**Yuanshuo “Henry” Qu**

+1-732-485-1243 | henry.yqu@gmail.com | Wakefield, MA 01880

Experienced data scientist with a Ph.D. in plant breeding and genetics and a master’s in statistics. 5+ years of experience in building mathematical, statistical, and machine learning models to solve complex research and business challenges in AgTech.

**EDUCATION**

**RUTGERS UNIVERSITY New Brunswick, New Jersey**

*Ph.D. in* ***Plant Breeding and Genetics*** *(GPA 3.8)* *September 2014 - October 2020*

* *Research areas:* population genetics, Bayesian hierarchical model, plant genomics and genetics, and plant and environment interaction
* *Dissertation:* Genetic analysis and evaluation of tall fescue for low-maintenance applications
* *Awards:* Dr. James Waston Fellowship by GCSAA of America; New Jersey Turfgrass Foundation Hall of Fame Scholarship; Spencer Davis Award, Department of Plant Biology, Rutgers University

*M.S. in* ***Statistics*** *(GPA 3.9) August 2015 - May 2017*

*B.S. in* ***Plant Science****, Magna Cum Laude (GPA 3.8) August 2011 - May 2013*

* *Awards:* Dean's List, Plant Science Academic Excellence Award (Major top 1)

**SHANGHAI JIAO TONG UNIVERSITY** **Shanghai, China**

*B.E. in* ***Food Science and Engineering*** *(GPA 3.2) August 2008 - May 2011*

* *Awards:* National Scholarship (Top 1%)

**INDUSTRY EXPERIENCE**

**INDIGO AG Boston, Massachusetts**

*Senior Data Scientist, Sustainability Data Science August 2020 – present*

* Leveraged geospatial relationship and developed a statistical model that detects and labels irrigation events from on-farm temperature sensor data, enabling program scale-up by 261%.
* Built predictive models for corn and soybean basis bids of ~3800 buyers across the United States, achieving model error standard deviation < 8 cents for both crops.
* Launched Auto Bid Generation application in beta trial to automatically generate high-quality basis bids for grain buyers.
* Developed diagnostic models for major corn- and soybean-producing counties and reduced error standard deviation by 23% and 38%, respectively.
* Launched market context application in Indigo’s Marketplace 1.0 using diagnostic models’ outputs.
* Hosted bi-weekly journal club on grain merchandising, sourcing, and sustainability topics.

*Grain Markets Data Science Co-op January 2020 – June 2020*

* Developed interpretable statistical models for the description and prediction of crop yield and prices.

**NATIONAL TURFGRASS EVALUATION PROGRAM (NTEP) Remote**

*Data and Statistical Consultant (part-time, 5hr/week) June 2022 – present*

* Formulate business problems to statistical questions that can be answered with NTEP’s proprietary data.
* Establish new or enhance existing trials and data collection protocols for better analysis results.
* Fundraising and grant application
* Organize/participate in literature and grant reviews for NTEP and other grant-issuing entities.
* Collaborated with engineering and web development teams to publicize analytical results.
* Developed a Bayesian model to minimize subjectivity in visual rating data from multiple trial locations.

**ACADEMIC EXPERIENCE**

**AGRONOMY JOURNAL Remote**

*Associate Editor, Statistics and Agronomy January 2019 – present*

**AGROSYSTEMS, GEOSCIENCES & ENVIRONMENTAL JOURNAL Remote**

*Associate Editor, Statistics and Agronomy January 2019 – present*

**PROFESSIONAL TURF MANAGEMENT SCHOOL, RUTGERS UNIVERSITY New Brunswick, New Jersey**

*Instructor January 2017 – January 2019*

* Designed course curriculum, lesson plans, and assessment tools.
* Organized and chaperoned field trips to encourage hands-on learning experiences.
* Achieved 80% or higher overall course evaluation scores for all four semesters taught.

**TECHNICAL SKILLS**

Python (numpy, pandas, GeoPandas, scikit-learn, statsmodels, scipy, Plotly, BeautifySoup, multiprocess), R (tidyverse, tidymodels, caret, xgboost, future, ranger, MASS), Stan, OpenBUGS, JAGS, git, SQL, AWS Services

**PUBLICATIONS**

**Journal Articles**

Groben, Glen,Bruce B. Clarke, Lee Kerkhof, Stacy Bonos, William Meyer, **Yuanshuo Qu**, Jing Luo, Emily Walsh, and Ning Zhang, “”

**Qu, Yuanshuo,** Len Kne, Steve Graham, Eric Watkins, and Kevin Morris. 2023. “A latent scale model to minimize subjectivity in the analysis of visual rating data for the National Turfgrass Evaluation Program.” Frontiers *in Plant Science*. <https://doi.org/10.3389/fpls.2023.1135918>

Morris, Kevin N., Len Kne, Steve Graham and **Yuanshuo Qu**. 2022. “An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data.” *International Turfgrass Society Research Journal*. <https://doi.org/10.1002/its2.127>

**Qu, Yuanshuo,** Edwin J. Green, Stacy A. Bonos, and William A. Meyer. 2021. “Evaluation of Recurrent Selection for Drought Tolerant Tall Fescue (*Festuca arundinacea*) using Rain-out Shelters.” *Journal of Agronomy and Crop Science.* <https://onlinelibrary.wiley.com/doi/10.1111/jac.12570>

**Qu, Yuanshuo**, Edwin J. Green, Phillip L. Vines, Shidi Wu, Bruce B. Clarke, Stacy A. Bonos, and William A. Meyer, 2020. “Evaluation and Genetic Analysis of Red Thread (*Laetisaria fuciformis*) Disease Prevalence in Tall Fescue (*Festuca arundinacea*).” *International Turfgrass Society Research Journal*. <https://doi.org/10.1002/its2.20>

**Qu, Yuanshuo**, Ryan M. Daddio, Patrick E. McCullough, Stacy A. Bonos, and William A. Meyer. 2019. “Phytotoxicity of Methiozolin on Fine Fescue.” *HortTechnology* *29*(3):265-270. <https://doi.org/10.21273/HORTTECH04278-19>

Grimshaw, Austin L., **Yuanshuo Qu**, William A. Meyer, Eric Watkins, and Stacy A. Bonos. 2018. “Heritability of Simulated Wear and Traffic Tolerance in Three Fine Fescue Species.” *HortScience* *53*(4):416-420. <https://doi.org/10.21273/HORTSCI12450-17>

**Book Chapters**

Kevin Morris, **Yuanshuo Qu**, Len Kne, Steve Graham; Considerations with selecting turfgrass varieties and cultivars; Achieving sustainable turfgrass management; Burleigh Dodds Science Publishing, Cambridge, UK, 2023 (ISBN: 978 1 80146 019 4; [www.bdspublishing.com](http://www.bdspublishing.com))

**News Articles**

**Qu, Yuanshuo**. (2021, Oct 11). Carbon trading market, a milestone to greener tomorrow. China Daily: Global Edition. <http://www.chinadaily.com.cn/a/202110/11/WS61639a83a310cdd39bc6e098.html>

**Technical Reports**

Qiu, Xiaocun, **Yuanshuo Qu**, Yu Liu. 2021. “Do Free Trade Zones Stimulate Entrepreneurship? New Evidence from China”. Center For International Private Enterprise. <https://www.cipe.org/resources/do-free-trade-zones-stimulate-entrepreneurship-new-evidence-from-china/>

Halterman, Jennifer, Ronald Bara, Dirk Smith, Ryan Daddio, **Yuanshuo Qu**, Phillip Vines, Stacy A. Bonos, and William A. Meyer. 2019. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2019 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 10-12. pp. 131-164.

**Qu, Yuanshuo**, Ronald Bara, Dirk Smith, Stacy A. Bonos, and William A. Meyer. 2016. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2016 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 6-8. pp. 101-104.

**Qu, Yuanshuo**, Eric Koch, Melissa Mohr, Ronald Bara, Dirk Smith, Eugene Szerszen, Stacy A. Bonos, and William A. Meyer. 2015. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2015 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 8-10. pp. 125-128.

**Qu, Yuanshuo**, Eric Koch, Melissa Mohr, Ronald Bara, Dirk Smith, Eugene Szerszen, Stacy A. Bonos, and William A. Meyer. 2014. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2014 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 9-11. pp. 131-134.

**Qu, Yuanshuo**, Ryan Daddio, Phillip Vines, Ronald Bara, Dirk Smith, Stacy A. Bonos, and William A. Meyer. 2018. “Performance of Tall Fescue Cultivars and Selections in New Jersey Turf Trials,” 2018 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 4-6. pp. 153-179.

Tate, Trent, Austin Grimshaw, **Yuanshuo Qu**, Ryan Daddio, Ronald Bara, Dirk Smith, Melissa Mohr, Stacy Bonos, and William A. Meyer. 2017. “Performance of Tall Fescue Cultivars and Selections in New Jersey Turf Trials,” 2017 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 5-7. pp. 99-121.

Vines, Phillip L., Ronald Bara, Dirk Smith, Ryan Daddio, **Yuanshuo Qu**, Stacy A. Bonos, William A. Meyer. 2019. “Performance of Tall Fescue Cultivars and Selections in New Jersey Turf Trials,” 2019 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 10-12. pp. 165-186.

Vines, Phillip L., Ronald Bara, Dirk Smith, Melissa Mohr, **Yuanshuo Qu**, Ryan Daddio, Austin Grimshaw, Trent Tate, Stacy A. Bonos, and William A. Meyer. 2017. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2017 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 5-7. pp. 75-97.

Vines, Phillip, Ronald Bara, Dirk Smith, **Yuanshuo Qu**, Ryan Daddio, Stacy A. Bonos, and William A. Meyer. 2018. “Performance of Perennial Ryegrass Cultivars and Selections in New Jersey Turf Trials,” 2018 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 4-6. pp. 125-152.

Vines, Phillip, Ronald Bara, Dirk Smith, **Yuanshuo Qu**, Ryan Daddio, Stacy A. Bonos, and William A. Meyer. 2018. “Performance of Fine Fescue Cultivars and Selections in New Jersey Turf Trials,” 2018 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 4-6. pp. 43-68.

Wu, Shidi, Phillip Vines, Ronald Bara, Dirk Smith, **Yuanshuo Qu**, Ryan Daddio, Stacy A. Bonos, and William A. Meyer. 2019. “Performance of Fine Fescue Cultivars and Selections in New Jersey Turf Trials,” 2019 Rutgers Turfgrass Proceedings of the GREEN EXPO Turf and Landscape Conference, Atlantic City NJ, Dec 10-12. pp. 33-64.

**PLANT VARIETY DEVELOPED**

|  |  |
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| *Festuca arundinacea “*Honeymoon” | RHL2 in 2018 NTEP Tall Fescue Test |
| *Festuca arundinacea* AH1 | 2018 NTEP Tall Fescue Test |
| *Festuca arundinacea* AH2 | 2018 NTEP Tall Fescue Test |
| *Festuca arundinacea* HWP |  |
| *Lolium perenne* “Pharaoh” | 2016 NTEP Perennial Ryegrass Test |

**MEDIA EXPOSURE**

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| Jan 16th, 2023 | Episode 157. Journeys: Boys of the Chinese Educational Mission; Grating The Nutmeg <https://gratingthenutmeg.libsyn.com/157-journeys-boys-of-the-chinese-educational-mission> |
| Nov 11th, 2022 | Remembering the Chinese Educational Mission at the Connecticut Historical Society; Connecticut Public Radio; <https://www.ctpublic.org/show/where-we-live/2022-11-11/remembering-the-chinese-educational-mission-at-the-connecticut-historical-society> |

**PRESENTATIONS & TALKS**

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| Nov 8th, 2022 | A Latent Scale Model to Minimize Subjectivity for Visual Rating Data in the National Turfgrass Evaluation Program (NTEP). 2022 ASA-CSSA-SSSA International Annual Meeting. Baltimore, MD |
| Jul 12th, 2022 | Evaluation and genetic analysis of red thread (*Laetisaria fuciformis*) disease prevalence in tall fescue (*Festuca arundinacea*). The 14th International Turfgrass Research Conference (ITRC). Copenhagen, Denmark. |
| Apr 4th, 2022 | Rasch Scale Model and Its Application to NTEP data. Turfgrass Breeders Association Meeting; online |
| Nov 12th, 2019 | Genetic Analysis on Drought Response of Tall Fescue [*Festuca arundinacea* (Schreb.)] in Rain-out Shelter Using Bayesian Mixed Linear Models. 2019 ASA-CSSA-SSSA International Annual Meeting. San Antonio, TX. |
| Jul 31st, 2019 | Breeding of Tall Fescue with Improved Drought Tolerance. 2019 Rutgers Turfgrass Research Field Days. Freehold, NJ. |
| Jun 5th, 2019 | Turf Industry in the United States- from Research to Production. Invited Presentation to China Agricultural University. Beijing, China. |
| Jan 25th, 2019 | Estimation of Variance Components and Narrow Sense Heritability from Family Data under Bayesian Framework. 2019 Rutgers Plant Science Symposium. New Brunswick, NJ. |
| Nov 5th, 2018 | Application of Bayesian Statistics to Genotype Evaluation and Phenotypic Selection. 2018 ASA-CSSA-SSSA International Annual Meeting. Baltimore, MD. |
| Aug 1st, 2018 | 2017 NTEP Tall Fescue Trial. 2018 Rutgers Turfgrass Research Field Days. Freehold, NJ. |
| Jul 21st, 2017 | Breeding Fine Fescues for Improved Shade Tolerance. 2017 International Turfgrass Research Conference, Rutgers Turfgrass Tour. Freehold, NJ. |
| Feb 27th, 2017 | Cool-Season Turfgrass Breeding and the Turf Industry in the United States. The New Jersey Institute of Technology, Innovation in Ag. Newark, NJ. |
| May 12th, 2016 | Disease Resistance Screening and Genetic Diversity in the 2012 NTEP Tall Fescue Test. 2016 Rutgers Turfgrass Research Field Days. Freehold, NJ. |
| Dec 16th, 2015 | Introduction to Cool-Season Turfgrass Breeding and the Golf Industry in the United States. Annual GCSAA Conference of China. Hainan, China. |
| Jul 28th, 2015 | Selection of Tall Fescue Cultivars with Improved Resistance to Brown Patch and Red Thread Disease. 2015 Rutgers Turfgrass Research Field Days. North Brunswick, NJ. |
| Jul 29th, 2014 | Breeding and Selection of Tall Fescue. 2014 Rutgers Turfgrass Research Field Days. North Brunswick, NJ. |

**ACADEMIC SERVICES**

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| 2020 | Mentor, Cook Researchers of Plant Science Program at Rutgers University |
| 2020 | Teaching Assistant, Intro to Python Data Analysis workshop at the 2020  ASA-CSSA-SSSA Annual Meeting |
| 2019 | Volunteer, Intro to Python Data Analysis workshop at the 2019 ASA-CSSA-SSSA  Annual Meeting |
| 2018 | Volunteer, Turf Bowl at GCSAA Education Conference and Golf Industry Show |
| 2017 | Volunteer, NJLCA Landscape Industry Certification Exam |

**SOCIAL SERVICES**

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| Sep 29th, 2022-  Jul 30th, 2023 | Exhibition Consultant and Volunteer for “Journeys 旅途: Boys of the Chinese Educational Mission” at Connecticut Historical Society Museum and Library, Hartford, Connecticut <https://chs.org/exhibition/journeys/> |

**AWARDS & SOCIETY MEMBERSHIPS**

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| 2015-present | Member, Crop Science Society of America |
| 2015-present | Member, International Turfgrass Society |
| 2014-2019 | Member, New Jersey Turfgrass Association |
| 2018-2019 | Member, New Jersey Landscape Contractors Association |
| 2014-2020 | Member, Cook Researchers of Plant Science at Rutgers University |
| 2020 | Spencer Davis Award, Department of Plant Biology, Rutgers University |
| 2019 | New Jersey Turfgrass Foundation Hall of Fame Scholarship, New Jersey Turfgrass Foundation |
| 2018 | Dr. James Watson Fellowship, The Toro Company and the Environmental Institute for Golf (EIFG) of Golf Course Superintendents Association of America (GCSAA) |
| 2018 | New Jersey Landscape Contractors Association Scholarships, Landscape Contractors Association of New Jersey |
| 2017 | Golf Course Superintendents Association of New Jersey Scholarships, GCSANJ |
| 2016 | Ralph Geiger Scholarship, Center for Turfgrass Science |
| 2015 | Weston Memorial Scholarship, Center for Turfgrass Science |
| 2014 | NJ State Golf Association& Ralph Engel Caddie Scholarship, New Jersey State Golf Association |