

WALID SADOK
Associate Professor - Crop Physiology

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IDENTIFYING INFORMATION

Appointment: Research: 60% | Teaching: 40%
Graduate Faculty Appointment: Applied Plant Sciences, Plant and Microbial Biology

Education

Degree	Institution	Date Degree Granted
Ag. Engineer	INAT, Tunisia Crop Production	2001
M.S.	Montpellier SupAgro, France Crop Ecophysiology	2002
Ph.D.	Montpellier SupAgro, France Crop Ecophysiology [Dr. Francois Tardieu – Advisor for Ph.D.]	2005
Habilitation	Université de Lorraine, France Agronomical Sciences	2015

Positions/Employment

University of Minnesota, Twin Cities – Associate professor with tenure	2021 – Current
University of Minnesota, Twin Cities – Assistant professor, tenure-track	2015 – 2021
Université catholique de Louvain, Belgium – Assistant professor	2010 – 2015
University of Florida – Postdoctoral research associate	2007 – 2010
INRA/ AgroParisTech – Postdoctoral researcher	2006 – 2007
Graduate research assistant – Montpellier SupAgro	2001 – 2005

Current Membership in Professional Organizations

American Society of Agronomy
Crop Science Society of America
American Society of Plant Biologists
Ordre Des Ingénieurs Tunisiens
Sigma Xi

HONORS AND AWARDS

Division Chair of C-2 Plant Physiology and Metabolism, Crop Science Society of America, 2020
French Ministry of Research (MENRT) fellowship (competitive), Ph.D., 2002 – 2005
Tunisian Ministry of Agriculture fellowship (competitive), M.Sc., 2001 – 2002
Tunisian Ministry of Education fellowship, 1996 – 2001

PUBLICATIONS

Google Scholar: <https://scholar.google.com/citations?user=bFu5p3MAAAAJ&hl=en>

GR: graduate student | PD: postdoctoral associate | RS: research scientist (*all from my lab*)
 CA: committee advisee | INV: invited contribution | *Corresponding author (Sadok)

Refereed Journal Articles

- Tamang, B.G., J.R. López, E. McCoy, A. Haaning, A. Sallam, B.J. Steffenson, G. J. Muehlbauer, K.P. Smith, and **W. Sadok***. 202x. *Association between xylem vasculature size and freezing survival in winter barley*. (Under review)
- 1) López, J.R.^{PD}, D.A. Way and **W. Sadok***. 2021. *Systemic effects of rising atmospheric vapor pressure deficit on plant physiology and productivity*. *Global Change Biology* 27 (9), 1704–1720. <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15548>
 - 2) López, J.R.^{PD}, R. Schoppach^{PD} and **W. Sadok***^{INV}. 2021. *Harnessing nighttime transpiration dynamics for drought tolerance in grasses*. *Plant Signaling & Behavior* 16 (4), 1875646. <https://www.tandfonline.com/doi/abs/10.1080/15592324.2021.1875646>
 - 3) **Sadok, W***^{INV}, J. López^{PD}, and K.P. Smith. 2021. *Transpiration increases under high temperature stress: potential mechanisms, trade-offs and prospects for crop resilience in a warming world*. *Plant, Cell & Environment* (In press). <https://onlinelibrary.wiley.com/doi/abs/10.1111/pce.13970>
 - 4) **Sadok, W***, and S.V.K. Jagadish. 2020. *The hidden costs of nighttime warming on yields*. *Trends in Plant Science*, 25(7): 644–651. <https://www.sciencedirect.com/science/article/pii/S1360138520300522>
 - 5) Schoppach, R^{PD}, T.R. Sinclair, and **W. Sadok***. 2020. *Sleep tight and wake-up early: nocturnal transpiration traits to increase wheat drought tolerance in a Mediterranean environment*. *Functional Plant Biology*, 47 (12): 1117–1127. <https://www.publish.csiro.au/FP/justaccepted/FP20044>
 - 6) **Sadok, W***, J. López^{PD}, Y. Zhang^{GR}, B.G. Tamang^{PD}, and G. Muehlbauer. 2020. *Sheathing the blade: significant contribution of sheaths to daytime and nighttime gas exchange in a grass crop*. *Plant, Cell and Environment*, 43(8): 1844–1861. <https://onlinelibrary.wiley.com/doi/abs/10.1111/pce.13808>
 - 7) Monnens, D^{GR}, and **W. Sadok***^{INV}. 2020. *Whole-plant hydraulics, water saving, and drought tolerance: a triptych for crop resilience in a drier world*. *Annual Plant Reviews Online*, 3: 661–698. <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119312994.apr0760>
 - 8) **Sadok, W***, R. Schoppach^{PD}, M.E. Ghanem, C. Zucca, and T.R. Sinclair. 2019. *Wheat drought-tolerance to enhance food security in Tunisia, birthplace of the Arab Spring*. *European Journal of Agronomy*, 107: 1–9. <https://www.sciencedirect.com/science/article/pii/S116103011930036X>
 - 9) Tamang, B.G.^{PD}, R. Schoppach^{PD}, D. Monnens^{GR}, B.J. Steffenson, J.A. Anderson, and **W. Sadok***. 2019. *Variability in temperature-independent transpiration responses to evaporative demand correlate with nighttime water use and its circadian control across diverse wheat populations*. *Planta*, 250: 115–127. <https://link.springer.com/article/10.1007/s00425-019-03151-0>
 - 10) **Sadok, W***, and R. Schoppach^{PD}. 2019. *Potential involvement of root auxins in drought tolerance by modulating nocturnal and daytime water use in wheat*. *Annals of Botany* 124 (6): 969–978. <https://academic.oup.com/aob/advance-article-abstract/doi/10.1093/aob/mcz023/5421084?redirectedFrom=fulltext>

- 11) **Sadok, W***, and B.G. Tamang^{PD}. 2019. *Diversity in daytime and nighttime transpiration dynamics in barley indicate adaptation to drought regimes across the Middle-East*. Journal of Agronomy and Crop Science, 205 (4): 372–384. <https://onlinelibrary.wiley.com/doi/abs/10.1111/jac.12331>
- 12) Wiering, N.^{PCA}, C. Flavin, C.C. Sheaffer, G.C. Heineck, **W. Sadok**, and N.J. Ehlke. 2018. *Winter hardiness and freezing tolerance in a hairy vetch collection*. Crop Science, 58 (4): 1594–1604. <https://dl.sciencesocieties.org/publications/cs/pdfs/58/4/1594>
- 13) Tamang, B.G.^{PD}, and **W. Sadok***. 2018. *Nightly business: links between daytime canopy conductance, nocturnal transpiration and its circadian control illuminate physiological trade-offs in maize*. Environmental and Experimental Botany, 148: 192–202. <https://www.sciencedirect.com/science/article/pii/S0098847217303040>
- 14) Claverie, E.^{GR}, F. Meunier, M. Javaux, and **W. Sadok***. 2018. *Increased contribution of wheat nocturnal transpiration to daily water use under drought*. Physiologia Plantarum, 162 (3): 290–300. <https://onlinelibrary.wiley.com/doi/abs/10.1111/ppl.12623>
- 15) Sinclair, T.R., J. Devi, A. Shekoofa, S. Choudhary, **W. Sadok**, V. Vadez, M. Riar, and T. Rufty. 2017. *Limited-transpiration response to high vapor pressure deficit in crop species*. Plant Science, 260: 109–118. <http://www.sciencedirect.com/science/article/pii/S0168945216306112>
- 16) Schoppach, R.^{GR}, A. Soltani, T.R. Sinclair, and **W. Sadok**. 2017. *Yield comparison of simulated rainfed wheat and barley across the Middle East*. Agricultural Systems, 153: 101–108. <http://www.sciencedirect.com/science/article/pii/S0308521X16306825>
- 17) Sinclair, T.R., A. Manandhar, A. Shekoofa, P. Rosas-Anderson, L. Bagherzadi, R. Schoppach^{GR}, **W. Sadok**, and T. W. Rufty. 2017. *Pot binding as a variable confounding plant phenotype: theoretical derivation and experimental observations*. Planta, 245(4): 729–735. <https://link.springer.com/article/10.1007/s00425-016-2641-0>
- 18) Schoppach, R.^{GR}, D. Fleury, T.R. Sinclair, and **W. Sadok***. 2017. *Transpiration sensitivity to evaporative demand across 120 years of breeding of Australian wheat cultivars*. Journal of Agronomy and Crop Science, 203(3): 219–226. <http://onlinelibrary.wiley.com/doi/10.1111/jac.12193/epdf>
- 19) Claverie, E.^{GR}, R. Schoppach^{GR}, and **W. Sadok***. 2016. *Nighttime evaporative demand induces plasticity in leaf and root hydraulic traits*. Physiologia Plantarum, 158 (4): 402–413. <http://onlinelibrary.wiley.com/doi/10.1111/ppl.12474/epdf>
- 20) Schoppach, R.^{GR}, J.D. Taylor, E. Majerus^{GR}, E. Claverie^{GR}, U. Baumann, R. Suchecki, D. Fleury, and **W. Sadok***. 2016. *High resolution mapping of traits related to whole-plant transpiration under increasing evaporative demand in wheat*. Journal of Experimental Botany, 67(9):2847–2860. <http://jxb.oxfordjournals.org/content/67/9/2847.full.pdf+html>
- 21) Hainaut, P.^{RS}, T. Remacle^{RS}, C. Decamps^{RS}, R. Lambert, and **W. Sadok***. 2016. *Higher forage yields under temperate drought explained by lower transpiration rates under increasing evaporative demand*. European Journal of Agronomy, 72: 91–98. <http://www.sciencedirect.com/science/article/pii/S1161030115300381>
- 22) **W. Sadok***.^{INV}. 2016. *The circadian life of nocturnal water use: when late night decisions help improve your day*. Plant, Cell and Environment, 39(1): 1–2. <http://onlinelibrary.wiley.com/doi/10.1111/pce.12625/epdf>
- 23) Craheix, D., J.-E. Bergez, F. Angevin, C. Bockstaller, M. Bohanec, B. Colomb, T. Doré, G. Fortino, L. Guichard, E. Pelzer, A. Méssean, R. Reau, and **W. Sadok**. 2015. *Methodological guidelines for*

- designing multicriteria models to assess agricultural sustainability. Agronomy for Sustainable Development, 35: 1431–1447. <http://link.springer.com/article/10.1007/s13593-015-0315-0>*
- 24) Schoppach, R^{GR}., E. Claverie^{GR}, and **W. Sadok***. 2014. *Genotype-dependent influence of night-time vapour pressure deficit on night-time transpiration and daytime gas exchange in wheat. Functional Plant Biology, 41: 963–971. <http://www.publish.csiro.au/?paper=FP14067>*
 - 25) Schoppach, R^{GR}., D. Wauthélet^{GR}, L. Jeanguenin, and **W. Sadok***. 2014. *Conservative water use under high evaporative demand associated with smaller root metaxylem and limited trans- membrane water transport in wheat. Functional Plant Biology, 41: 257–269. <http://www.publish.csiro.au/?paper=FP13211>*
 - 26) Schoppach, R^{GR}., and **W. Sadok***. 2013. *Transpiration sensitivities to evaporative demand and leaf areas vary with night and day warming regimes among wheat genotypes. Functional Plant Biology, 40: 708–718. <http://www.publish.csiro.au/?paper=FP13028>*
 - 27) Schoppach, R^{GR}., and **W. Sadok***. 2012. *Differential sensitivities of transpiration to evaporative demand and soil water deficit among wheat elite cultivars indicate different strategies for drought tolerance. Environmental and Experimental Botany, 84: 1–10. <http://www.sciencedirect.com/science/article/pii/S0098847212001128>*
 - 28) **Sadok, W.**, and T. R. Sinclair. 2012. *Zinc treatment results in transpiration rate decreases that vary among soybean genotypes. Journal of Plant Nutrition, 35: 1866–1877. <http://www.tandfonline.com/doi/abs/10.1080/01904167.2012.706683>*
 - 29) Fiscus, E.L., F.L. Booker, **W. Sadok**, and K.O. Burkey. 2012. *Influence of atmospheric vapour pressure deficit on ozone responses of snap bean (*Phaseolus vulgaris* L.) genotypes. Journal of Experimental Botany, 63: 2557–2564. <http://jxb.oxfordjournals.org/content/63/7/2557.full.pdf+html>*
 - 30) Devi, M.J., **W. Sadok**, and T. R. Sinclair. 2012. *Transpiration response of de-rooted peanut plants to aquaporin inhibitors. Environmental and Experimental Botany, 78: 167–172. <http://www.sciencedirect.com/science/article/pii/S0098847212000056>*
 - 31) **Sadok, W.**, M.E. Gilbert, M.A.S. Raza, and T.R. Sinclair. 2012. *Basis of slow-wilting phenotype in soybean PI 471938. Crop Science, 52: 1261–1269. <https://dl.sciencesocieties.org/publications/cs/abstracts/52/3/1261>*
 - 32) Gilbert, M.E., N.M. Holbrook, M.A. Zwieniecki, **W. Sadok**, and T.R. Sinclair. 2011. *Field confirmation of genetic variation in soybean transpiration response to vapor pressure deficit and photosynthetic compensation. Field Crops Research, 124: 85–92. <http://www.sciencedirect.com/science/article/pii/S0378429011002103>*
 - 33) Welcker, C., **W. Sadok**, G. Dignat, M. Renault, S. Salvi, A. Charcosset, and F. Tardieu. 2011. *A common genetic determinism for sensitivities to soil water deficit and evaporative demand: meta-analysis of QTLs and introgression lines of maize. Plant Physiology, 157: 718–729. <http://www.plantphysiol.org/content/157/2/718.full.pdf+html>*
 - 34) **Sadok, W.**, and T. R. Sinclair. 2011. *Crops yield increase under water limited conditions: review of recent physiological advances in soybean genetic improvement. Advances in Agronomy, 113: 313–337. <http://www.sciencedirect.com/science/article/pii/B9780123864734000075>*
 - 35) **Sadok, W.**, and T. R. Sinclair. 2010. *Genetic variability of transpiration response of soybean (*Glycine max* [L.] Merr.) plants to leaf hydraulic conductance inhibitor AgNO₃. Crop Science, 50: 1423–1430. <https://dl.sciencesocieties.org/publications/cs/abstracts/50/4/1423>*

- 36) **Sadok, W.**, and T. R. Sinclair. 2010. *Transpiration response of 'slow-wilting' and commercial soybean (Glycine max [L.] Merr.) genotypes to three aquaporin inhibitors under high evaporative demand.* Journal of Experimental Botany, 61: 821–829. <http://jxb.oxfordjournals.org/content/61/3/821.full.pdf+html>
- 37) Bergez, J-E., N. Colbach, O. Crespo, F. Garcia, C. Gary, M.-H. Jeuffroy, E. Justes, C. Loyce, N. Munier-Jolain, and **W. Sadok**. 2010. *Designing crop management systems by simulation.* European Journal of Agronomy, 32: 3–9. <http://www.sciencedirect.com/science/article/pii/S1161030109000513>
- 38) **Sadok, W.**, and T. R. Sinclair. 2009. *Genetic variability of transpiration response to vapor pressure deficit among soybean (Glycine max [L.] Merr.) genotypes selected from a recombinant inbred line population.* Field Crops Research, 113 (2): 156–160. <http://www.sciencedirect.com/science/article/pii/S0378429009001099>
- 39) **Sadok, W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, A. Messéan, and T. Doré. 2009. *MASC, a qualitative multi-attribute decision model for ex ante assessment of the sustainability of cropping systems.* Agronomy for Sustainable Development, 29: 447–462. <http://link.springer.com/article/10.1051%2Fagro%2F2009006>
- 40) **Sadok, W.**, and T. R. Sinclair. 2009. *Genetic variability of transpiration response to vapor pressure deficit among soybean (Glycine max [L.] Merr.) cultivars.* Crop Science, 49: 955–960. <https://dl.sciencesocieties.org/publications/cs/abstracts/49/3/955>
- 41) **Sadok, W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, and T. Doré. 2008. *Ex ante assessment of the sustainability of alternative cropping systems: implications for using multi-criteria decision-aid methods. A review.* Agronomy for Sustainable Development, 28: 163–174. <http://link.springer.com/article/10.1051%2Fagro%3A2007043>
- 42) **Sadok, W.**, P. Naudin, B. Boussuge, B. Muller, C. Welcker, and F. Tardieu. 2007a. *Leaf growth rate per unit thermal time follows QTL-dependent daily patterns in hundreds of maize lines under naturally fluctuating conditions.* Plant, Cell and Environment, 30: 135–146. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2006.01611.x/epdf>
- 43) Tardieu, F., M. Reymond, B. Muller, C. Granier, T. Simonneau, **W. Sadok**, and C. Welcker. 2005. *Linking physiological and genetic analyses of the control of leaf growth under changing environmental conditions.* Australian Journal of Agricultural Research, 56: 937–946. <http://www.publish.csiro.au/?paper=AR05156>

Non-refereed Journal Articles & Book Chapters

- 1) **Sadok, W^{INV}**. 2017. Chapter 11. *Wheat*. In: Sinclair T.R. Ed. *Water-Conservation Traits to Increase Crop Yields in Water-deficit Environments: Case studies*. SpringerBriefs in Environmental Science pp 85-92. https://link.springer.com/chapter/10.1007/978-3-319-56321-3_11
- 2) Gerber, M^{CA}., L. Astigarraga, C. Bockstaller, J.-L. Fiorelli, N. Hostiou, S. Ingrand, M. Marie, **W. Sadok**, P. Veysset, R. Ambroise, J. Peigné, S. Plantureux, and Coquil X., 2009. *The Dexi-SH model for a multivariate assessment of agro-ecological sustainability of dairy grazing systems.* Innovations Agronomiques, 4: 249–252.
- 3) **Sadok, W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, and T. Doré. 2008. *Ex ante assessment of the sustainability of alternative cropping systems: implications for using multi-criteria decision-aid methods-A review.* Chapter 46. In E. Lichtfouse, M. Navarrete, P.

Debaeke, S. Véronique and C. Alberola (Eds.), Sustainable Agriculture, Springer, the Netherlands. Pages: 753–767, ISBN: 978-90-481-2665-1.

- 4) **Sadok, W.**, B. Boussuge, C. Welcker, and F. Tardieu. 2007. *A modelling approach to genotype x environment interaction: genetic analysis of the response of maize growth to environmental conditions*. Chapter 7. In J.H.J. Spiertz, P.C. Struik and H.H. van Laar (Eds.), *Scale and Complexity in Plant Systems Research: Gene-Plant-Crop Relations*, Springer, the Netherlands. Frontis Series Volume: 21, Pages: 77–91, ISBN: 978-1-4020-5905-6.

Proceedings of Conferences

- 1) Remacle, TRS., P. Hainaut^{RS}, C. Decamps, R. Lambert, and **W. Sadok**. 2015. *A physiological mechanism explaining yield tolerance to late spring drought among different perennial forage species and cultivars under temperate conditions*. INRA Climagie Colloquium: Adaptations of Seeded Prairies to Climate Change, Poitiers, France, 16–17 November 2015, pp. 79–81 (*Refereed, in French*).
- 2) Hainaut, PRS., C. Decamps, R. Lambert, and **W. Sadok**. 2014. *Analysis of the response of six forage species to an early summer water deficit under Belgian conditions*. Annual meeting of the French Society of Forage Production (AFPF), Versailles, France, 25–26 March 2014, pp. 148–149 (*Refereed, in French*).
- 3) Hainaut, PRS., C. Decamps, R. Lambert, and **W. Sadok**. 2014. *Climate change: what species to use for more sustainable forage systems?* International Prairie Meeting (JIP), Ettelbrück, Luxembourg, 4–6 July 2014, pp. 9–10 (*Refereed, in French*).
- 4) **Sadok, W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, N. Landé, X. Coquil, A. Messéan, M. Bohanec, and Doré T. 2007. *An indicator-based MCDA framework for ex ante assessment of the sustainability of cropping systems*. Farming Systems Design 2007, Int. Symposium on Methodologies on Integrated Analysis on Farm Production Systems, 10–12 September 2007, Catania, Italy, Book 2 – Field-farm scale design and improvement, pp. 185–186 (*Refereed*).
- 5) **Sadok, W.**, Ph. Naudin, Ph. Hamard, C. Welcker, B. Muller, and F. Tardieu. 2005. *A phenotyping set up for the analysis of the genetic variability of the response of leaf growth to water deficit*. Comparative Biochemistry and Physiology Part A, 141 (3): S313–S313.
- 6) Tardieu, F., **W. Sadok**, O. Bou Chabke, A.S. Voisin, B. Parent, B. Boussuge, C. Welcker, B. Muller, and T. Simonneau. 2005. *Control of maize leaf growth under water deficit and evaporative demand: Genetic and physiological dissections of involved mechanisms*. Comparative Biochemistry and Physiology Part A, 141 (3): S300-S301.

Software Development

Lead developer of the first version of the model MASC (Multiattribute Assessment of the Sustainability of Cropping systems) v1.0, registered by INRA (UMR Agronomie, UMR Eco-Innov, UMR AGIR, UMR LAE) at the French Agency for the Protection of Programs (APP). Registration number: IDDN.FR.001.040014.000.R.P.2008.000.30100, attributed 21 January 2008.

<http://wiki.inra.fr/wiki/deximasc/package+MASC/WebHome?language=en>

PRESENTATIONS

Invited Presentations

- 1) **Sadok, W.** 2020. *Improving heat stress tolerance in MN-adapted oats using eco-physiological approaches.* Invited Talk at the Oat Global Meeting, University of Minnesota, 4 November, 2020.
- 2) **Sadok, W.** 2020. *Combining eco-physiology, phenomics and crop modeling to enhance daytime and nighttime water-saving in cereal crops.* Invited talk at the Interdrought VI Conference*, Mexico City, Mexico, 12 March, 2020. [Talk delivered remotely]. *Organized every 4 years.
- 3) **Sadok, W.** 2020. *Physiological phenotyping of water-saving traits in soybean.* Invited talk at the Soybean Breeders Workshop, St. Louis, MO, USA, 3 March, 2020.
- 4) **Sadok, W.** 2018. *Vascular traits and water use in crops: a promising potential for drought tolerance in a changing climate.* Invited talk at the Gordon Research Conference: Multiscale Plant Vascular Biology, West Dover, VT, USA, 17-22 June, 2018.
- 5) **Sadok, W.** 2017. *Drought tolerance mediated by water-saving traits in wheat: an emerging role for root auxins?* Invited talk at the 2nd Workshop on Plant Development and Drought Stress, Asilomar Pacific Grounds, CA, USA, 6 October, 2017.
- 6) **Sadok, W.** 2017. *Can we achieve Martian agriculture? A terrestrial (unfinished experience).* Invited keynote talk at the University's Honors Student Association annual retreat, Loretto, MN, USA, 7 April, 2017.
- 7) **Sadok, W.** 2016. *The stress from above: increasing yield potential by mitigating the effects of atmospheric drought.* Invited "lightning talk" at the PBS seminar, University of Minnesota, Saint Paul, MN, USA, 13 September, 2016.
- 8) **Sadok, W.** 2015. *Continuum: towards an integrated vision of ecophysiology and agronomy to improve drought tolerance of cropping systems.* Habilitation seminar, Université de Lorraine, France, 25 March, 2015 (in French).
- 9) **Sadok, W.** 2014. *Towards an agronomical and ethical solution to food security.* Invited talk at the students' association House of Sciences Seminar Series, Université catholique de Louvain, Belgium, 7 May, 2014 (in French).
- 10) **Sadok, W.** 2013. *Drought, agriculture and food security: is it possible to improve yields with less available water?* Invited talk at the Science Colloquium Seminar Series, Université catholique de Louvain, Belgium, 30 October, 2013 (in French).
- 11) **Sadok, W.** 2013. *Physiological traits to improve drought tolerance in wheat.* Invited talk at the Australian centre for plant functional genomics (ACPFPG), University of Adelaide, Australia, 30 August, 2013.
- 12) **Sadok, W.** 2012. *The next steps in your career. What is the path?* Invited talk by the Students Association of the Biodiversity Department of the Earth and Life Institute. Université catholique de Louvain, Belgium, 19 April, 2012.

- 13) **Sadok, W.** 2010. *Implementing sustainability in agro-systems: genes, traits and management practices.* Invited talk at the Environmental Sciences Department of the Earth and Life Institute. Université catholique de Louvain, Belgium, 22 December, 2010.
- 14) **Sadok, W.** 2009. *Drought tolerance in crops: possibilities and limits.* Invited talk at the autumn seminar of the Agronomy Department of the University of Florida, USA, 10 September, 2009.
- 15) **Sadok, W.** and T.R. Sinclair. 2009. *Leaf hydraulic limitations and breeding for drought tolerance.* Seminar on drought tolerance resulting from exploitation of hydraulic variability of slow-wilting genotypes. Harvard University, Cambridge, Massachusetts, USA, 24 July 2009.
- 16) **Sadok, W.,** C. Welcker, B. Muller, T. Simonneau, and F. Tardieu. 2004. *Combining modelling and ecophysiology to elucidate the genetic basis of drought tolerance in maize.* First international workshop on drought tolerance, Montpellier, France 28– 29 Sept. 2004.

Contributed Presentations at Professional Meetings & Conferences

GR: graduate student | PD: postdoctoral associate | RS: research scientist | First author is the speaker

- 1) **Sadok W.,** J. López^{PD}, Y. Zhang^{GR}, B.G. Tamang^{PD}, and G. Muehlbauer. 2020. *Leaf sheaths: significant contributors to daytime and nighttime gas exchange in barley.* Talk presented at the ASA-CSSA-SSSA Virtual Meeting, 9-13 November 2020.
- 2) **López^{PD} J.R.,** K. Smith and W. Sadok. 2020. *The role of transpiration cooling on high temperature stress tolerance in oats.* Talk presented at the ASA-CSSA-SSSA Virtual Meeting, 9-13 November 2020.
- 3) **Sadok W.,** R. Schoppach^{PD}, M.E. Ghanem, C. Zucca, and T.R. Sinclair. 2019. *Crop simulation modeling informed by physiological phenotyping illuminate context-dependencies for enhancing wheat drought tolerance in Tunisia.* Talk presented at the Symposium: Forecasting Crop Adaptation for International Agriculture. ASA-CSSA Meeting, San Antonio, TX, USA, 11 November 2019.
- 4) **Sadok W.,** B.G. Tamang^{PD}, R. Schoppach^{PD}, B.J. Steffenson, and J.A. Anderson. 2019. *Out of darkness: nocturnal transpiration and its circadian control as contributors of drought tolerance in crops.* Talk presented at the ASA-CSSA Meeting, San Antonio, TX, USA, 12 November 2019.
- 5) **Sadok W.,** R. Schoppach^{PD}, U. Baumann, D. Fleury, M.E. Ghanem, J.D. Taylor, T.R. Sinclair, and C. Zucca. 2019. *Root-shoot hydraulic and hormonal traits shape a whole-plant water use strategy enabling drought tolerance in wheat under a Mediterranean environment.* International Conference on Integrative Plant Physiology 2019, Melia Sitges, Spain, 27 October 2019.
- 6) **Sadok W.,** J.A. Anderson, U. Baumann, D. Fleury, M.E. Ghanem, D. Monnens^{GR}, R. Schoppach^{PD}, T.R. Sinclair, B.J. Steffenson, B.G. Tamang^{PD}, J.D. Taylor, and C. Zucca. 2019. *Combining ecophysiology, genetics and crop modeling to enhance wheat yields under variable water availability regimes.* Talk presented at the main session of the 1st International Wheat Congress, Saskatoon, SK, Canada, 26 July 2019.
- 7) **Sadok W.,** and R. Schoppach^{PD}. 2018. *Endogenous root auxin accumulation drives the expression of daytime and nighttime water-saving traits in a wheat mapping population.* Talk presented at the ASA-CSSA Meeting, Baltimore, MD, USA, 5 November 2018.

- 8) **Sadok W.**, B.G. Tamang^{PD}, R. Schoppach^{PD}, B.J. Steffenson, and J.A. Anderson. 2018. *Unconscious selection and plant hydraulics: did breeders select against water-saving traits in well-watered Minnesota and for them in drought-prone Australia?* Talk presented at the ASA-CSSA Meeting, Baltimore, MD, USA, 5 November 2018.
- 9) **Sadok W.**, B.G. Tamang^{PD}, and R. Schoppach^{PD}. 2018. *Gravimetric phenotyping of canopy conductance in wheat and maize reveals novel mechanisms, traits and genetic loci involved in drought tolerance in the field.* Talk presented at Phenome 2018, Tucson, AZ, USA, February 14-17.
- 10) **Sadok W.**, B.J. Steffenson, and J.A. Anderson. 2017. *Enhancing canopy conductance to increase spring wheat yield potential in the Upper Midwest.* Talk presented at the Prairie Grains Conference, Grand Forks, ND, USA, 14 December 2017.
- 11) **Sadok W.**, R. Schoppach^{GR}, E. Majerus^{GR}, D. Wauthélet^{GR}, E. Claverie^{GR}, J.D. Taylor, N. Sharma, M. Garcia, U. Baumann, and D. Fleury. 2017. *The hydraulic roots of yields: A root-to-shoot story.* Talk presented at the IPG Root Biology 2017, the 34th Annual Symposium of the Interdisciplinary Plant Group, University of Missouri, Columbia, MO, USA, 7-9 June, 2017.
- 12) **Sadok W.**, R. Schoppach^{GR}, J.D. Taylor, E. Majerus^{GR}, E. Claverie^{GR}, D. Wauthélet^{GR}, T.R. Sinclair, U. Baumann, and D. Fleury. 2016. *Physiological and genetic analysis of water-saving traits in wheat: Links between shoot, root hydraulics and development.* Talk presented at the ASA-CSSA-SSSA Meeting, Phoenix, AZ, USA, 8 November 2016.
- 13) **Sadok W.**, E. Claverie^{GR}, and R. Schoppach^{GR}. 2016. *Phenotypic plasticity induced by variation in nighttime evaporative demand.* Talk presented at the 2016 ASPB Midwestern Meeting, South Dakota State University, Brookings SD, USA, 19-20 March 2016.
- 14) **Sadok W.**, R. Schoppach^{GR}, J.D. Taylor, E. Majerus^{GR}, E. Claverie^{GR}, and D. Fleury. 2015. *Evaporative demand triggers significant nighttime transpiration in wheat in a QTL-dependent fashion.* Talk presented at the Workshop on Plant Development and Drought Stress, Asilomar Conference Grounds, Pacific Grove, CA, USA, 1-4 November 2015.
- 15) **Sadok W.**, R. Schoppach^{GR}, J.D. Taylor, E. Majerus^{GR}, E. Claverie^{GR}, B. Sznajder, and D. Fleury. 2015. *High resolution mapping of traits related to whole-plant transpiration under increasing evaporative demand in wheat.* Talk presented at the DROPS-EUCARPIA joint conference, Montpellier, France, 8-12 June 2015.
- 16) **Sadok W.**, R. Schoppach^{GR}, D. Wauthélet^{GR}, and L. Jeanguenin. 2013. *Root-based hydraulic restriction as a basis for drought tolerance in wheat.* Talk presented at the Interdrought IV conference, Perth, Australia, 2-6 Sept. 2013.
- 17) **Sadok W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, N. Landé, X. Coquil, M. Bohanec, and T. Doré. 2007. *Conception and multicriteria ex ante evaluation of innovative cropping systems according to socioeconomic and environmental sustainability objectives.* General seminar DISCOTECH, AgroParisTech, Paris, France, 25 Jan. 2007 (in French).
- 18) **Sadok W.**, M. Tchamitchian, and T. Doré. 2007. *Knowledge transfer in a sustainability assessment project.* General seminary DISCOTECH, AgroParisTech, Paris, France, 25 Jan. 2007.
- 19) **Sadok W.**, F. Angevin, J-E. Bergez, C. Bockstaller, B. Colomb, L. Guichard, R. Reau, N. Landé, X. Coquil, M. Bohanec, and T. Doré. 2006. *Generation and ex ante assessment of innovative cropping*

systems according to multicriteria objectives. ADAR workshop on innovative cropping systems, Guyancourt, France, 26 July 2006 (in French).

TEACHING

University of Minnesota

- Instructor of record: PLSC 3005W (Introduction to Plant Physiology), 4 Credits, writing-intensive (lecture & labs), undergraduate course (~40 students)
- Instructor of record: AGRO 8900 (Advanced Discussions in Plant Physiology), 2 Credits, graduate course (~12 students)
- Guest lecturer: EEB 4068/5068 (Plant Physiological Ecology), 3 Credits, undergraduate/graduate course
- Guest lecturer: AGRO 5311 (Research Methods in Crop Improvement and Production), 1 Credit, graduate course
- Guest participant: AGRO 1660W (Experience in Agroecosystems Analysis), 2 Credits, undergraduate course

Université catholique de Louvain (courses taught in French)

- Instructor of record: LBIRA 2109A (Sustainability of cropping systems, Instructor), 5 Credits, graduate course (~75 students)
- Instructor of record: LBIRA 2201 (Interdisciplinary projects in agronomy, co-Instructor), 3 Credits, graduate course (~37 students)
- Instructor of record: LBRAI 2217 (Meadows and trails, co-Instructor), 4 Credits, graduate course (~8 students)
- Instructor of record: LBRAI 2201 (Integrated exercises in agronomy, co-Instructor), 3 Credits, graduate course (~4 students)
- Instructor of record: LBIR 1305 (Introduction to systems analysis, Instructor), 3 Credits, undergraduate course (~92 students)

ADVISING AND MENTORING

University of Minnesota

Lab members

- *Post-doctoral research directed:* Bishal Tamang (2016–2020), Rémy Schoppach (2017–2018), Michelle Dobbratz (2020–2021), José López (2018–), Gayatri Mishra (2021)
- *Graduate student research directed:* Erik McCoy (MS, 2017–2020), Daniel Monnens (MS, 2018–2021), Robert Pennington (MS, 2021–), Qiansu Ding (PhD, 2021–)
- *Undergraduate research supervised:* Xinger Zeng (2019), Samuel Brummer (2018 & 2019), Jared Poe (2018)
- *Technicians supervised:* Ragnar Stefansson (2020–2021), Reina Nielsen (2019), Daniel Monnens (2017–2018)
- *Visiting scholars supervised:* Ejaz-ul-Hasan (PhD, 2019–2020), Yangyang Zhang (MS, 2017–2018), Haji Muhammad Umer Memon (PhD, 2017–2018)

Student committee service

- *Master's committees served on:* John Hawkins (Applied Plant Science, 2021–), Joan Manuel Barreto Ortiz (Applied Plant Sciences, 2020–), Michael Laskowski (Applied Plant Sciences, 2017), Ryan Gavin (Applied Plant Sciences, 2016–2018), Zenith Tandukar (Applied Plant Sciences, 2016–2018), Matthew Pfarr (Applied Plant Sciences, 2016)
- *Doctoral committees served on:* Mary Jane Espina (Applied Plant Sciences, 2020–), Angela Ricono (Plant and Microbial Biology, 2020–), Abdel Jalil El Habti (2019–2020, University of Adelaide; Thesis evaluator), Nicholas Wiering (Applied Plant Sciences, 2018–2021), Christina Smith (Plant and Microbial Biology, 2018–2019), German Vargas Gutierrez (Plant and Microbial Biology, 2018–), Max Fraser (Applied Plant Sciences, 2017–), Ryan Merry (Applied Plant Sciences, 2017–2020), Céline Schoving (INRA Toulouse, France, 2017–2019), Kayla Altendorf (Applied Plant Sciences, 2017–2020), Beth Fallon (Plant and Microbial Biology, 2016–2017)

Université catholique de Louvain

Lab members

- *Graduate student research directed:* Rémy Schoppach (MS, 2011–2012), Diego Wauthelet (MS, 2012–2013), Elisabeth Majerus (MS, 2013–2014), Elodie Claverie (PhD, 2013–2015), Rémy Schoppach (PhD, 2012–2016)
- *Research engineers supervised:* Pierre Hainaut (2012–2015), Thibaut Remacle (2015)
- *Technicians supervised:* Maxime Doffagne (2015)

Student committee service

- *Master's committees served on:* Simon Fisette (2014), Benjamin François (2014), Jean-Benoit Castelin (2013), Jean-Baptiste Staquet (2013), Emily Vuylsteke (2012), Benjamin Beaumont (2012), Violaine Cappellen (2012), Roxanne Drion (2012), Marie-Prisca Sallets (2012), Vincent Larondelle (2012), Amandine Derycke (2011), Matthieu Crespin (2011), Charles Dehon (2011), Bérangère Paternostre (2011)
- *Doctoral committees served on:* Adrien Dockx (2013–2015), Soter Ndiokubwayo (2011–2015), Thérèse Lebacqz (2010–2015), Guangling Cui (2012–2014), Valentin Couvreur (2013), Bertrand Vandoorne (2012)

PROFESSIONAL SERVICE

Service to the discipline

Conference & community leadership

- Elected member, International Steering and Program Committee of the InterDrought VII conference (organized every 4 years) (Feb 2020–)
- Member, InterDrought Assembly (Oct 2020–)
- Member, Crop Science Society of America (CSSA) C101 Nominations for President-Elect Committee (Jan 2020–)
- 2020 Division Chair of C-2 Crop Physiology and Metabolism, Crop Science Society of America (CSSA) (2019–2020)
- 2019 Division Chair-elect of C-2 Crop Physiology and Metabolism, Crop Science Society of America (2018–2019)
- Moderator, for the C-2 Crop Physiology and Metabolism General Oral I, 10 November 2019, San Antonio, TX

- Organizer, C-2 Crop Physiology and Metabolism Special Session Symposium, "Drought tolerance in crops: from physiological processes to functional traits" during the ASA-CSSA-SSSA meeting, in San Antonio, TX, 10-13 November 2019
- Panelist, Career and Mentorship Q&A Panel at the Gordon Research Seminar "Knowns and Unknowns of Plant Vascular Responses to Environmental Change", 16-17 June 2018, West Dover, VT
- Member, organizing committee of the 2nd International Workshop on Plant Development and Drought Stress, 5-8 November 2017, Pacific Grove, CA
- Moderator, C-2 Crop Physiology and Metabolism General Oral I, ASA-CSSA-SSSA Meeting, 22-25 October 2017, Tampa, FL
- Oral presentation competition judge, C-2 Crop Physiology and Metabolism General Oral I. ASA-CSSA-SSSA Meeting, 22-25 October 2017, Tampa, FL, USA
- Oral presentation competition judge, C-2 Crop Physiology and Metabolism General Oral II. ASA-CSSA-SSSA Meeting, 22-25 October 2017, Tampa, FL, USA
- Poster competition judge at the 2016 ASPB Midwestern Meeting, 19-20 March 2016, South Dakota State University, Brookings, SD

Editorship & journal peer-review

- Editorial board member for: *International Journal of Plant Production* (2019–) and *Scientific Reports* (2019–)
- Guest editor for *Field Crops Research* (2021–2022)
- Reviewed for 38 peer-reviewed journals (~ 15 papers/ year) : [*Agronomy Journal, Acta Physiologia Plantarum, African Journal of Biotechnology, Agricultural Systems, Agricultural Water Management, Agronomy, Agronomy for Sustainable Development, American Journal of Botany, Annals of Botany, BMC Genomics, Crop and Pasture Science, Crop Science, Environmental and Experimental Botany, Environmental Management, Environmental Modelling & Software, Euphytica, Field Crops Research, Functional Plant Biology, Functional Ecology, International Journal of Molecular Sciences, International Journal of Plant Production, In Silico Plants, Journal of Agronomy and Crop Science, Journal of Cleaner Production, Journal of Crop Improvement, Journal of Environmental Management, Journal of Experimental Botany, Pedosphere, Physiologia Plantarum, Plant Cell & Environment, Plant Biology, Plant Methods, Plant Physiology and Biochemistry, Plant and Soil, Scientific Reports, Theoretical and Applied Genetics, Tree Physiology, Trends in Plant Science*]
- Book proposal reviewer for CABI (2019)

Proposal review for external agencies

- Reviewer for ETH Zurich, 2021
- Reviewer for the Netherlands Organization for Scientific Research, 2019
- Reviewer, BARD (US-Israel Bi-national Agricultural Research and Development Fund), 2018
- Panelist, PRIMA Foundation/ EU Program Horizon 2020 Review Panel, Barcelona, Spain, November 27-28, 2018
- Panelist, PRIMA Foundation/ EU Program Horizon 2020 Review Panel, Barcelona, Spain, May 11-12, 2018
- Reviewer, ANR (French National Research Agency), 2018
- Reviewer, BARD (US-Israel Bi-national Agricultural Research and Development Fund), 2017
- Panelist, FY 2016 NIFA Fellows Peer Review Panel, Washington DC, USA, May 24-27, 2016
- Reviewer, ERA-NET/FP7 ARIMNET (Agricultural Research in the Mediterranean Network), 2015
- Panelist, ANR (French National Research Agency) review panel "Productive Ecosystems, Agro-food systems, Biotechnologies", Paris, France, June 22-24, 2015
- Reviewer, the ERC (Estonian Research Council), 2014

- Panelist, ANR (French National Research Agency) review panel "Productive and Sustainable Ecosystems", Paris, France, June 25-26, 2014
- Reviewer, IDEX Paris-Saclay, Interdisciplinary doctoral initiative, 2014
- Reviewer, US-Israel Bi-national Agricultural Research and Development Fund (BARD), 2014
- Reviewer, the Chilean National Commission for Scientific and Technological Research (CONICYT), 2012

Other external service

- Panelist, The Economist Intelligence Unit Expert Panel on plant-based proteins, 2020
<https://eiuperspectives.economist.com/plantbasedproteins>
- External search committee member for a Professorship in Tropical Agroecology, Free University of Brussels, 2013
- Program reviewer, the French Network of Agricultural Institutes (ACTA), 2012. I reviewed an accreditation proposal by a major French Public-Private R&D institute and proposed a recommendation report based on a suite of criteria on mission, governance and strategic planning
- External search committee member for a Professorship in Tropical Agroecology, Free University of Brussels, 2012

Service to the University/College/Department

Collegiate & intercollegiate service

- Member, Plant Ecophysiology Group (September 2020-)
- Member, CFANS (College of Food, Agricultural and Natural Resource Sciences) Faculty Consultative Committee (September 2016–May 2020)
- Co-chair, CFANS Faculty Consultative Committee (FCC, October 2019–May 2020)
- Member, CFANS FCC, Elections & Nominations Sub-Committee (September 2016–May 2020)
- Replacement member, CFANS Faculty Consultative Committee, Faculty Development Committee (September 2016-May 2017)
- Member, CFANS Research Advisory Committee (September 2018-)
- Member, PMB Graduate Program Admission Committee (December 2018-)
- Member, 2020-2022 CFANS Diversity Scholars Postdoctoral Fellowship Review Committee (January 2020-March 2020)
- Reviewer, Agriculture Experiment Station project proposal for Brian Steffenson (May 2020)
- Judge, the UMN Science in Seconds graduate student research competition (October 2018)
- Co-host, Danielle Way for the Plant and Microbial Biology Colloquium (March 2018)
- Member, 2018-2019 CFANS Diversity Scholars Postdoctoral Fellowship Review Committee (March 2018-May 2018)
- Member, CFANS Growth Chamber Replacement Committee (August 2017-February 2018)
- Faculty advisor to the University of Minnesota Production Agriculture Symposium "Productivity, Profitability, and Environmental Prosperity with Increasing Cropping System Diversity" (22 February 2017) organized by Applied Plant Sciences students
- Poster competition judge, for the University of Minnesota Production Agriculture Symposium "Productivity, Profitability, and Environmental Prosperity with Increasing Cropping System Diversity" (22 February 2017) organized by Applied Plant Sciences students
- Reviewer, Agriculture Experiment Station project proposal for Nathan Springer (2016)

Department/ Unit service

- Co-chair, Department of Agronomy and Plant Genetics (APG) Diversity, Equity, and Inclusion Committee (September 2020–)
- Host, Matthew Gilbert Seminar for the Applied Plant Science Seminar Series (January 2021)
- Member, search committee for a forage biochemist position in the USDA-ARS Plant Science Research Unit (August 2020–)
- Member, APG Planning Committee (February 2020–)
- Member, APG Oat breeder search committee (February 2020–)
- Host, Jonathan Lynch Seminar for the Applied Plant Science Seminar Series (November 2019)
- Participant, APG Implicit Bias Training (October 2019)
- Member, APG Working Group on Priority Faculty Positions (January 2019–April 2019)
- Host, Tom Sinclair Seminar for the Applied Plant Science Seminar Series (October 2019)
- Member, APG Space and Technology Committee (1/24/18–)
- Participant, APG Strategic Planning Faculty Retreat (October 2017)
- Member and Chair, APG social committee (member October 2016–December 2018; chair 2018)
- Participant, APG Strategic Planning Faculty Retreat (November 2016)
- Member, APG Strategic Planning Technology Committee (February 2017–December 2017)
- Member, APG Hayes-Philips Award Committee (December 2015–February 2016)

OUTREACH & PUBLIC SERVICE

- Interview by Voice of America-Russia on study we published on VPD effects on crops (March 2021) <https://www.golosameriki.com/a/atmospheric-drying-research-by-the-university-of-minnesota-pkg-detali/5832056.html>. Other sources: <https://wiley.altmetric.com/details/101554958/news>
- Interview by Harvest Public Media, KCUR Public Radio Kansas City on research conducted on nighttime warming and effects on yield (December 2020) <https://www.harvestpublicmedia.org/post/why-even-corn-can-get-bad-night-sleep>
- Booth presentation of lab research at the Minnesota Ag Expo (January 2020)
- Lab participation in the FarmFest festival (August 2019)
- Participation in the CFANS Faculty ROC Summer Tour (July 2019)
- Booth presentation of lab research at the Minnesota Ag Expo (January 2019)
- Presentation of research to the Minnesota Corn Growers Association (August 2018)
- Participation in the Minnesota Soybean Research & Promotion Council Production 2-day retreat (July 2018)
- Booth presentation of lab research at the Minnesota Ag Expo (January 2018)
- Roundtable and Lunch with representatives from Dupont Pioneer to discuss potential collaborations (September 2017)
- Meeting with Tunisian and Moroccan delegates representing ministries of agriculture and leading seed business (September 2017)
- Participation in the Minnesota Soybean Research & Promotion Council Production 2-day retreat (July 2017)
- Lab tour with representatives of the Minnesota Wheat Research & Promotion Council (December 2016)
- Meeting with the Minnesota Wheat Research & Promotion Council to discuss opportunities for collaboration (November 2016)
- Interview by Farm Journal Magazine (September 2016)
- Meeting with Tunisian delegates representing the Tunisian Ministry of Agriculture (September 2016)
- Participation in the CFANS Faculty ROC Summer Tour (July 2016)

- Participation in the Minnesota Soybean Research & Promotion Council Production 2-day retreat (June 2016)
- Meeting with Minnesota Budget commissioner Myron Frans to discuss inclusion and diversity at the University (April 2016)
- Spoke about cultural diversity to 7th and 8th graders (2 classes) at Marcy Open Elementary School (K-8 School), Minneapolis, MN, USA (February 2016)
- Panelist, in a public debate following a documentary projection during the 3rd edition of the Belgian Festival "Humans in society", Louvain-la-Neuve, Belgium (October 2011)
- Panelist, in a public round table organized by the Laboratory of Prospective Anthropology (UCL, Belgium) on the theme: "De-humanized lands: resources and climate", Louvain-la-Neuve, Belgium (May 2011)