John J. Spiekerman
Department of Plant Biology
University of Georgia
2502 Miller Plant Sciences

Email: jspieker@uga.edu
Twitter: @J_Spiekerman

RESEARCH INTERESTS

I am fascinated by the developmental mechanisms that plants use to cope with stress conditions brought about by climate change. My research aims to understand novel mechanisms of salt tolerance by studying the turfgrass seashore paspalum. I'm also investigating the function of a conserved intronic motif in a prominent dwarfing gene using *Arabidopsis* as a model.

OUTREACH MISSION STATEMENT

My goal as a scientist is to communicate science to the general public, K-12 students, and undergraduates in an understandable way. I aim to both learn and teach science communication skills through founded student organizations & community groups, 3-Minute Thesis mentoring, and by leading workshops on communicating science effectively.

EDUCATION

B.S. **University of Illinois at Urbana-Champaign (UIUC),** Integrative Biology, 2012
Ph.D. **University of Georgia (UGA)**, Plant Biology, 2019

RESEARCH EXPERIENCE

Laboratory Technician (Spring 2011-Summer 2013) – Carl R. Woese Institute for Genomic Biology, Dr. Donald Ort Laboratory
Graduate Research Assistant (Fall 2013-Fall 2015) – University of Georgia, Dr. Zheng-Hua Ye Laboratory
Graduate Research Assistant (Fall 2015-Spring 2019) – University of Georgia, Dr. Katrien Devos Laboratory
Postdoctoral Researcher (Spring 2019-present) – University of Georgia, Dr. Katrien Devos Laboratory

PUBLICATIONS

- Zhong, R. Q., Yuan, Y. X., **Spiekerman, J. J.**, Guley, J. T., Egbosiuba, J. C., and Ye, Z. H. (2015) Functional characterization of NAC and MYB transcription factors involved in regulation of biomass production in switchgrass (*Panicum virgatum*). *PLoS One.* 10, 8.
- Parvathaneni, R.K., DeLeo, V.L., **Spiekerman, J.J.**, Chakraborty, D., and K.M. Devos. (2017) Parallel loss of introns in the ABCB1 gene in angiosperms. *BMC Evol. Biol.* 17, 238.
- Parvathaneni, R.K., **Spiekerman, J.J.**, Zhou, H., Wu,X., K. M. Devos. (2019) Structural characterization of ABCB1, the gene underlying the D2 dwarf phenotype in pearl millet, Cenchrus Americanus (L.) Morrone. *G3: Genes, Genomes, Genetics*. 9:8.

OUTREACH & SERVICE

The Athens Science Café (Fall 2013-Fall 2018) Co-founder (2013)/Chief of Logistics (2013-18)/Vice President of Finance (2017-18)/Board Member (2013-current)

- Community group that organizes monthly talks about relevant scientific topics for the general public (https://athenssciencecafe.wordpress.com/)

The Athens Science Observer (Fall 2014-Spring 2018) Co-founder (2014)/Associate Editor (2014-16)/Editor-in-Chief (2017-18)/ Contributing Author/Reviewer (2014-current)

- Registered UGA student group aimed at helping students communicate their science effectively (https://athensscienceobserver.com/)

UGA Plant Biology Undergraduate Liaison (Spring 2015-Spring 2016)

- Lead efforts to recruit undergraduate students to the Plant Biology major.

Science Policy, Education, Advocacy, & Research (SPEAR) (Spring 2017-Summer 2017) Science Communication Specialist (2017)

- SPEAR is a UGA student organization aimed at giving graduate students experience in communicating science policy to the general public.

3-Minute Thesis (3MT) Mentoring (Fall 2018)

- Mentoring of graduate students in the GRSC8200 course (Communicating Research and Scholarship) on 3MT presentations in January prior to 3MT competition.

TEACHING

Introduction to Plant Biology (PBIO 1210L) Teaching Assistant (Fall 2015-Spring 2016)

HONORS & AWARDS

UGA PhD Scholar of Excellence Fellowship – UGA Graduate School (Fall 2013-Spring 2014)

National Institutes of Health (NIH) T32 Training Grant Fellowship – UGA Genetics Department (Summer 2016-Summer 2017)

3-Minute Thesis Competition - UGA Genetics Department (Spring 2017) – "Thinking tall, breeding small" - 1st Place

3-Minute Thesis Competition - UGA University-Wide (Spring 2017) – "Thinking tall, breeding small" - 2nd Place

- Invited to present at the 2017 UGA Board of Regents Meeting (Atlanta, GA)
- 3MT Video (https://www.youtube.com/watch?v=ZGdOIhpNU1o) (Presentation begins at 33-minute mark)

Wilbur Duncan Award for Outstanding Graduate Student – UGA Plant Biology Department (Fall 2018)

- This award is the highest recognition awarded to Plant Biology graduate students and recognizes excellence in research, teaching, and service to the department.

GRANTS & FUNDING

- **Palfrey Research Grant ($1250)** – UGA Plant Biology Department (2014)
- **Grants-in-Aid Research Award ($700)** – Sigma Xi Research Society (2014)
- **Plant Biology Graduate Student Association (PBGSA) RAA Travel Award ($500)** – UGA Plant Biology PBGSA (2016)
- **Palfrey Travel Grant ($1250)** – UGA Plant Biology Department (2017)
- **PBIO Research Award ($1530)** – UGA Plant Biology Department Supplemental Funding (2018)
- **NSF Plant Genome Research Program (PGRP) Grant ($1.3 million) –** "Transdisciplinary Comparative Analyses of Halophytic and Glycophytic Grasses to Reveal Novel Mechanisms of Salt Tolerance" (awarded July 2019) *(Co-wrote grant with PI Katrien Devos as graduate student. Added on as postdoc.)*
- **Institute for Plant Breeding, Genetics, & Genomics (IPBGG) Travel Award ($750) –** IPBGG Department (2019)

RESEARCH PRESENTATIONS

- **Spiekerman, J.J.**, Ort, Donald R. Going (light) green. The impact of decreased chlorophyll on plant growth. (2012) *Poster presentation*. Institute for Genomic Biology Undergraduate Symposium. Urbana, IL.
- **Spiekerman, J. J.**, Paravathaneni, R. K., and K.M. Devos. Probing the function of a conserved intronic motif in the *ABCB1* gene. (2016) *Poster presentation*. American Society of Plant Biologists Annual Meeting, Austin, TX.
- **Spiekerman, J. J.** , Eudy, D. M., Raymer, P., and K.M. Devos. Determining ionic phase responses to salt in seashore paspalum. (2016) *Poster presentation*. UGA Plant Center Annual Retreat, Helen, GA.
- **Spiekerman, J.J.** Confirming ABCB1's role in dwarfing, a vital agronomic trait. (2017) *Oral presentation*. UGA Integrative Research and Ideas Symposium, Athens, GA.
- **Spiekerman, J.J.** Response of seashore paspalum accessions to salt stress. (2017) *Oral presentation*. 71st Annual Southeastern Turfgrass Conference, Tifton, GA.
- **Spiekerman, J.J**. and K.M. Devos. Uncovering the genetic basis for short-term salt response in the halophyte seashore paspalum. (2017) *Poster presentation*. American Society of Plant Biologists Annual Meeting, Honolulu, HI.
- **Spiekerman, J.J.,** Gottilla, T., Richardson, B., and K.M. Devos. Leaf traits in the halophyte seashore paspalum under salt stress. (2017) *Poster presentation*. UGA Plant Center Annual Retreat, Helen, GA.
- **Spiekerman, J.J.** Response of seashore paspalum to short-term salt stress. (2017) *Oral presentation*. UGA PBIO Fall Student Symposium. (**2nd Place for Best Oral Presentation**)
- Gottilla, T., **Spiekerman, J.J.**, and K.M. Devos. Mapping population validation and differential gene expression in *Paspalum vaginatum*. (2018) *Poster presentation*. UGA Plant Center Annual Retreat, Helen, GA.
- **Spiekerman, J.J.** & K. M. Devos. Seashore paspalum uses leaf papillae to sequester sodium under salt stress. (2018) *Poster presentation*. UGA Plant Center Annual Retreat, Helen, GA.
- **Spiekerman, J.J.** Novel mechanisms of sodium sequestration in seashore paspalum. (2018) *Oral presentation*. UGA Plant Functional Genomics Group Meeting.
- **Spiekerman, J.J.** Till' stress do us part: salt tolerance mechanisms in seashore paspalum and a glycophytic relative. (2019) *Oral presentation*. UGA Plant Biology PhD Exit Seminar.
- Devos, K.M., Lee, J., Chen, H., Rug, M., Raymer, P.L., & **J. J. Spiekerman**. Analysis of leaf characteristics in the halophyte seashore paspalum. (2019) *Poster presentation.* Plant and Animal Genome XXVII Conference.
- **Spiekerman, J.J.** & Katrien M. Devos. Seashore paspalum compartmentalizes sodium in leaf papillae under salt stress. (2019) *Poster presentation*. FASEB Mechanisms in Plant Development Meeting, Olean, NY.
- **Spiekerman, J.J.**, Jesperson, D., Raymer, P.L., Rug, M. & K. M. Devos. Seashore paspalum sequesters sodium in leaf papillae under salt stress. (2019) *Poster presentation*. UGA Plant Center Annual Retreat, Helen, GA.

SCIENCE COMMUNICATION PRESENTATIONS & WORKSHOPS

"SciComm 101: How to Communicate Science Effectively" (Fall 2017)

- Lead a workshop for the inaugural UGA STEMzone event (https://ose.uga.edu/stemzone/), helping teach the booth organizers about general science communication tips.

"Science Communication: Tips and Tricks" (Fall 2017)

- Lead a workshop for students in the UGA Integrative Conservation Program on science communication to the public.

"Outreach. Just do it!" (Fall 2018)

- Guest lecture for graduate-level course on the benefits of outreach for new UGA graduate students.

"Science Outreach: Why? What? Where? How?" (Fall 2019)

- Guest lecture for GRSC8510: Professional Development for Integrated Plant Sciences (IPS) course at UGA.

SCIENCE COMMUNICATION PUBLICATIONS

- Spiekerman, J.J. **"Climate change: a look at the greenhouse effect"** (2014) (*Podcast) Reviewed & published through Athens Science Observer organization*. https://athensscienceobserver.com/2014/11/19/climate-change-a-look-at-the-greenhouse-effect/
- Spiekerman, J.J. **"Biofuel ethics: food versus fuel"** (2015) (*Blog) Reviewed & published through Athens Science Observer organization*. https://athensscienceobserver.com/2015/02/02/biofuel-ethics-food-versus-fuel/
- Spiekerman, J.J. **"On thin ice: polar bear conservation in the midst of climate change"** (2015) (*Blog) Reviewed & published through Athens Science Observer organization*. https://athensscienceobserver.com/2015/04/27/on-thin-ice-polar-bear-conservation-in-the-midst-of-climate-change/
- Spiekerman, J.J. **"Pluto & beyond: voyaging into interstellar space"** (2016) (*Blog) Reviewed & published through Athens Science Observer organization*. https://athensscienceobserver.com/2015/07/13/pluto-and-beyond-voyaging-into-interstellar-space/
- Spiekerman, J. J. **"Salty soils: a 'growing' issue for agriculture"** (2020) (*Blog*) *Reviewed & published through Athens Science Observer organization*. https://athensscienceobserver.com/2020/03/18/salty-soils-a-growing-issue-for-agriculture/

PROFESSIONAL MEMBERSHIPS

American Society of Plant Biologists (2013-present)

RESEARCH SKILLS

Molecular cloning, DNA/RNA analysis (PCR, gene expression, etc.), CRISPR-Cas9 (*A. thaliana*), Confocal microscopy, Scanning electron microscopy (SEM), X-ray energy dispersive spectroscopy (EDS), Light microscopy, Protein analysis (Western blots), RNA-seq (library preparation/data analysis), Li-COR photosynthetic measurements, Flame photometry (ie. ion analysis), Cell wall isolation & analysis