

MITCHELL TUINSTRA

Professor of Plant Breeding and Genetics
Wickersham Chair of Excellence in Agricultural Research
Scientific Director – Plant Science Research and Education Pipeline

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EDUCATION

1996	Ph.D., Purdue University - Plant Breeding and Genetics
1993	M.S., Purdue University - Molecular and Quantitative Genetics
1991	B.S., Calvin College, Grand Rapids, MI - Biology

PROFESSIONAL POSITIONS

2013-present	Scientific Director, Plant Science Research and Education Pipeline, College of Agriculture, Purdue University
2007-present	Wickersham Chair of Excellence in Agricultural Research, Department of Agronomy, Purdue University
2007-present	Professor, Department of Agronomy, Purdue University
2006-2007	Professor, Department of Agronomy, Kansas State University
2001-2005	Associate Professor, Department of Agronomy, Kansas State University
1997-2001	Assistant Professor, Department of Agronomy, Kansas State University
1997	Post-Doctoral Fellow, Department of Agronomy, Purdue University
1994	Teaching Assistant, Department of Horticulture, Purdue University
1994-1996	Research Assistant, Department of Horticulture, Purdue University
1993	Teaching Assistant, Department of Horticulture, Purdue University
1993	Teaching Assistant, Department of Agronomy, Purdue University
1991-1993	Research Assistant, Department of Horticulture, Purdue University

RESEARCH/TEACHING ACTIVITIES

70% Research Appointment:
Plant Breeding and Genetics

30% Teaching Appointment:
AGRY285: World Crop Adaptation and Distribution
AGRY550: Field Crops Breeding Techniques
AGRY611: Quantitative Genetics

HONORS AND AWARDS

Millionaire's Club Award, College of Agriculture, Purdue University – 2009, 2013
Seeds for Success, Purdue University – 2009, 2013, 2014
Wickersham Chair of Excellence in Agricultural Research, Purdue University – 2007
Gamma Sigma Delta – Early Career Award – 2001
Student Travel Award, International Society of Plant Molecular Biology – 1996
Excellence in Biological Research Graduate Scholarship, Dow Elanco – 1995
Fellow, *Gamma Sigma Delta* – The Honor Society of Agriculture – 1994
McKnight Doctoral Fellowship, McKnight Foundation – 1994

PROFESSIONAL SOCIETIES

American Society of Agronomy
Crop Science Society of America
Sorghum Improvement Conference of North America

PATENTS

Tuinstra MR, Krothapalli K, Dilkes B, Buescher E. Genetic Mutations that Disrupt Dhurrin Production In Sorghum. International Application Number: PCT/US2013/055256. International Filing date: 16 August 2013.

Tuinstra MR, Al-Khatib K. Kansas State University Research Foundation. Acetyl-CoA Carboxylase Herbicide Resistant Sorghum. United States Provisional Application No. 60/880,125. International filing date: 12 January 2008.

Tuinstra MR, Al-Khatib K. Kansas State University Research Foundation. Acetolactate Synthase Herbicide Resistant Sorghum. Patent Cooperation Treaty. Intl. App. No.: PCT/US2007/86612. International filing date: 6 December 2007.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

Sukumaran S, Li X, Li X, Zhu C, Bai G, Perumal R, Tuinstra MR, Prasad PVV, Mitchell S, Tesso T, Yu J. (submitted). Genetic mapping for grain yield and stay green traits in Sorghum using genotyping-by-sequencing (GBS) markers. *Crop Science*.

Pontieri P, Troisi J, Di Fiore R, Di Maro R, Bean SR, Tuinstra MR, Roemer E, Boffa A, Del Giudice A, Pizzolante G, Alifano P, Del Giudice L. 2014. Mineral contents in grains of seven food-grade sorghum hybrids grown in a Mediterranean environment. *Australian Journal of Crop Science* 8(11): 1550-1559.

- Krothapalli K, Buescher EM, Li X, Brown E, Chapple C, Dilkes BP, Tuinstra MR. 2013. Dhurrinase2 is required for cyanide release from *Sorghum bicolor*. *Genetics* 195: 309–318.
- Ciampitti IA, Murrell T, Camberato J, Tuinstra MR, Friedemann P, Vyn T. 2013. Physiological Dynamics of Maize Nitrogen Uptake and Partitioning in Response to Plant Density and N Stress Factors: II. Reproductive Phase. *Crop Science* 53: 2588-2602.
- Ciampitti IA, Murrell T, Camberato J, Tuinstra MR, Friedemann P, Vyn T. 2013. Physiological processes governing nitrogen uptake dynamics of maize plant components in response to plant density and N stress factors: I. Vegetative phase. *Crop Science* 53: 2105-2119.
- Kaufman RC, Herald TJ, Bean SR, Wilson JD, Tuinstra MR. 2013. Variability in tannin content, chemistry and activity in a diverse group of tannin containing sorghum cultivars. *Journal of the Science of Food and Agriculture* 93: 1233-1241.
- Pontieri P, Mamone G, De Caro S, Tuinstra MR, Roemer E, Okot J, De Vita P, Ficco DBM, Alifano P, Pignone D, Massardo DR, Del Giudice L. 2013. Sorghum, a healthy and gluten-free food for celiac patients as demonstrated by genome, biochemical, and immunochemical analyses. *Journal of Agricultural and Food Chemistry* 61: 2565-2571.
- Torres-Avila M, Davis ALE, Tuinstra MR, Unruh Snyder LJ. 2013. Student perceptions and performance of an online teaching tool: Introduction the concepts of plant breeding. *NACTA Journal* 57(1): 41-46.
- Sukumaran S, Xiang W, Bean SR, Pedersen JF, Tuinstra MR, Tesso TT, Hamblin MT, Yu J. 2012. Association mapping for grain quality in a diverse *Sorghum* collection. *Plant Genome* 5: 126-135. doi: 10.3835/plantgenome2012.07.0016.
- Barrero Farfan ID, Johal G, Tuinstra MR. 2012. A stable dw3 allele in sorghum and a molecular marker to facilitate selection. *Crop Science* 52: 2063-2069. doi:10.2135/cropsci2011.12.0631.
- Pontieri P, De Vita P, Boffa A, Tuinstra MR, Bean S, Krishnamoorthy G, Miller C, Roemer E, Alifano P, Pignone D, Massardo D, Del Giudice L. 2012. Yield and morpho-agronomical evaluation of food-grade white sorghum hybrids grown in Southern Italy. *Journal of Plant Interactions* 7 (4): 341-347. DOI: 10.1080/17429145.2012.705340.
- Wu Y, Xianran L, Xiang W, Zhu C, Lin Z, Wu Y, Li J, Pandravada S, Ridder DD, Bai G, Wang M, Trick H, Bean S, Tuinstra MR, Tesso T, Yu J. 2012. Presence of tannins in sorghum grains is conditioned by different natural alleles of Tan1. *Proceedings of the National Academy of Sciences*. 109: 10281–10286. doi: 10.1073/pnas.1201700109.

- Lin Z, Li X, Wang ML, Bai G, Li J, Clemente TE, Trick HN, Tuinstra MR, Tesso TT, White F, Yu J. 2012. Parallel domestication of *SHATTERING1* gene in crops. *Nature Genetics* 44: 720-724. doi:10.1038/ng.2281.
- Kershner KS, Al-Khatib K, Krothapalli K, Tuinstra MR. 2012. Genetic resistance to acetyl-coenzyme A carboxylase-inhibiting herbicides in grain sorghum. *Crop Science* 52: 64-73.
- Mutava RN, Prasad PVV, Tuinstra MR, Kofoid KD, Yua J. 2011. Characterization of sorghum genotypes for traits related to drought tolerance. *Field Crops Research* 123: 10 -18.
- Tesso TT, Kershner KS, Ochanda NW, Al-Khatib K, Tuinstra MR. 2011. Registration of 34 Sorghum Germplasm Lines Resistant to Acetolactate Synthase–Inhibitor Herbicides. *Journal of Plant Registrations* 5:215–219.
- Hennigh DS, Al-Khatib K, Tuinstra MR. 2010. Response of acetolactate synthase resistant grain sorghum to nicosulfuron plus rimsulfuron. *Weed Technology* 24: 411-415.
- Hennigh SD, Al-Khatib K, Currie RS, Tuinstra MR, Geier PW, Stahlman PW, Claassen MM. 2010. Weed control with selected herbicides in acetolactate synthase-resistant sorghum. *Crop Protection* 29: 879-883.
- Tesso T, Ochanda NW, Little CR, Claflin LE, Tuinstra MR. 2010. Analysis of host plant resistance to multiple *Fusarium* species associated with stalk rot disease in sorghum [*Sorghum bicolor* (L.) Moench]. *Field Crops Research* 118: 177-182.
- Hennigh SD, Al-Khatib K, Tuinstra MR. 2010. Postemergence Weed Control in Acetolactate Synthase–Resistant Grain Sorghum. *Weed Technology* 24: 219-225.
- Tesso T, Ochanda NW, Claflin LE, Tuinstra MR. 2009. An improved method for screening *Fusarium* stalk rot resistance in grain sorghum (*Sorghum bicolor* [L.] Moench.) *African Journal of Plant Science* 3: 254-262.
- Wang M, Zhu C; Barkley N, Chen Z, Erpelding J, Murray S, Tuinstra MR, Tesso T, Pederson G, Yu J. 2009. Genetic diversity and population structure analysis of accessions in the U.S. historic sweet sorghum collection. *Theoretical and Applied Genetics* 120: 13-23.
- Abit MJM, Al-Khatib K, Regehr DL, Tuinstra MR, Claassen MM, Geier PW, Stahlman PW, Gordon BW, Currie RS. 2009. Differential response of sorghum genotypes to foliar applied mesotrione. *Weed Technology* 23: 28-33.
- Kaufman RC, Tilley M, Bean SR, Tuinstra MR. 2009. Improved characterization of sorghum tannins using size exclusion chromatography. *Cereal Chemistry* 86: 369-371.

- Yu J, Zhang Z, Zhu C, Tabanao D, Pressoir G, Tuinstra MR, Kresovich S, Todhunter RJ, Buckler ES. 2009. Simulation appraisal of the adequacy of number of background markers for relationship estimation in association mapping. *The Plant Genome* 2: 63-77.
- Ochanda N, Yu J, Bramel PJ, Menkir A, Tuinstra MR, Witt MD. 2009. Selection before backcross during exotic germplasm introgression. *Field Crops Research* 112: 37-42.
- Tuinstra MR, Soumana S, Al-Khatib K, Kapran I, Toure A, van Ast A, Bastiaan L, Ochanda NW, Salami I, Kayentao M, Dembele S. 2009. Efficacy of Herbicide Seed Treatments for Controlling Striga Infestation of Sorghum. *Crop Science* 49: 923-929.
- Wu X, Zhao R, Liu L, Bean S, Seib PA, McLaren J, Madl R, Tuinstra MR, Lenz M, Wang D. 2008. Effects of growing location and irrigation on attributes and ethanol yields of selected grain sorghums. *Cereal Chemistry* 85: 495-501.
- Salas-Fernandez MG, Hamblin MT, Rooney WL, Tuinstra MR, Kresovich S. 2008. Quantitative trait loci analysis of endosperm color and carotenoid content in sorghum grain. *Crop Science* 48: 1732-1743.
- Prasad PVV, Pisipati SR, Mutava RN, Tuinstra MR. 2008. Sensitivity of grain sorghum to high temperature stress during reproductive development. *Crop Science* 48: 1911-1917.
- Wang D, Bean SR, McLaren JS, Seib PA, Madl RL, Tuinstra MR, Lenz MC, Wu X, Zhao R. 2008. Grain sorghum is a viable feedstock for ethanol production. *Journal of Industrial Microbiology & Biotechnology* 35: 313-320.
- Tuinstra MR. 2008. Food-grade sorghum varieties and production considerations: A review. *Journal of Plant Interactions* 3: 69-72.
- Roozeboom KL, Schapaugh WT, Tuinstra MR, Vanderlip RL, Milliken G. 2008. Testing wheat in variable environments: genotype, environment, interaction effects and grouping test locations. *Crop Science* 48: 317-330.
- Casa AM, Pressoir G, Brown P, Mitchell SE, Rooney WL, Tuinstra MR, Franks CD, Kresovich S. 2008. Community Resources and Strategies for Association Mapping in Sorghum. *Crop Science* 48: 30-34.
- Hamblin MT, Salas-Fernandez MG, Tuinstra MR, Rooney WL, Kresovich S. 2007. Sequence variation at candidate loci in the starch metabolism pathway in sorghum: prospects for linkage disequilibrium mapping. *Plant-Genome* 47(Suppl.2): S125-S134.
- Ioerger B, Bean SR, Tuinstra MR, Pedersen JF, Erpelding J, Lee KM, Herrman TJ. 2007. Characterization of polymeric proteins from vitreous and floury sorghum endosperm. *Journal of Agricultural and Food Chemistry* 55: 10232-10239.

- Wu X, Zhao R, Wang D, Bean SR, Seib PA, McLauren JS, Madl RL, Tuinstra MR, Lenz MC, Wang D. 2007. Factors impacting ethanol production from sorghum. *Cereal-Chemistry* 84: 130-136.
- White PM, Rice CW, Baldock JA, Tuinstra MR. 2007. Soil biological properties following additions of bmr mutant grain sorghum. *Soil Biology and Biochemistry* 39: 1518-1532.
- Wu X, Zhao R, Wang D, Bean SR, Seib PA, Tuinstra MR, Campbell M, O'Brien A. 2006. Effects of Amylose, Corn Protein and Corn Fiber Contents on Production of Ethanol from Starch Rich Media. *Cereal Chemistry* 83: 569-575.
- Xie XJ, Teh Y, Liang S, Seib PA, Tuinstra MR. 2006. Wet-Milling of Grain Sorghum of Varying Seed Size Without Steeping. *Starch/Staerke* 58: 353-359.
- Kriegshauser TD, Tuinstra MR, Hancock JD. 2006. Variation in nutritional value of sorghum hybrids with contrasting seed weight characteristics and comparisons with maize in broiler chicks. *Crop Science* 46: 695-699.
- Bean SR, Chung OK, Tuinstra MR, Pedersen JF, Erpelding J. 2006. Evaluation of the single kernel characterization system (SKCS) for measurement of sorghum grain attributes. *Cereal Chemistry* 83:108-113.
- Kresovich S, Barbazuk B, Bedell JA., Borrell A, Buell CR, Burke J, Clifton S, Cordonnier-Pratt MM, Cox S, Dahlberg J, Erpelding J, Fulton TM., Fulton B, Fulton L, Gingle AR, Hash CT, Huang Y, Jordan D, Klein PE, Klein RR, Magalhaes J, McCombie R, Moore P, Mullet JE, Ozias-Akins P, Paterson AH, Porter K, Pratt L, Roe B, Rooney W, Schnable PS, Stelly DM, Tuinstra MR, Ware D, Warek U. 2005. Toward sequencing the sorghum genome: a U.S. National Science Foundation-Sponsored workshop report. *Plant Physiology* 138: 1898-1902.
- Nagaraj N, Reese JC, Tuinstra MR, Smith CM, St Amand P, Kirkham MB, Kofoed KD, Campbell LR, Wilde GE. 2005. Molecular mapping of sorghum genes expressing tolerance to damage by greenbug (Homoptera: Aphididae). *Journal of Economic Entomology* 98:595-602.
- Tesso TT, Tuinstra MR, Claflin LE. 2005. Analysis of stalk rot resistance and genetic diversity among drought tolerant sorghum genotypes. *Crop Science* 45:645-652.
- Tesso TT, Tuinstra MR, Claflin LE. 2004. Estimation of combining ability for resistance to Fusarium stalk rot in grain sorghum. *Crop Science* 44: 1195-1199.
- Yu J, Tuinstra MR, Claassen MM, Gordon WB, Witt MD. 2004. Analysis of cold tolerance in sorghum under controlled environment conditions. *Field Crops Research* 85:21-30.

- Zhana X, Wang D, Tuinstra MR, Bean S, Seib PA, Sund XS. 2003. Ethanol and lactic acid production as affected by sorghum genotype and location. *Industrial Crops and Products* 18: 245-255.
- Agrama HA, Tuinstra MR. 2003. Phylogenetic diversity and relationships among sorghum accessions using SSRs and RAPDs. *African J. Biotech.* 2:334-340.
- Agrama HA, Wilde G, Reese J, Campbell L, Tuinstra MR. 2002. Genetic mapping of QTL associated with greenbug resistance and tolerance in sorghum bicolor. *Theor. Appl. Genet.* 104:1373-1378.
- Reed JD, Tuinstra MR, McLaren NW, Kofoid KD, Ochanda NW, Claflin LE. 2002. Analysis of combining ability for ergot resistance in sorghum. *Crop Science* 42:1818-1823.
- Hicks C, Tuinstra MR, Pedersen JF, Dowell FE, Kofoid KD. 2002. Genetic analysis of feed quality and seed weight of sorghum inbred lines and hybrids using analytical methods and NIRS. *Euphytica* 127:31-40.
- Reed JD, Tuinstra MR, Ramundo BA, Claflin LE. 2002. Analysis of Resistance to Ergot in Sorghum and Potential Alternate Hosts. *Crop Science* 42:1135-1138.
- Tuinstra MR, Wilde, GE, Kriegshauser T. 2001. Genetic analysis of biotype I greenbug resistance in sorghum. *Euphytica* 121: 87-91.
- Yu J, Tuinstra MR. 2001. Genetic analysis of seedling growth under cold temperature stress in grain sorghum. *Crop Science* 41:1438-1443.
- Hicks C, Bean SR, Lookheart GL, Pedersen JF, Kofoid KD, Tuinstra MR. 2001. Genetic analysis of kafirins and their phenotypic correlations with feed quality traits, in vitro digestibility, and seed weight in grain sorghum. *Cereal Chemistry* 78:412-416.
- Tuinstra MR, Liang GL, Hicks C, Kofoid K, Vanderlip RL. 2001. Registration of KS 115 sorghum. *Crop Science* 41: 932-933.
- Bean SR, Hicks C, Tuinstra MR, Lookheart GL. 2001. The use of SDS to extract sorghum and maize proteins for free zone capillary electrophoresis (FZCE) analysis. *Cereal Chemistry* 78: 84-87.
- Tuinstra MR, Wedel J. 2000. Estimation of pollen viability in grain sorghum. *Crop Science* 40: 968-970.
- Wilde G, Tuinstra MR. 2000. Greenbug (Homoptera: Aphididae) resistance in sorghum. *Journal of Agricultural and Urban Entomology* 17: 15-19.

- Tuinstra MR. 2000. Registration of KS 98 sorghum. *Crop Science* 40: 867.
- Wilde GE, Tuinstra MR. 2000. Registration of KS 97 sorghum. *Crop Science* 40: 866.
- Teferra T, Tefera H, Simane B, Tuinstra MR. 2000. The influence of drought stress on yield of tef (*Eragrostis tef*). *Trop-Sci.* 40: 40-45.
- Teferra T, Tefera H, Simane B, Tuinstra MR. 2000. The effect of moisture stress on growth, leaf water loss rate and phenological development of tef (*Eragrostis tef*). *Trop-Sci.* 40: 100-107.
- Agrama, HAS, Zakaria AG, Tuinstra MR. 1999. Identification of quantitative trait loci for nitrogen use efficiency in maize. *Molecular Breeding* 5: 187-195.
- Tuinstra MR, Ejeta G, Goldsbrough PB. 1998. Evaluation of near-isogenic sorghum lines differing at loci associated with drought tolerance. *Crop Science* 38: 835-842.
- Tuinstra MR, Ejeta G, Goldsbrough PB. 1997. Heterogeneous Inbred Family (HIF) Analysis: An approach for developing near-isogenic lines that differ at quantitative trait loci. *Theoretical and Applied Genetics* 95: 1005-1011.
- Tuinstra MR, Grote EM, Goldsbrough PB, Ejeta G. 1997. Genetic analysis of post-flowering drought tolerance and components of grain development in sorghum. *Molecular Breeding* 3:439-448.
- Tuinstra MR, Grote EM, Goldsbrough PB, Ejeta G. 1996. Identification of Quantitative Trait Loci Associated with Pre-flowering Drought Tolerance in Sorghum. *Crop Science* 36(5): 1337-1344.

BOOK CHAPTERS

- Renaud AL, Tuinstra MR. 2013. Role of Engineering Plants for Abiotic Stresses. pp 51-55. *In* D. Niyogi (ed.) *Climate Vulnerability*. Elsevier Limited, Oxford, UK.
- Yu J, Hamblin MT, Tuinstra MR. 2013. Association Genetics Strategies and Resources. pp 187-203. *In* AH Patterson (ed.) *Genetics and Genomics of Saccharinae*, Vol. 11. Springer Inc., New York. 10.1007/978-1-4419-5947-8_9.
- Popelka M, Tuinstra MR, Weil CF. 2009. Discovering Genes for Abiotic Stress Tolerance in Crop Plants. p. 281-302. *In* MA Jenks and AJ Wood (eds.) *Genes for Plant Abiotic Stress*. Blackwell Publishing, Inc., Ames IA.
- Muthukrishnan S, Weeks T, Tuinstra MR, Jeoung JM, Jayaraj R, Liang GH. 2004. Sorghum transformation for resistance to fungal pathogens and drought. p. 203-223. *In* D Skinner and

GH Liang (eds.) Genetically Modified Crops: Their Development, Uses, and Risks. Haworth Press, Inc.

Tuinstra MR, Teferra T, Claflin LE, Henzell RG, Borrell A, Seetharama N, Ejeta G, Rosenow DT. 2002. Breeding for resistance to root and stalk rots in sorghum. p. 281-286. *In* J.F. Leslie (ed.) Sorghum and Pearl Millet Diseases. Iowa State Press, Ames, Iowa.

PROCEEDINGS PAPERS

Foley, R.C., M.R. Tuinstra, B. Dilkes, B.A. Craig, and M.V. Mickelbart. 2012. Genetic diversity of water use efficiency and carbon isotope discrimination in maize. *In* Proceedings of the International Conference on Plant Biotechnology for Food Security: New Frontiers, New Delhi, India, February 21-24, 2012, p. 93.

Tuinstra, M.R., and K.A. Khatib. 2007. New herbicide tolerance traits in sorghum. *In* Proceedings of the 2007 Corn, Sorghum, and Soybean Seed Research Conference and Seed Expo, 5-7 December 2007, Chicago, IL.

Tuinstra MR, Kriegshauser TD, Vanderlip RL, Kofoid KD, Hancock JD. 2001. Can long grain-fill duration improve yield potential and grain quality of sorghum. p. 185-195. *In* Proceedings of the 56th Corn & Sorghum Research Conference, 5-7 December 2001, Chicago, IL.

Tuinstra MR, Pedersen J, Kofoid K, Andrews D. Cooperative ergot research efforts between Kansas State University and the University of Nebraska. (<http://www.ars-grin.gov/ars/SoAtlantic/Mayaguez/confernc/tuinstra.htm>) *In* Proceedings for the 1998 Conference on the Status of Sorghum Ergot in North America, June 1998, Corpus Christi, TX.

INVITED PRESENTATIONS

Zaidi PH, Babu R, Vinayan MT, Seetharam K, Tuinstra MR. 2014. Developing Stress-Resilient Maize for Asian tropics. Abstract 276-5. ASA-CSSA-SSSA Annual Meetings, 2-5 November, Long Beach, CA.

Tuinstra MR. 2014. Functional Genomics Platform for Sorghum Crop Improvement. University of Queensland, 6 August, Brisbane, Australia.

Tuinstra MR, Johal G. 2014. Dissecting Heat Tolerance in Maize. 2nd Annual Review & Planning and Project Steering Committee Meeting of the Heat Tolerant Maize for Asia (HTMA) Project, 22-23 July, University of Agricultural Sciences (UAS), Raichur (Karnataka), India.

Tuinstra MR. 2014. Challenges and Opportunities for Enhancing Maize Adaption to Stressful Environments. 1st Workshop on Engineered Plants, 28-29 April, Ames, IA.

Tuinstra MR. 2014. Sorghum Trait Development Pipeline for Improved Food and Feed Value. Sorghum and Millet Innovation Lab Inception Meetings, 23-25 April, L'Hotel Royal, Saly, Mbour, Senegal.

Tuinstra MR. 2014. New Opportunities for Managing Cyanide Content of Sorghum Forages. Livestock, Forage and Grain Forum, 13 March, Indianapolis, IN.

Tuinstra MR. 2014. Opportunities for Developing New Traits in Sorghum. Kansas State University, 3 March, Manhattan, KS.

Tuinstra MR. 2013. Drought tolerant crops. Indiana CCA Conference, 17-18 December, Indianapolis, IN.

Tuinstra MR. 2013. Vision for improving genetic gain of sorghum for African farmers using genomics. Genomic Tools for Sorghum Breeding. Bill and Melinda Gates Foundation, December 9-10, Seattle, WA.

Tuinstra MR. 2013. How can we increase crop yield under real conditions to better feed the world? Sustainability, Genetics, and Future Cultivars, AACCI Hot Topic Workshop, September 29, Albuquerque, NM.

Tuinstra MR. 2013. Partnership for Research & Education in Plant Breeding and Genetics. AgReliant Genetics Summer Maize Research Conference, 2013 Summer Research Conference, French Lick Resort, August 20-23, French Lick, IN.

Tuinstra MR. 2013. Dissecting heat tolerance in maize: physiological and molecular basis. Heat Tolerant Maize for Asia (HTMA) Project Annual Review and Planning Meeting, 30-31 July, Hotel Yak & Yeti, Darbar Marg, Kathmandu, NEPAL.

Tuinstra MR. 2013. GMO: Bad Reputation; Good Solution? Sustainable Foods Institute 2013, Monterey Bay Aquarium, May 15-17, Monterey, CA.

Tuinstra MR. 2013. Adapting Maize and Sorghum to Stressful Environments. 2013 NCCC-167 Meeting, Pheasant Run Resort, March 13-14, St. Charles, IL.

Tuinstra MR. 2013. Adapting Maize to Environmental Stresses. AgReliant Genetics Maize Research Meeting, Purdue University, March 12, West Lafayette, IN.

Tuinstra MR. 2013. Adapting Maize and Sorghum to Stressful Environments. Dissemination workshop of the ACIAR-funded project "Improving postrainy sorghum varieties to meet the growing grain and fodder demand in India", ICRISAT, February 19-21, Hyderabad, India.

Tuinstra MR. 2013. Climate Resilient Agriculture. Wabash College, February 7, Crawfordsville, IN.

- Tuinstra MR. 2013. Heat and Drought Stress Tolerance in Maize. The Corn Belt Seed Conference, Indianapolis Marriott North, February 6, Indianapolis, IN.
- Tuinstra MR. 2013. Heat stress tolerant maize – Purdue perspective. Heat Tolerant Maize for Asia (HTMA), Genomic Selection Workshop & Project Launch Meeting, 23-25 January, The New Sahel Conference Room, ICRISAT, Patancheru, Hyderabad, INDIA.
- Tuinstra MR. 2013. Prospects for Adapting Maize to Drought and High-Temperature Stresses. Keystone Symposium on Plant Abiotic Stress and Sustainable Agriculture: Translating Basic Understanding to Food Production, Sagebrush Inn and Conference Center, January 17-22, Taos, NM.
- Tuinstra MR. 2012. Climate Resilient Crops: View from a Plant Breeder. Indiana CCA Conference, 18-19 December, Indianapolis, IN.
- Tuinstra MR. 2012. New Opportunities for Managing Cyanide Production in Sorghum. Sorghum Improvement Conference of North America, 28-30 August, Indianapolis, IN.
- Tuinstra MR. 2012. Partnership for Research & Education in Plant Breeding and Genetics. National Association of Plant Breeders, Indiana University – Purdue University – Indianapolis, 6-8 August, Indianapolis, IN.
- Tuinstra MR. 2012. Mining Genes for Abiotic Stress Tolerance in Maize. University of Illinois, 18 April, Urbana-Champaign, IL.
- Tuinstra MR. 2012. Adapting Maize and Sorghum to Stressful Environments (<http://www.plantbreedingcenter.ncsu.edu/symposium/index.html>). 1st Annual Graduate Student Plant Breeding Symposium, Perspectives on Global Plant Breeding, 27 January, Center for Plant Breeding and Applied Genomics, North Carolina State University, Raleigh, NC.
- Tuinstra MR. 2011. Challenges of Cereal Crop Improvement and Technology Deployment in Africa. Calvin College, 8 November, Grand Rapids, MI.
- Tuinstra MR, Soumana S, Traore H, Kayentao M, Aba D, Ibikunle O, Beitler J, Young R. 2011. Development of Seed Technologies and Benefits for Africa. 2011 APS-IPPC Joint Meeting, 6-10 August, Honolulu, Hawaii. *Phytopathology* 101:S232.
- Tuinstra MR, Popelka M, Krothapalli K, Johal G, Mickelbart M, Larsson S, Buckler E. 2011. Mining genes for late-season drought tolerance in maize. International conference on crop improvement, ideotyping, and modelling for African cropping systems under climate change, University of Hohenheim, Euro-Forum, 7-9 February, Stuttgart, Germany.

- Tuinstra MR. 2010. Sorghum: A new technology for controlling height mutants. Kansas State University, 31 August, Manhattan, KS.
- Tuinstra MR. 2009. Corn Breeding 201: The art and science of hybrid corn development. Indiana CCA Conference, 16 December, Indianapolis, IN.
- Tuinstra MR. 2009. Food-grade sorghum varieties and production considerations. Health, Research, and Entrepreneurship: Sorghum Food for Celiac Patients, 19 October, Naples, Italy.
- Tuinstra MR. 2008. Corn Breeding 101: The art and science of hybrid corn development. Certified Crop Advisors Conference, 17 December, Indianapolis, IN.
- Tuinstra MR, Al-Khatib K. 2008. New Tools and Strategies for Managing Weeds in Sorghum. Multinational Agriculture Research and Development Meeting, 3-6 November, Aman, Jordan.
- Tuinstra MR. 2008. Translational Genomics: The new face of plant breeding at Purdue University. Dow Agrisciences, 21 April, Indianapolis, IN.
- Tuinstra MR. 2008. Herbicide Resistance in Sorghum. Du Pont de Nemours & Co, 26 February, Wilmington, DE.
- Tuinstra MR. 2008. Kids and Poverty. World Vision 30 Hour Famine, Sunrise Christian Reformed Church, 29 February, Lafayette, IN.
- Tuinstra MR. 2008. Translational Genomics: The new face of plant breeding at Purdue University. Indiana Crop Improvement Conference, 7 February, Indianapolis, IN.
- Tuinstra MR, Al-Khatib K. 2007. New herbicide tolerance traits in sorghum. Corn, Sorghum, and Soybean Seed Research Conference and Seed Expo, 5-7 December, Chicago, IL.
- Tuinstra MR. 2007. Food-grade sorghum varieties and production considerations. Health, Research, and Entrepreneurship: Sorghum Food for Celiac Patients, 16-18 September, Naples, Italy.
- Tuinstra MR. 2007. Cytoplasmic Male-sterility systems for hybrid sorghum and pearl millet. West African Training Workshop on Sorghum and Pearl Millet Hybrid Breeding, ICRISAT, 17-19 April, Bamako, Mali.
- Tuinstra MR. 2005. Genetic tools for managing *Striga* in sorghum. Wageningen University, 7 October, Wageningen, The Netherlands.

- Tuinstra MR. 2005. Sorghum Improvement in the United States and Abroad. Wageningen University, 23 June, Wageningen, The Netherlands.
- Tuinstra MR. 2004. After 50 years of Hybrid Sorghum – What’s next? Department of Agronomy, Kansas State University, 12 November, Manhattan, KS.
- Tuinstra MR. 2004. The Evolution of a Plant Breeder: Efforts to integrate agronomy, genetic resources, and genomics. Department of Agronomy, Purdue University, 2 February, West Lafayette, IN.
- Tuinstra MR. 2003. Breeding for stalk rot resistance in grain sorghum. Sorghum Improvement Conference of North America, 16-18 February, Albuquerque, NM.
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- Tuinstra MR. 2000. Breeding for enhanced yield potential and grain quality in sorghum. USDA-GMPRC, 26 April, Manhattan, KS.
- Tuinstra MR. 2000. Breeding sorghum for improved dryland production. Sorghum Conference, National Grain Sorghum Producers Conference, 21 February, Corpus Christi, TX.
- Tuinstra MR. 1999. Mapping genes for chinch bug resistance in sorghum. Entomology Colloquium, Kansas State University, 22 October, Manhattan, KS.
- Tuinstra MR. 1999. Chinch bug resistance in sorghum. Sorghum Improvement Conference of North America, 21-23 February, Tucson, AZ.
- Tuinstra MR. 1998. Molecular markers in sorghum breeding. KS/NE Sorghum Conference, 10-11 September, Manhattan, KS.

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ORAL PRESENTATIONS AND POSTERS

Addo-Quaye C, Weil C, Tuinstra MR, Dilkes BD. 2015. Utility to the Maize Community of a Functional Gene Discovery Platform for Sorghum Improvement. Maize Genetics Conference Abstracts. 57:P12.

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Carraro N, Bhide K, Thimmapuram J, Tuinstra MR. 2015. Maize Transcriptome Regulation in Response to Heat Stress. Maize Genetics Conference Abstracts. 57:P112.

Thada B, Renaud A, Gibson R, Khangura RS, Zaidi PH, Prasanna BS, Johal G, Tuinstra MR. 2015. Heat Stress Tolerance in Maize. Maize Genetics Conference Abstracts. 57:P267.

Massafao M, Weil C, Tuinstra MR. 2015. Mapping and identification of increased protein digestibility in sorghum. Maize Genetics Conference Abstracts. 57:P281.

Skelton JL, Tuinstra MR. 2013. EMS Induced Mutants In Dhurrin Production and Effects On Growth and Development Of Sorghum Bicolor (L.) Moench. Abstract 234-4. ASA-CSSA- SSSA Annual Meetings, 3-6 November, Tampa, FL.

Lin Z, Li X, Shannon LM, Yeh CT, Wang ML, Bai G, Peng Z, Li J, Trick HN, Clemente TE, Doebley J, Schnable PS, Tuinstra MR, Tesso TT, White F, Yu J. 2012. Cloning of *Shattering1* suggests parallel selection during sorghum, rice, and maize domestication. Maize Genetics Conference Abstracts. 55:P89.

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- Mutava R, PV Vara Prasad, J Yu, KD Kofoid, MR Tuinstra. 2010. Characterization of Diverse Sorghum Genotypes for Traits Related to Drought Tolerance. Abstract 65-7. ASA-CSSA-SSSA Meeting. Long Beach, CA.
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- Elias A.A, K. Robbins, P. Rinkal, R.W. Doerge, D.S. Niyogi, J.J. Camberato, and M.R. Tuinstra. 2010. Evaluation of Hybrid Maize Performance Under Diverse Weather Conditions and Soil Types. Graduate Student Symposium, Department of Agronomy, Purdue University.
- Tuinstra MR. 2010. A New Technology for Controlling Height Mutants in Sorghum. West Africa Regional Assessment and Planning Meeting, May 18-20, Ouagadougou, Burkina Faso.
- Tuinstra MR. 2010. Heat and drought stress tolerance in corn. National Corn Growers Meeting, Purdue University, March 31, West Lafayette, IN.

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- Tuinstra MR. 2009. Herbicide Resistance in Sorghum. Du Pont de Nemours & Co, 18-19 February, Wilmington, DE.
- Tuinstra MR, Rocheford T, Weil CF, Johal G. 2009. Purdue–Illinois Collaborative Research Project: Improving Feedstock Quality of Corn for Ethanol Production. Indiana Corn Marketing Board, Beck Center, 8 January, West Lafayette, IN.
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- Tuinstra MR. 2006. Sorghum Breeding Efforts at K-State: Progress report. Belleville Winter Field Meeting, 24 January, Belleville, KS.
- Tuinstra MR. 2005. Food Grade Sorghum: It's not just for cattle anymore. 50 Year Celebration of DeKalb Sorghum, Monsanto, 3 March, Hays, Kansas.
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- Vanderlip RL, Heiniger RW, Staggenborg SA, Rosenthal WD, Tuinstra MR. 2004. Crop Growth Models Effect Change – A Case History. 4th International Crop Science Congress, 26 September – 4 October, Brisbane, Australia.
- White PM Jr, Rice CW, Baldock JA, Tuinstra MR. 2004. Changes in Soil C Dynamics from the Addition of Nitrogen and Lignin-Modified Grain Sorghum. 2004 ASA-CSSA-SSSA International Annual Meetings with the Canadian Society of Soil Science, 31 Oct – 4 November, Seattle, Washington.
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- Tuinstra MR. 2004. Sorghum Breeding and Genetics: Present, Past, and Future. Strip-till Field Day, 19 August, Quinter, KS.
- Tuinstra MR. 2004. KSU Sorghum Crop Improvement Center. 2004 Congressional Assistants Tour, 12 August, Manhattan, KS.
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- Pandravada A, Tuinstra MR. 2002. Characterizing Early Season Vigor and Low Temperature Tolerance in Sorghum bicolor. ASA-CSSA-SSSA Conference, 11-14 November, Indianapolis, IN.
- Reed JD, Tuinstra MR, Ochanda NW, Claflin LE, Kofoid KD, McLaren NW. 2001. Analysis of ergot resistance in sorghum. 2001 ASA-CSSA-SSSA Conference, 21-25 October, Charlotte, NC.
- Teferra TT, Tuinstra MR, Ochanda NW, Claflin LE. 2001. Analysis of genetic diversity for fusarium stalk rot resistance in sorghum. 2001 ASA-CSSA-SSSA Conference, 21-25 October, Charlotte, NC.
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- Teferra T, Tuinstra MR. 2000. Resistance to fusarium stalk rot in grain sorghum. Global 2000: Sorghum and Pearl Millet Diseases III, 23-30 September, Guanajuato, Mexico.
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- Tuinstra MR, Yu J, Martin V, Claassen M, Kofoid K, Witt M. 1999. Analysis of Cold Tolerance in Sorghum. 1999 Kansas Commodity Classic, 30 November, Salina, KS.
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- Barten TJ, Vanderlip RL, Tuinstra MR, Kofoid KD. 1999. Increasing sorghum yield by lengthening grain fill duration. Sorghum Improvement Conference of North America, 21-23 February, Tucson, AZ.
- Wilde GE, Tuinstra MR. 1999. KS 97: A Source of Resistance to Greenbug Biotype I in Sorghum. Sorghum Improvement Conference of North America, 21-23 February, Tucson, AZ.
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- Tuinstra MR. 1997. Analysis of Drought Tolerance in Sorghum: QTL mapping and evaluation of near-isogenic lines. Department of Agronomy, Kansas State University, May, Manhattan, KS.
- Tuinstra MR, Ejeta G, Goldsbrough PB. 1996. Genetic and Phenotypic Analysis of Near-Isogenic Lines Differing at Loci Associated with Drought Tolerance. ASA-CSSA-SSSA Annual Meetings, 3-8 November, Indianapolis, IN.
- Tuinstra MR. 1996. Genetic analysis of drought tolerance in sorghum. Department of Horticulture, Oregon State University, May, Corvallis, OR.
- Tuinstra MR, Ejeta G, Goldsbrough PB. Evaluation of near-isogenic sorghum lines differing at loci associated with drought tolerance. *Plant Genome* IV, January, San Diego, California.
- Tuinstra MR, Grote EM, Ejeta G, Goldsbrough PB. 1995. A Method to Develop Near-Isogenic Lines for Quantitative Trait Loci: Application to Analysis of Drought Tolerance in Sorghum. *Plant Genome* III, January, San Diego, California.
- Tuinstra MR, Ejeta G, Goldsbrough PB. 1994. Segregating Inbred Family Analysis: A novel approach to the genetic analysis of quantitative traits. ASA-CSSA-SSSA Annual Meetings, November, Seattle, Washington.
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Tuinstra MR, Goldsbrough PB, Grote EM, Ejeta G. 1992. Identification and RAPD Mapping of Quantitative Trait Loci Associated with Drought Tolerance in Sorghum. Plant Genome I, November, San Diego, CA.

STUDENT ADVISING

GRADUATE ADVISING

Advisees served as major or co-major professor:

1. Jianming Yu. (M.S.) Graduated – 2000. Current Employment: Pioneer Distinguished Chair in Maize Breeding, Associate Professor, Department of Agronomy, Iowa State University, Ames, IA 50011-1010.
2. Jacob Reed (M.S.) Graduated – 2001. Current Employment: Research Agronomist, BASF, Lubbock, Lubbock, Texas.
3. Tesfaye Tesso (Ph.D.) Graduated – 2002. Current Employment: Sorghum Breeder, Associate Professor, Department of Agronomy, Kansas State University.
4. Travis Kriegshauser (M.S.) – 2003. Current Employment: Commercial Unit Services Sales Lead, DuPont-Pioneer Pioneer HiBred International, Lawrence, KS.
5. Michael Stamm (M.S.) – 2003. Current Employment: Canola Breeder, Associate Agronomist, Kansas State University, Manhattan, KS.
6. Anand Pandravada (Ph.D.) Graduated – 2004. Current Employment: Regional Research Director, DuPont Pioneer International, Hyderabad, India.
7. Dustan Ridder (M.S.) Graduated – 2005. Current Employment: Hybrid Wheat Breeder, AgriPro Wheat, Syngenta, Junction City, Kansas.
8. Rhett Kaufman (M.S.) Graduated – 2005. Current Employment: Cereal Chemist, USDA-ARS CGAHR, Manhattan, KS, 66502, USA.
9. Souley Soumana (M.S.) Graduated – 2007. Current Employment: Sorghum Breeder, Institut National de Recherche Agronomique du Niger (INRAN), Niamey, NIGER.
10. Grant Groene (M.S.) Graduated – 2008. Current Employment: Technical Product Manager, Pioneer Hi-Bred International, Corpus Christi, Texas.
11. Ivan Dario Barrero Farfan (M.S.) Graduated – 2010. Current Employment: Corn Breeder, AgReliant Genetics, Kirkwood, IL.
12. Kellan Kershner (Ph.D.) Graduated – 2010. Current Employment: Popcorn Breeder, AgAlumni Seeds, Romney, IN.
13. Mike Popelka (Ph.D.) Graduated – 2012. Current Employment: Station Manager and Corn Breeder, AgReliant Genetics, Mount Hope, KS.
14. Jason Morales (Ph.D.) Graduated – 2013. Current Employment: Corn Breeder, Dow AgroSciences, Ames, IA.

15. Ani Elias (Ph.D.) Graduated – 2013. Current Employment: Biometrics, Pioneer HiBred, Johnston, IA.
16. Jenae Skelton (M.S.) Graduated – 2014. Current Employment: Post Rock District Horticulture Extension Agent, K-State Research and Extension.
17. Alex Renaud (Ph.D.) Graduated – 2015. Current Employment: Corn Breeder, Monsanto, St. Louis, MO.
18. Raymond Lindsey (Ph.D.) Graduated – 2015. Current Employment: Soybean Breeder, Dow AgroSciences, Grand Forks, ND.
19. Molly McKnight (M.S.) Graduated – 2015. Current Employment: Sustainable Intensification Innovation Lab, Kansas State University, Manhattan, KS.

Current advisees as major or co-major professor:

1. Ryan Gibson (Ph.D.) Arrived – 2011; Est. Departure – 2016.
2. Martin Medina (Ph.D.) Arrived – 2013; Est. Departure – 2015.
3. Brad Thada (Ph.D.) Arrived – 2013; Est. Departure – 2017.
4. Moriah Massafaro (M.Sc.) Arrived – 2014; Est. Departure – 2015.
5. Stefanie Griebel (Ph.D.) Arrived – 2015; Est. Departure – 2018.

Student graduate committee member (since 2007):

2007 – 2 students
 2008 – 8 students
 2009 – 7 students
 2010 – 7 students
 2011 – 8 students
 2012 – 11 students
 2013 – 11 students

UNDERGRADUATE ADVISING (since 2007)

Advisor for students in the Plant Genetics, Breeding, and Biotechnology Major

(<https://aq.purdue.edu/aqry/undergraduate/Documents/Information%20and%20Eight%20Semester%20Plan%20Sheets/2%20sided%202014%20Plant%20Genetics%20Breeding%20and%20Biotech%20info%20sheet.pdf>):

2008 – 6 students
 2009 – 7 students
 2010 – 9 students
 2011 – 16 students
 2012 – 30 students
 2013 – 29 students