

MITCHELL TUINSTRA

**Professor of Plant Breeding and Genetics
Wickersham Chair of Excellence in Agricultural Research
Scientific Director – Institute for Plant Sciences**

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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, Institute for Plant Sciences, 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

CURRENT RESEARCH AND TEACHING ACTIVITIES

90% Research Appointment:

Plant Breeding and Genetics

10% Teaching Appointment:

AGRY285: World Crop Adaptation and Distribution

AGRY520: Principles of Plant Breeding

HONORS AND AWARDS (SINCE 2007)

Fellow, American Society of Agronomy – 2017
Fellow, Crop Science Society of America – 2017
Nominated for David C. Pfendler Outstanding Undergraduate Counselor Award – 2017, 2018
Spotlight Educator, Agricultural Council Student Choice Award, Purdue University – 2016
Seeds for Success, Purdue University – 2009, 2013, 2014, 2016, 2017
Wickersham Chair of Excellence in Agricultural Research, Purdue University – 2007, 2015

PROFESSIONAL SOCIETIES

American Society of Agronomy
Crop Science Society of America
Sorghum Improvement Conference of North America
North American Association of Plant Breeders

PATENTS (since 2007)

Tuinstra MR, Al-Khatib K. Kansas State University Research Foundation. Acetyl-CoA Carboxylase Herbicide Resistant Sorghum. U.S. Patent No. 9,617,530. Issue Date: April 11, 2017.

Tuinstra MR, Krothapalli K, Dilkes B, Buescher E. Genetic Mutations that Disrupt Dhurrin Production In Sorghum. U.S. Patent No. 9,512,437. Issue Date: December 6, 2016.

Tuinstra MR. Genetic Modified-Brachytic Popcorn Cultivars. USPTO 62/219,192. Filing date: 16 September 2015.

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 (since 2007)

REFEREED JOURNAL ARTICLES

Diatta E, Anderson JS, Hatch R, Massafaro M, Tuinstra MR, Weil C. (2019 – In review). A Modified Protocol for Rapid Determination of Protein Digestibility in Sorghum Based on Turbidity. Nature protocols.

Ma D, Carpenter N, Rehman T, Maki H, Tuinstra MR, Jin J. (2018 – In review). Greenhouse Environment Modeling and Simulation for Microclimate Control. Computers and Electronics in Agriculture.

- Griebel S, Webb MM, Campanell OH, Craig BA, Weil C, Tuinstra MR. (YJCRS_2019_646_R1 – In press). The Alkali Spreading Phenotype in Sorghum bicolor and its Relationship to Starch Gelatinization. *Journal of Cereal Science*.
- Al Khalifah N, Campbell DA, Falcon CM, Gardiner JM, Miller ND, Cinta Romay R, Walls R, Walton R, Yeh CT, Bohn M, Bubert J, Buckler ES, Ciampitti I, Flint-Garcia S, Gore MA, Graham C, Hirsch C, Holland JB, Hooker D, Kaeppler S, Knoll J, Lauter N, Lee EC, Lorenz A, Lynch NP, Moose SP, Murray SC, Nelson R, Rocheford T, Rodriguez O, Schnable JC, Scully B, Smith M, Springer N, Thomison P, Tuinstra MR, Wisser RJ, Xu W, Ertl D, Schnable P, De Leon N, Spalding EP, Edwards J, Lawrence-Dill CJ. 2018. Maize Genomes to Fields: 2014 and 2015 field season genotype, phenotype, environment, and inbred ear image datasets. *BMC research notes*, 11(1), p.452.
- Balzan, S., Carraro, N., Salleres, B., Dal Cortivo, C., Tuinstra, M.R., Johal, G. and Varotto, S., 2018. Genetic and phenotypic characterization of a novel brachytic2 allele of maize. *Plant Growth Regulation*, pp.1-12.
- Addo-Quaye, C., Tuinstra, M., Carraro, N., Weil, C. and Dilkes, B.P., 2018. Whole genome sequence accuracy is improved by replication in a population of mutagenized sorghum. *G3: Genes, Genomes, Genetics*, pp.g3-300301.
- Larsson S, Peiffer JA, Edwards JW, Ersoz ES, Flint-Garcia SA, Holland JB, McMullen MD, Tuinstra MR, Romay C, Buckler ES. 2017. Genetic analysis of lodging in diverse maize hybrids. *bioRxiv* 185769.
- Bouchet, S., Olatoye, M.O., Marla, S.R., Perumal, R., Tesso, T., Yu, J., Tuinstra, M. and Morris, G.P., 2017. Increased power to dissect adaptive traits in global sorghum diversity using a nested association mapping population. *Genetics*, 206(2), pp.573-585.
- Pontieri, P., Troisi, J., Bagnasco, A., Boffa, A., Motto, M., Del Giudice, F., Tuinstra, M.R., Chessa, A.L., Pizzolante, G., Romano, R. and Alifano, P., 2016. Yield potential and adaptability of selected food-grade sorghum hybrids to Mediterranean conditions. *International Journal of Current Research in Biosciences and Plant Biology*. *Int. J. Curr. Res. Biosci. Plant Biol*, 3(10), pp.118-127.
- Chen, K., Camberato, J.J., Tuinstra, M.R., Kumudini, S.V., Tollenaar, M. and Vyn, T.J., 2016. Genetic improvement in density and nitrogen stress tolerance traits over 38 years of commercial maize hybrid release. *Field Crops Research*, 196, pp.438-451.
- Pontieri, P., Del Giudice, F., Dimitrov, M.D., Pesheva, M.G., Venkov, P.V., Di Maro, A., Pacifico, S., Gadgil, P., Herald, T.J., Tuinstra, M.R. and Pizzolante, G., 2016. Measurement of biological antioxidant activity of seven food-grade sorghum hybrids grown in a Mediterranean environment. *Australian Journal of Crop Science*, 10(7), p.904.

- Sukumaran, S., Li, X., Li, X., Zhu, C., Bai, G., Perumal, R., Tuinstra, M.R., Prasad, P.V., Mitchell, S.E., Tesso, T.T. and Yu, J., 2016. QTL mapping for grain yield, flowering time, and stay-green traits in sorghum with genotyping-by-sequencing markers. *Crop Science*, 56(4), pp.1429-1442.
- Massafaro, M., Thompson, A., Tuinstra, M., Dilkes, B. and Weil, C.F., 2016. Mapping the Increased Protein Digestibility Trait in the High-Lysine Sorghum Mutant P721Q. *Crop Science*, 56(5), pp.2647-2651.
- Elias, A.A., Robbins, K.R., Doerge, R.W. and Tuinstra, M.R., 2016. Half a century of studying genotype × environment interactions in plant breeding experiments. *Crop Science*, 56(5), pp.2090-2105.
- 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, Clafin 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, Pressoira 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 flouy 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.

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.

PROCEEDINGS PAPERS

Masjedi, A., Zhao, J., Thompson, A.M., Yang, K.W., Flatt, J.E., Crawford, M.M., Ebert, D.S., Tuinstra, M.R., Hammer, G. and Chapman, S., 2018, July. Sorghum Biomass Prediction Using

Uav-Based Remote Sensing Data and Crop Model Simulation. *In* IGARSS 2018-2018 IEEE International Geoscience and Remote Sensing Symposium (pp. 7719-7722). IEEE.

Ramamurthy, K.N., Z. Zhang, A. Thompson, F. He, M. Crawford, A. Habib, C. Weil, M. Tuinstra. 2016. Predictive Modeling of Sorghum Phenotypes with Airborne Image Features. *In* KDD 2016 San Francisco, CA, August 13-17. DOI: 10.475/123 4.

Tuinstra, M.R., C. Weil, A Thompson, C. Boosma, M Crawford, A. Habib, E. Delp, K. Cherkauer, L. Biehl, N. Abe, M. Kshirsagar, A. Lozano, K. Natesan, P. Olsen, E. Yang. 2016. Automated Sorghum Phenotyping and Trait Development Platform. *In* KDD 2016 San Francisco, CA, August 13-17. DOI: 10.475/123 4

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.

INVITED PRESENTATIONS

Tuinstra MR. 2018. Adapting Crops for Production in Stressful Environments. The 2050 Challenge - The Role of Agriculture in Addressing the Global Needs, Kansas State University, September 6, Manhattan, KS.

Tuinstra MR. 2018. Plant Breeding in the Omics Era. 9th International Purdue Symposium on Statistics, Data Revolution: Opportunities and Challenges for Statistics, Purdue University, June 5 - 8, West Lafayette, IN.

Tuinstra MR, Weil C, Dilkes B. 2018. Sequence-Indexed Mutants for Functional Genomics and Crop Improvement of Sorghum. Sorghum in the 21st Century: A Global Conference, April 9-12, Cape Town, South Africa.

Tuinstra MR. 2018. Plant Breeding in the Omics Era. 2018 R. F. Baker Plant Breeding Symposium, Bridging the Gap: Creating Cross-disciplinary Scientists, March 2, Iowa State University, Ames, IA.

Tuinstra MR, Zhao, J, Surakitbanharn C, Ribera J, Yuhao C, He, F, Xiong W, Zhou Z, Masjedi A, Thompson A, Olsen P, Ramamurthy KN, Lozano A, Chitnes U, Abe N, Chapman S, Hammer G, McLean G, Habib A, Delp E, Biehl L, Leasure M, Cherkauer K, Weil C, Ebert D, Crawford M. 2018. UAV and Ground-Based Phenotyping of Crop Plants in Field Trials. Sorghum Improvement Conference of North America, January 29-31, Danforth Center, St. Louis, MO.

- Tuinstra MR. 2018. High Throughput Phenotyping of Crop Plants in Field Trials. W259. Plant and Animal Genome Conference, 13-17 January, San Diego, CA.
- Tuinstra MR, Zhao, J, Surakitbanharn C, Ribera J, Yuhao C, Fangnin H, Xiong W, Zhou Z, Masjedi A, Thompson A, Olsen P, Ramamurthy KN, Lozano A, Chitnes U, Abe N, Chapman S, Hammer G, McLean G, Habib A, Delp E, Biehl L, Leasure M, Cherkauer K, Weil C, Ebert D, Crawford M. 2017. UAV and Ground-Based Phenotyping of Crop Plants in Field Trials. TropAG 2017, 20 November, Brisbane, AU.
- Tuinstra MR, Boomsma C, Ribera J, Yuhao C, Fangnin H, Habib A, Delp E, Leasure M, Weil C, Crawford M. 2017. Determining Plant Count, Location, and Spacing Using Commercial Unmanned Aerial Vehicle and Sensor Hardware. Abstract 377-3. ASA-CSSA- SSSA Annual Meetings, 25 October, Tampa, FL.
- Tuinstra MR. 2017. Functional Gene Discovery and Crop Improvement by Mutation Breeding and Mutant-based Reverse Genetics. The University of Illinois Plant Sciences Symposium, September 29, Urbana-Champaign, Illinois.
- Tuinstra MR, Boomsma C, Zhao, J, Surakitbanharn C, Ribera J, Yuhao C, Fangnin H, Xiong W, Zhou Z, Masjedi A, Thompson A, Olsen P, Ramamurthy KN, Lozano A, Chitnes U, Abe N, Habib A, Delp E, Biehl L, Leasure M, Cherkauer K, Weil C, Ebert D, Crawford M. 2017. High-throughput Phenotyping of Crop Plants in Field Trials Using RGB, LiDAR, and Hyperspectral Imaging. Crops2017, 6 June, Huntsville, AL.
- Tuinstra MR. 2017. Plant Breeding in the Omics Era: New tools for crop improvement. Purdue-Utsunomiya University Meeting, 13-18 May, Utsunomiya, Japan.
- Tuinstra MR. 2017. Agriculture's Role in a Changing Climate. Ideas Lab, Purdue University, 9 February, West Lafayette, IN.
- Tuinstra MR, Boomsma C, Zhao, J, Surakitbanharn C, Ribera J, Yuhao C, Fangnin H, Xiong W, Zhou Z, Masjedi A, Thompson A, Olsen P, Ramamurthy KN, Lozano A, Chitnes U, Abe N, Chapman S, Hammer G, McLean G, Habib A, Delp E, Biehl L, Leasure M, Cherkauer K, Weil C, Ebert D, Crawford M. 2017. Multi-scale Analysis of Field-Grown Crops Using RGB, LiDAR, and Hyperspectral Imaging. Cornbelt Seed Conference, 6 February, Indianapolis, IN.
- Tuinstra MR. 2017. MULTI-Scale Analysis of FIELD-Grown Sorghum Using RGB, Lidar, and Hyperspectral Imaging. P1220. Plant and Animal Genome Conference, 14-18 January, San Diego, CA.
- Tuinstra MR. 2017. Introduction to the North American Plant Phenotyping Network. W712. Plant and Animal Genome Conference, 14-18 January, San Diego, CA.

- Cornelius J, Tuinstra MR. 2016. Precision Phenotyping, a New Horizon in the Age of Convergence. Bill and Melinda Gates Foundation, 7 December, Seattle, WA.
- Tuinstra MR, Boomsma C, Ribera J, Yuhao C, Fangnin H, Xiong W, Zhou Z, Thompson A, Ramamurthy KN, Lozano A, Abe N, Habib A, Delp E, Biehl L, Leasure M, Cherkauer K, Weil C, Crawford M. 2016. High-throughput Field Phenotyping of Sorghum: Theory, Results, Challenges, and Multi-Crop Applications. Proceedings of the Corn, Soybean & Sorghum Research Conference, American Seed Trade Association, 7-9 December, Chicago, IL.
- Tuinstra MR. 2016. An Automated, High-throughput Field Phenotyping System for Sorghum. University Industry Consortium Meeting, 26 October, Indianapolis, IN.
- Tuinstra MR. 2016. An Automated, High-throughput Field Phenotyping System for Sorghum: Project Vision and Early Results. North American Plant Phenotyping Meeting, Beck's Research Center, Purdue University, 29-31 August, West Lafayette, IN.
- Tuinstra MR. 2016. An Automated, High-throughput Field Phenotyping System for Sorghum. 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 13-17 August, San Francisco, CA.
- Tuinstra MR. 2016. Plant Breeding in the Omics Era: New tools for crop improvement. Plant and Animal Genome Conference, 10-13 January, San Diego, CA.
- Tuinstra MR. 2015. Plant Science Research and Education Pipeline. Punjab Agricultural University, 8 December, Ludhianna, India.
- Tuinstra MR. 2015. Plant Breeding in the Omics Era: Developing Crops Adapted to Variable Environments. Punjab Agricultural University, 7 December, Ludhianna, India.
- Tuinstra MR. 2015. Ag Grand Challenges. Purdue University-Sumitomo Chemical, 3 December, West Lafayette, IN.
- Tuinstra MR. 2015. Developing a Functional Genomics Platform for Sorghum Improvement. Forschungszentrum Jülich, 3 November, Jülich, Germany.
- Tuinstra MR. 2015. Developing Crops Adapted to Variable Environments. Rothamstead Research, 30 October, Rothhamstead, UK.
- Tuinstra MR. 2015. Developing Climate Resilient Crops: Challenges and new opportunities. Climate-Smart Agriculture Panel, BIFAD Meeting, 21 October, West Lafayette, IN.
- Tuinstra MR. 2015. From the Garden to the Field: Breeding Crops Adapted to Variable Environments. Wickersham Chair Celebration, Purdue University, 16 September, West Lafayette, IN.

- Tuinstra MR, Johal G. 2015. Dissecting Heat Tolerance in Maize. 3rd Annual Review & Planning and Project Steering Committee Meeting of the Heat Tolerant Maize for Asia (HTMA) Project, ICRISAT, 10-12 August, Hyderabad, India.
- Tuinstra MR. 2015. Connecting Genotypes and Phenotypes with Big Data. Convergence for Smarter Agriculture – Scoping Meeting, Purdue University, 15 April, Ludhianna, India.
- 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, L'Hotel Royal, 23-25 April, 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, 15-17 May, 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, 6 February, 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, 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. 1st Annual Graduate Student Plant Breeding Symposium, Perspectives on Global Plant Breeding, Center for Plant Breeding and Applied Genomics, North Carolina State University, 27 January, 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, 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.