# STEPHANIE ROSSI

Department of Plant Biology
School of Environmental and Biological Sciences
Rutgers, The State University of New Jersey
59 Dudley Road, Foran Hall - Room 301
New Brunswick, NJ 08901
Phone: (848) 932-6303
E-mail: srossi@sebs.rutgers.edu

## EDUCATION

**Ph.D.** Rutgers University, Plant Biology — 2015 - 2022
Dissertation: "Biochemical Mechanisms Regulating Heat-induced Leaf Senescence and Heat Tolerance in *Agrostis* Species"
Committee: Dr. Bingru Huang (chair), Dr. Stacy Bonos, Dr. Faith Belanger, Dr. Michelle DaCosta

**B.S.** Rutgers University, Biotechnology, Biological Sciences — 2010 - 2014
Minored in Biochemistry

## HONORS AND AWARDS

**Golf Course Superintendents Association of America James Watson Fellowship** — 2023

**Outstanding Graduate Paper Award, 2nd Place Oral Presentation** — 2022
C-2 Division, ASA-CSSA-SSSA International Annual Meeting

**New Jersey Turfgrass Foundation Challenge Scholarship** — 2022

**Peter S. Loft Memorial Scholarship** — 2022

**Ralph Geiger Scholarship** — 2022

**Peter S. Loft Memorial Scholarship** — 2021

**Outstanding Graduate Paper Award, 3rd Place Poster Presentation** — 2021
C-5 Division, ASA-CSSA-SSSA International Annual Meeting

**Finalist** — 2021
CSSA Society-Wide Student Competition

**Outstanding Graduate Paper Award, 1st Place Oral Presentation** 2020
C-5 Division, ASA-CSSA-SSSA International Annual Meeting

**Outstanding Graduate Paper Award, 1st Place Oral Presentation** 2020
C-2 Division, ASA-CSSA-SSSA International Annual Meeting

**New Jersey Turfgrass Foundation Hall of Fame Scholarship** 2020

**Ralph Geiger Scholarship** 2020

**Eileen Brennan Graduate Research Award** 2019

**Outstanding Graduate Paper Award, 1st Place Poster Presentation** 2019
C-5 Division, ASA-CSSA-SSSA International Annual Meeting

**Peter S. Loft Memorial Scholarship** 2019

**Outstanding Graduate Paper Award, 2nd Place Poster Presentation** 2018
C-5 Division, ASA-CSSA-SSSA International Annual Meeting

**Ralph Geiger Scholarship** 2018

**Siemens Corporate Technology FutureMakers Challenge, 1st place** 2018
Autonomous Agricultural Production using Robotics and A.I.

**Ralph Geiger Scholarship** 2017

**Peter S. Loft Memorial Scholarship** 2017

**Graduate Student Competition Award, 2nd Place Oral Presentation** 2017
13th International Turfgrass Research Conference

**Peter S. Loft Memorial Scholarship** 2016

**Peter S. Loft Memorial Scholarship** 2015

**Ralph Geiger Scholarship** 2015

## RESEARCH EXPERIENCE

**Dissertation**, Rutgers University, New Brunswick, NJ 2015-2022
Advisor: Dr. Bingru Huang

- Project I: Heat-induced Leaf Senescence Associated with Chlorophyll Metabolism in Bentgrass Lines Differing in Heat Tolerance

- Project II: Suppression of Heat-induced Leaf Senescence by γ-aminobutyric Acid, Proline, and Ammonium Nitrate through Regulation of Chlorophyll Degradation in Creeping Bentgrass
- Project III: Improved Heat Tolerance in Creeping Bentgrass by γ-aminobutyric Acid, Proline, and Inorganic Nitrogen Associated with Differential Regulation of Amino Acid Metabolism
- Project IV: Glutamate Acts as a Repressor for Heat-induced Leaf Senescence Involving Chlorophyll Degradation and Amino Acid Metabolism in Creeping Bentgrass
- Project V: Sitosterol-mediated Antioxidant Regulation to Enhance Heat Tolerance in Creeping Bentgrass
- Project VI: Carotene-enhanced Heat Tolerance in Creeping Bentgrass in Association with Regulation of Enzymatic Antioxidant Metabolism
- Project VII: Heat-induced Leaf Senescence in Creeping Bentgrass Suppressed by Aminoethoxyvinylglycine Involving Regulation of Chlorophyll Metabolism
- Project VIII: Effects of Morphactin on Suppressing Heat-induced Leaf Senescence in Association with Alterations in Chlorophyll Metabolism in Creeping Bentgrass
- Project IX: Protease Inhibitors Suppressed Leaf Senescence in Creeping Bentgrass Exposed to Heat Stress in Association with Inhibition of Protein Degradation into Free Amino Acids

**Industry Research**, Rutgers University, New Brunswick, NJ 2016-present
Advisor: Dr. Bingru Huang

- 14 Field and 6 Growth Chamber Projects:
  Conducted research to evaluate the effects of plant health products (i.e. plant growth regulators, biostimulants) on the alleviation of various abiotic and promotion of turf quality and plant yield; generated 20 reports

**Rutgers Agricultural Research and Extension Center**, Bridgeton, NJ 2015
**Graduate Research Assistant**, Dr. Norman Lalancette

- Project: Evaluation of *Monilinia fructicola* germination time on peach

**Rutgers University**, New Brunswick, NJ 2013 - 2015
**Undergraduate Research Assistant**, Dr. Bingru Huang

- Project: Assisted graduate students studying the properties of plant growth regulators on abiotic stress tolerance of plants in field, greenhouse, and growth chambers

## TEACHING EXPERIENCE

**Rutgers University**, New Brunswick, NJ 2015-2017
**Teaching Assistant**, Undergraduate Program in Biotechnology

- Assisted teaching of Nucleotide Sequence Analysis
  - Undergraduate course averaging 50 students per semester
  - Covered the following topics: bioinformatics, gene and protein database navigation, genetic manipulation, recombinant DNA technology, restriction mapping
  - Created and instructed laboratory lesson plans
  - Developed daily instructional tutorials and assignments
  - Graded all assignments, quizzes, and exams

- Assisted teaching of Molecular Genetics Laboratory
  - Undergraduate course averaging 100 students per semester
  - Covered the following topics: chemical and transposon mutagenesis, direct cloning for phenotype expression, yeast genetic transformation
  - Instructed laboratory methods and ensured safe laboratory practices
  - Developed rubrics for laboratory reports
  - Graded all assignments, laboratory reports, quizzes, and exams

## OTHER PROFESSIONAL EXPERIENCE

**Rutgers University**, New Brunswick, NJ 2023-present
**Research Associate**, Department of Plant Biology

- Performed experiments, organized and analyzed data, employed statistics on datasets
- Established new experimental methods and augmented old procedures
- Wrote reports for industry trials
- Published in refereed journals
- Supervised graduate and undergraduate students and trained them to use laboratory and field instruments and techniques
- Maintained laboratory instrumentation, equipment, and growth chambers, troubleshooting when necessary
- Maintained stock of greenhouse plants
- Purchased and managed stock of laboratory supplies and chemicals
- Served as laboratory chemical safety officer and trained personnel on proper lab safety and hygiene
- Maintained building autoclaves in working order, ensured that building was supplied with liquid nitrogen and dry ice, managed ethanol distribution and surplus of equipment for building

**Rutgers University**, New Brunswick, NJ 2016-2023
**Laboratory Researcher IV**, Department of Plant Biology

- Managed all operations of a plant biology research laboratory, greenhouse, and field research site
- Developed novel procedures for biochemical assays
- Trained all undergraduate students, graduate students, and employees on procedures and use of laboratory equipment
- Supervised all laboratory personnel
- Maintained stock of all supplies, chemical products, and equipment
- Conducted routine maintenance and troubleshooting of research equipment, including growth chambers, and serviced when necessary
- Generated purchase orders and managed invoices through the university's procurement application
- Managed employee hours, tasks, and training
- Maintained hundreds of cool-season and warm-season turfgrass species and lines in a greenhouse (irrigation, fertility, hand-trimming, propagation, stock)
- Performed experiments, collected and analyzed data, wrote reports, and published refereed journal articles

**Rutgers University**, New Brunswick, NJ 2018-2019
**Graduate Assistant**, Department of Plant Biology

- Served as Assistant Groundskeeper at the University President's Residential Garden
- Maintained all gardens and ponds on property
- Decorated for seasonal holidays
- Prepared the grounds for university events

## PUBLICATIONS

### *Book Chapters*

Rossi, S. and B. Huang. "Regulatory Mechanisms for Stress-Induced Leaf Senescence." In *Handbook of Plant and Crop Stress, Fourth Edition*, pp. 51-63. CRC Press, 2019.

### *Refereed Journal Articles (published and in press)*

Rossi, S. and B. Huang. (2023). "Regulatory Roles of Morphactin on Suppressing Chlorophyll Degradation under Heat Stress in Creeping Bentgrass." *Grass Research*, *3*(11).

Rossi, S. and B. Huang. (2023). “Heat-induced Leaf Senescence in Creeping Bentgrass Suppressed by Aminoethoxyvinylglycine Involving the Regulation of Chlorophyll Metabolism.” *Journal of the American Society for Horticultural Science*, *148*(3), 126-133.

Rossi, S. and B. Huang. (2023). “Protease Inhibitors Suppressed Leaf Senescence in Creeping Bentgrass Exposed to Heat Stress in Association with Inhibition of Protein Degradation into Free Amino Acids.” *Plant Growth Regulation*, 1-11.

Chapman, C., S. Rossi, B. Yuan, and B. Huang. (2022). "Differential Regulation of Amino Acids and Nitrogen for Drought Tolerance and Post-stress Recovery in Creeping Bentgrass." In press: *Journal of the American Society for Horticultural Science*, *147*(4), 208-215.

Rossi, S. and B. Huang. (2022). "Carotene-enhanced Heat Tolerance in Creeping Bentgrass in Association with Regulation of Enzymatic Antioxidant Metabolism." *Journal of the American Society for Horticultural Science*, *147*(3), 145-151.

Lei, S., S. Rossi, and B. Huang. (2022). “Metabolic and Physiological Regulation of Aspartic Acid-Mediated Enhancement of Heat Stress Tolerance in Perennial Ryegrass.” *Plants*, *11*(2), 199.

Rossi, S. and B. Huang. (2022). "Sitosterol-mediated Antioxidant Regulation to Enhance Heat Tolerance in Creeping Bentgrass." *Journal of the American Society for Horticultural Science*, *147*(1), 18-24.

Xu, Y., S. Rossi, and B. Huang. (2021). “Comparative transcriptomics and gene network analysis revealed secondary metabolism in preeminent metabolic pathways for heat tolerance in hard fescue.” *Grass Research*, *1*(12), 1-10.

Lei, S., G. Yu, S. Rossi, J. Yu, and B. Huang. (2021). “LpNOL-knowckdown suppression of heat-induced leaf senescence in perennial ryegrass involving regulation of amino acid and organic acid metabolism.” *Physiologia Plantarum*, *173*(4), 1979-1991.

Wang, Y., L. Zhuang, X. Zhang, S. Rossi, and B. Huang. (2021). “Antioxidant regulation of iron as a repressor for salt-induced leaf senescence in perennial grass species.” *Plant Growth Regulation*, 1-15.

Rossi, S., C. Chapman, B. Yuan, and B. Huang. (2021). “Glutamate acts as a repressor for heat-induced leaf senescence involving chlorophyll degradation and amino acid metabolism in creeping bentgrass.” *Grass Research*, *1*(1), 1-10.

Rossi, S., C. Chapman, B. Yuan, and B. Huang. (2021). “Improved Heat Tolerance in Creeping Bentgrass by γ-Aminobutyric Acid, Proline, and Inorganic Nitrogen

Associated with Differential Regulation of Amino Acid Metabolism." *Plant Growth Regulation*, *93*(2), 231-242.

Rossi, S., C. Chapman, and B. Huang. (2020). "Suppression of Heat-induced Leaf Senescence by γ-Aminobutyric Acid, Proline, and Ammonium Nitrate through Regulation of Chlorophyll Degradation in Creeping Bentgrass." *Environmental and Experimental Botany*, *177*, 104-116.

Ma, X., J. Zhang, P. Burgess, S. Rossi, and B. Huang. (2018). "Interactive effects of melatonin and cytokinin on alleviating drought-induced leaf senescence in creeping bentgrass (*Agrostis stolonifera*)." *Environmental and Experimental Botany*, *145*, 1-11.

Rossi, S., P. Burgess, D. Jespersen, and B. Huang, (2017). "Heat-induced leaf senescence associated with Chlorophyll metabolism in Bentgrass lines differing in heat tolerance." *Crop Science*, *57*(S1), S-169.

***Non-Refereed Publications***

Huang, B., S. Rossi, and P. Burgess. (2018). "Syringing for canopy cooling: Does syringing effectively cool plants under heat stress, and are there drawbacks to the practice?" *Golf Course Management*. April. *86*(4): p. 72-75.

Lalancette, N., L. Blaus, and S. Rossi. (2016). "Efficacy of kasugamycin for management of peach bacterial spot, 2015." Plant Disease Management Reports 10:STF006. Online publication, DOI:10.1094/PDMR10.

Lalancette, N., L. Blaus, and S. Rossi. (2016) "Management of peach blossom blight and rusty spot, 2015." Plant Disease Management Reports 10:STF005. Online publication, DOI: 10.1094/PDMR10

Lalancette, N., L. Blaus, and S. Rossi. (2015). "Evaluation of Kasugamycin: Control of Bacterial Spot on Peach." *Fruit Notes*, p. 19-24.

## PRESENTATIONS

**Poster Presentation,** Rossi, S. and B. Huang. "Morphactin-Mediated Amelioration of Heat-Induced Leaf Senescence Associated with Alterations in Chlorophyll Metabolism in Creeping Bentgrass" – 32nd Annual Rutgers Turfgrass Symposium – March 16, 2023

**Oral Presentation,** Rossi, S. and B. Huang. "Alleviation of Heat-Induced Leaf Senescence in Creeping Bentgrass by Application of Protease Inhibitors Associated with Suppression of Protein Degradation" - 32nd Annual Rutgers Turfgrass Symposium – March 16, 2023

**Poster Presentation,** Rossi, S. and B. Huang. "Morphactin-Mediated Amelioration of Heat-Induced Leaf Senescence Associated with Alterations in Chlorophyll Metabolism in

Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 6-9, 2022

**Oral Presentation,** Rossi, S. and B. Huang. "Alleviation of Heat-Induced Leaf Senescence in Creeping Bentgrass by Application of Protease Inhibitors Associated with Suppression of Protein Degradation" - ASA-CSSA-SSSA International Annual Meeting – November 6-9, 2022

**Poster Presentation,** Rossi, S. and B. Huang. "Improvement of Heat Tolerance in Creeping Bentgrass By Sitosterol Involving Regulation of Antioxidant Metabolism" – 31st Annual Rutgers Turfgrass Symposium – March 17, 2022

**Poster Presentation,** Rossi, S. and B. Huang. "Improvement of Heat Tolerance in Creeping Bentgrass By Sitosterol Involving Regulation of Antioxidant Metabolism" - ASA-CSSA-SSSA International Annual Meeting – November 7-10, 2021

**Oral Presentation,** Rossi, S. and B. Huang. "Glutamate Acts As a Repressor of Heat-Induced Leaf Senescence Involving Amino Acid Metabolism in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 7-10, 2021

**Rapid-Oral Presentation,** Rossi, S. and B. Huang. "Involvement of Proline in Amino Acid Metabolism Associated with Enhanced Heat Tolerance in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 7-10, 2021

**Poster Presentation,** Rossi, S. and B. Huang. "Involvement of Proline in Amino Acid Metabolism Associated with Enhanced Heat Tolerance in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 7-10, 2021

**Poster Presentation,** Rossi, S. and B. Huang. "Metabolic Regulation of y-Aminobutyric Acid During Heat-Induced Leaf Senescence in Creeping Bentgrass" – 30th Annual Rutgers Turfgrass Symposium – March 18, 2021

**Oral Presentation,** Rossi, S. and B. Huang. "Involvement of Proline in Amino Acid Metabolism Associated with Enhanced Heat Tolerance in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 9-13, 2020

**Oral Presentation,** Rossi, S. and B. Huang. "Metabolic Regulation of y-Aminobutyric Acid During Heat-Induced Leaf Senescence in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 9-13, 2020

**Poster Presentation,** Rossi, S. and B. Huang. "Physiological Effects of Aminoethoxyvinylglycine on Improving the Heat Tolerance of Creeping Bentgrass" – 29th Annual Rutgers Turfgrass Symposium – January 10, 2020

**Oral Presentation,** Rossi, S. and B. Huang. "Metabolic Regulation of Heat-induced Leaf

Senescence in Creeping Bentgrass by Chemical Priming" - ASA-CSSA-SSSA International Annual Meeting – November 10-13, 2019

**Poster Presentation,** Rossi, S. and B. Huang. "Physiological Effects of Chemical Priming on Improving the Heat Tolerance of Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 10-13, 2019

**Oral Presentation,** Rossi, S., M. Edmonds, J. Yi, and B. Huang. "Remote Sensing and Automation Technology for Turfgrass Management" – Rutgers Turfgrass Research Field Day – July 30, 2019

**Poster Presentation,** Rossi, S. and B. Huang. "Physiological Effects of Seaweed Extracts for Alleviating Summer Bentgrass Decline" – 28th Annual Rutgers Turfgrass Symposium – January 11, 2019

**Oral Presentation,** Rossi, S. and B. Huang. "Physiological and Metabolic Factors Regulated by y-Aminobutyric Acid and Proline Contributing to Improved Heat Tolerance in Creeping Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 4-7, 2018

**Poster Presentation,** Rossi, S. and B. Huang. "Physiological Effects of Seaweed Extracts for Controlling Summer Bentgrass" - ASA-CSSA-SSSA International Annual Meeting – November 4-7, 2018

**Oral Presentation,** Rossi, S., and B. Huang. "Effects of Biostimulants on Summer Performance of Creeping Bentgrass Putting Greens" – Rutgers Turfgrass Research Field Day – July 31, 2018

**Oral Presentation,** Edmonds, M., S. Rossi, F. Liu, D. Ezrapour, Y. Gong, J. Yi, and B. Huang. "Cloud-based Autonomous Robotic Evaluation (CARE) System" – Siemens Corporate Technology FutureMakers Challenge: Autonomous Agricultural Production using Robotics and A.I. – May 16, 2018

**Oral Presentation,** Rossi, S., and B. Huang. "Effects of plant health products on summer performance of bentgrass putting greens" – Rutgers Turfgrass Research Field Day – July 25, 2017

**Oral Presentation,** Rossi, S., P. Burgess, D. Jespersen, and B. Huang. "Heat-induced leaf senescence associated with chlorophyll metabolism in bentgrass lines differing in heat tolerance" - 13th International Turfgrass Research Conference (ITRC) – July 16-21, 2017

## PROFESSIONAL AFFILIATIONS

**Golf Course Superintendents Association of America –** Member, 2023 - Present

**American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America** - Member, 2017 - Present

## PROFESSIONAL SERVICE

**Symposium Co-Organizer**
31st Annual Rutgers Turfgrass Symposium, 2022

**Post-Doctoral Selection Committee**
Plant Biology Department – Rutgers University, 2021

**Peer-Reviewed Articles for**:

- *Environmental and Experimental Botany*
- *Plant Science*