genes Genomes Genetics (G3)	Crop Science

**Ad-hoc grant reviews**

USDA-NIFA, Plant Breeding for Agricultural Production  
 University of Missouri Research Board

**PhD Committees**

Division of Animal Sciences  
 Division of Biological Sciences  
 Division of Plant Sciences

**AWARDS AND  
 SCHOLARSHIPS**

Monsanto fellowship recipient	2009-2014
Scholarship to attend Summer Institute in Statistical Genetics University of Washington, Seattle	2012
Scholarship to attend TeraGrid Conference Pittsburgh, PA	2010
Scholarship to attend Open Science Grid Summer School Madison, WI	2010
Undergraduate deans list	All semesters 2007-2009
Susan B. Hotchkiss memorial scholarship	2005

**ACADEMIC AND  
 PROFESSIONAL  
 DEVELOPMENT**

Monsanto Fellows Professional Development Program	September 2012
17th Summer Institute in Statistical Genetics	July 2012
Monsanto Fellows Professional Development Program	September 2011
Monsanto Fellows Professional Development Program	September 2010
Monsanto Fellows Professional Development Program	September 2009
University of Wisconsin Plant Breeding Internship	Summer 2008

**COMPUTING  
 EXPERTISE**

R, Linux/Unix, SAS, Latex, Condor, Java, Perl, Python	
Linux workstation system administrator	2010 - 2014
Participated in Open Science Grid Summer School	July 2010

**STATISTICAL  
 EXPERTISE**

Bayesian analysis, estimation of functions from data, mixed models, mathematical statistics, statistical inference, linear regression and analysis of variance

**MATHEMATICAL  
 EXPERTISE**

Real and complex analysis, combinatorics, topology, number theory, modern algebra, cellular automata