

# Rodrigo Rampazo Amadeu

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## Experience

### **Bayer Crop Science, USA**

- June 2024 to current
- Senior Quantitative Genetics Scientist, Soy Product Design
- Developed and maintenance of quantitative genetics framework
  - Analytical pipeline automation
  - Software development

- Nov 2021 to May 2024
- Quantitative Genetics Scientist, Corn Product Design
- Conducted genetic evaluation of plant health traits for global corn breeding
  - Developed and maintenance of quantitative genetics pipeline
  - Led B4U University of Minnesota chapter overseeing 20 mentee-mentors pairings

### **University of Florida, USA**

- May 2018 to Nov 2021
- Graduate Research Assistant, Blueberry Breeding & Genomics Lab, Supervisor Dr. Patricio Munoz
- Planning and optimization of breeding program
  - Genetic and Ag data analysis
  - Development of statistical-genetics software: AGHmatrix, diaQTL, MultiPolyPop, SimpleMating
  - Plant breeding activities (phenotyping, selection)

### **University of São Paulo, Brazil**

- Jan 2016 to Mar 2018
- Graduate Research Assistant, Statistical-Genetics Lab, Supervisor Dr. Augusto F. Garcia
- Genetic and Ag data analysis
  - Development of statistical-genetics software: onemap, onemap2pop, and fullsibQTL

## Education

- 2021
- Ph.D. in Horticultural Sciences (Minor: Statistics), University of Florida, USA  
Dissertation: "Statistical methods for genomic-assisted blueberry breeding"  
Advisor Dr. Patricio Munoz, [Blueberry Breeding & Genomics Lab](#)
- 2018
- M.S. in Plant Genetics and Breeding, ESALQ, University of São Paulo, Brazil  
Thesis: "Molecular pairwise relatedness in autopolyploids: a simulation study"  
Advisor Dr. Antonio Augusto Franco Garcia, [Statistical-Genetics Lab](#)
- 2015
- B.ENG. in Agriculture (Minor: Biotechnology), ESALQ, University of São Paulo, Brazil
- 2015
- B.EDU. in Agricultural Sciences, ESALQ, University of São Paulo, Brazil

## Awards & Scholarships

- 2024
- Award, Top Downloaded Article, New Phytologist, Wiley
- 2021
- Award, Top Cited Article 2020-2021, Crop Science, Wiley
- 2020
- Scholarship, Murial Rumsey scholarship, CALS, Univ. of Florida
- 2020
- Scholarship, outstanding teaching assistantship, Univ. of Florida
- 2019
- Scholarship, outstanding teaching assistantship, Univ. of Florida
- 2019
- Award, poster competition Plant Science Symposium, Univ. of Florida - 1<sup>st</sup> Place
- 2016
- Award, Prof Brieger, best graduating student of Dep. of Genetics, Univ. of São Paulo
- 2013
- Scholarship, Science without Borders - CAPES - 1yr tuition and living at Univ. of Florida
- 2012
- Scholarship, Scientific Initiation - PIBIC/CNPq
- 2011
- Scholarship, Scientific Initiation - Santander

## Journal articles (26)

GOOGLE SCHOLAR: 900+ CITATIONS, H-INDEX 18

- 2025 Peixoto, P; **Amadeu, RR**; Bhering, L; Ferrao, F; Munoz, P; Resende Jr, MFR. "SimpleMating: R-package for prediction and optimization of breeding crosses using genomic selection". *The Plant Genome* e20533, [link](#)
- 2024 Casorzo, G; Ferrao, LF; Adunola, P; Tavares, EF; Azevedo, C; **Amadeu, R**; Munoz, PM. "Understanding the genetic basis of blueberry postharvest traits to define better breeding strategies". *G3* 14(9), [link](#)
- 2024 Mertten, D; McKenzie, CM; Souleyre, EJF; **Amadeu, RR**; Lenhard, M; Baldwin, S; Datson, PM. "Molecular breeding of flower load related traits in dioecious autotetraploid *Actinidia arguta*". *Molecular Breeding* 44(36), [link](#)
- 2024 Charles, JR; Dorval, MD; Durone, JB; Ferrao, LFV; **Amadeu, RR**; Munoz, PR; Morris, G; Meru, G; Pressoir, G. "Genomic prediction of sweet sorghum agronomic performance under drought and irrigated environments in Haiti". *Crop Science* 2(21228), [link](#)
- 2024 Cullen, R; Cromie, J; Sawyer, T; **Amadeu, RR**; Benevenuto, J; Munoz, P. "Parthenocarpic fruit quality and production under pollinator-exclusion in southern highbush blueberry". *Scientia Horticulturae* 328(112935), [link](#)
- 2023 **Amadeu, RR**; Garcia, AFF; Munoz, PR; Ferrao, LFV. "AGHmatrix: genetic relationship matrices in R". *Bioinformatics* 39(7), [link](#)
- 2023 Taniguti, CH; Taniguti, LM; **Amadeu, RR**; Lau, J; Gesteira, GS; Oliveira, TP; Ferreira, GC; Pereira, GS; Byrne, D; Mollinari, M; Riera-Lizarazu, O; Garcia, AFF. "Developing best practices for genotyping-by-sequencing analysis using linkage maps as benchmarks". *Gigascience*, 12(1) [link](#)
- 2022 Fan, Z; Tieman, DM; Knapp, SJ; Zerbe, P; Famula, R; Barbey, CR; Foltá, KM; **Amadeu, RR**; Lee, Manbo; Oh, Y; Lee, S; Whitaker, VM. "A multi-omics framework reveals strawberry flavor genes and their regulatory elements". *New Phytologist* (18416), [link](#)
- 2022 Ferrao, LFV; Sater, H; Lyrene P; **Amadeu, RR**; Sims CA; Tieman D; Munoz, PR Munoz. "Terpene volatiles mediates the chemical basis of blueberry aroma and consumer acceptability". *Food Res. Int.*, 158 (111468), [link](#)
- 2021 **Amadeu, RR**; Munoz, PR; Zheng, C; Endelman, JB. "QTL mapping in outbred tetraploid (and diploid) diallel populations". *Genetics*, 219 (iyab124), [link](#)
- 2021 Zheng, C; **Amadeu, RR**; Munoz, PR; Endelman, JB. "Haplotype reconstruction in connected tetraploid F1 populations". *Genetics*, 219 (iyab106), [link](#)
- 2021 Ferrao, LFV; **Amadeu, RR**; Benevenuto, J; de Bem Oliveira, I; Munoz, R. "Genomic prediction in an outcrossing and autotetraploid fruit crop: lessons from blueberry breeding". *Front. Plant Sci.*, 12 (676326), [link](#)
- 2021 Quezada, M; **Amadeu, RR**; Vignale, B; Cabrera, D; Pritsch, C; Garcia, AAF. "Construction of a high-density genetic map of *Acca sellowiana* (Berg.) Burret, an outcrossing species, based on two connected mapping populations". *Front. Plant Sci.*, 12 (626811), [link](#)
- 2020 Cappai, F\*; **Amadeu, RR**\* (\*contributed equally for this study); Benevenuto, J; Cullen, R; Garcia, AL; Grossman, AY; Ferrão, LFV; Munoz, PR. "High-resolution linkage map and QTL analyses of fruit firmness in autotetraploid blueberry". *Front. Plant Sci.*, 11 (562171), [link](#)
- 2020 de Bem Oliveira, I; **Amadeu, RR**; Ferrão, LFV; Munoz, PR. "Optimizing whole-genomic prediction for autotetraploid blueberry breeding". *Heredity*, 125, [link](#)
- 2020 **Amadeu, RR**; Lara, LADC; Munoz, PR; Garcia, AAF. "Estimation of molecular pairwise relatedness in autopolyploid crops". *G3*, 10(12), [link](#)
- 2020 de Oliveira, AA; Resende, MFR; Ferrão, LFV; **Amadeu, RR**; Guimarães, LJM; Guimarães, CT; Pastina, MM; Margarido, GRA. "Genomic prediction applied to multiple traits and environments in second season maize hybrids". *Heredity*, 125, [link](#)
- 2020 **Amadeu, RR**; Ferrão, LFV; de Bem Oliveira, I; Benevenuto, J; Endelman, JB; Munoz, PR. "Impact of dominance effects on autotetraploid genomic prediction". *Crop Science*, 60(2), [link](#)
- 2019 Estrada-Reyes, ZM; Tsukahara, Y; **Amadeu, RR**; Goetsch, AL; Gipson, TA; Sahlu, T; Puchala, R; Wang, Z; Hart, ST; Mateescu, RG. "Signatures of selection for resistance to *Haemonchus contortus* in sheep and goats". *BMC Genomics*, 20(1), [link](#)

- 2019 Lara, LADC; Santos, MF; Jank, L; Chiari, L; Vilela, MDM; **Amadeu, RR**; dos Santos, JP; Pereira, GDS; Zeng, ZB; Garcia, AAF. "Genomic selection with allele dosage in *Panicum maximum* Jacq.". *G3*, 9(8) [link](#)
- 2019 Benevenuto, J; Ferrão, LFV; **Amadeu, RR**; Munoz, P. "How can a high-quality genome assembly help plant breeders?". *GigaScience*, 8(6), [link](#)
- 2019 de Bem Oliveira, I; Resende Jr, MFR; Ferrao, LFV; **Amadeu, RR**; Endelman, JB; Kirst, M; Coelho, ASG; Munoz, PR. "Genomic prediction of autotetraploids; influence of relationship matrices, allele Dosage, and continuous genotyping calls in phenotype prediction". *G3*, 9(4), [link](#)
- 2018 Conson, ARO\*; Taniguti, CH\*; **Amadeu, RR**\* (\*contributed equally for this study); Andreotti, IAA; de Souza, LM; dos Santos, LHB; Rosa, JRBF; Mantello, CC; da Silva, CC; Scaloppi Jr, EJ; Ribeiro, RV; Le Guen, V; Garcia, AAF; Gonçalves, PS; Souza, AP. "High-resolution genetic map and QTL analysis of growth-related traits of *Hevea brasiliensis*". *Front. Plant Sci.*, 9(1255), [link](#)
- 2018 Ferreira, DA; Abreu, GF; Cheavegatti-Gianotto, A; Soldi, MCM; Carneiro, MS; **Amadeu, RR**; Hoffmann, HP; Aricetti, JA; Wolf, LD; Caldana, C. "Metabolite profiles of sugarcane culm reveal the relationship among metabolism and axillary bud outgrowth in genetically related sugarcane commercial cultivars". *Front. Plant Sci.*, 9(857), [link](#)
- 2018 Cellon, C; **Amadeu, RR**; Olmstead, JW; Mattia, MR; Ferrao, LFV; Munoz, PR. "Estimation of genetic parameters and prediction of breeding values in an autotetraploid blueberry breeding population with extensive pedigree data". *Euphytica*, 214(87), [link](#)
- 2016 **Amadeu, RR**; Cellon, C; Olmstead, JW; Garcia, AAF; Resende, MF; Munoz, PR. "AGHmatrix: R package to construct relationship matrices for autotetraploid and diploid species, a blueberry example". *The Plant Genome*, 9(3), [link](#)

## Ad-hoc reviewer

Frontiers in Plant Science (21 reviews, 1 editor), Briefings in Bioinformatics (4), Computational and Structural Biotechnology (2), Theoretical and Applied Genetics (1), BMC Genomics (1), BMC Plant Biology (1), Crop Science (1), Plants (1), Molecular Breeding (1)

## Teaching

- Fall 2020 **Teaching assistant** of Field Plot Techniques, graduate level, University of Florida Responsibilities: teach nine classes on analysis of experimental design, hold weekly office hours, remotely by Zoom
- Sum 2020 **Guest lecturer** of Special Topic in Genetics and Breeding, graduate level, University of São Paulo Responsibilities: teach one class on Relationship coefficient in autopolyploid crops
- Fall 2019 **Teaching assistant** of Mol. Marker Assisted Plant Breeding, graduate level, University of Florida Responsibilities: teach eight classes on analysis of genetic data, hold weekly office hours, synchronously in class & Zoom
- Fall 2019 **Teaching assistant** of Field Plot Techniques, graduate level, University of Florida Responsibilities: teach three classes on analysis of experimental design, hold weekly office hours, synchronously in class & Zoom
- Fall 2018 **Teaching assistant** of Field Plot Techniques, graduate level, University of Florida Responsibilities: teach three classes on analysis of experimental design, hold weekly office hours, synchronously in class & Zoom
- Spring 2015 **Teaching assistant** of Calculus I, undergraduate level, University of São Paulo Responsibilities: hold weekly office hours
- Spring 2012 **Teaching assistant** of Genetics, undergraduate level, University of São Paulo Responsibilities: hold weekly office hours
- 2011-2015 **Instructor** of Precalculus in a college preparatory school, Piracicaba, Brazil Responsibilities: teach once a week during four years (one year hiatus when I was in Florida), hold weekly office hours

## Oral presentations

- 2021 **Seminar** "Enhancing molecular and data-driven breeding in blueberries". Corteva Agriscience PhD Seminar Series, USA.

- 2021 **Seminar** "QTL mapping in tetraploid diallel populations". CGDG. *The Roslin Institute*, UK. [link](#)
- 2020 **Amadeu, RR**; Munoz, PR; Chaozhi, Z; Endelman, J. "QTL mapping in autotetraploid multi-parent populations". *The 6<sup>th</sup> International Conference of Quantitative Genetics (ICQG6)*. Virtual conference. Oral session. [link](#)

## Software development

- AGHmatrix author, compute relationship matrices for diploid and autopolyploid species, [link](#)
- onemap contributor, build genetic maps in experimental crosses, [link](#)
- onemap2pop author, onemap extension to build multi-family genetic maps in outcrossing species, [link](#)
- fullsibQTL co-author, QTL mapping in outcrossing species using composite interval mapping, [link](#)
- diaQTL co-author, QTL mapping in multiparent and autopolyploid populations, [link](#)
- MultiPolyPop author, simulation of multiparent and autopolyploid populations, [link](#)
- SimpleMating author, simple mating allocation based on cullings for perennial breeding, [link](#)

## Leadership

- 2010-2011 Student representative for the B.Edu. in Agr Sciences Committee, University of São Paulo
- 2011-2012 Student representative for the B.Eng. in Agriculture Committee, University of São Paulo
- 2010-2012 Student union member, University of São Paulo

## Skills

- genetics genomic prediction, GWAS, QTL mapping, quantitative genetics, polyploid genetics, simulation
- statistics analysis of genetic & agricultural data, machine learning, linear mixed models
- programming R (advanced): package development, tidyverse, shiny/plotly app, parallelization
- programming SQL/BigQuery, shell/bash script, AzureML, Linux, C/C++, ASReml, GitHub,  $\LaTeX$
- language Portuguese (native), English (high proficiency)

## Specialized Training

- 2021 Data-Driven Breeding and Genetics, Roslin Institute
- 2021 Fundamentals Deep Learning, Deep Learning Institute-NVIDIA, Gainesville, FL, US
- 2019 Analysis of Experiments Using ASReml-R, Dr. S. Gezan (UF), Gainesville, FL, US
- 2017 Modelling GxE Interaction in Genomic Prediction Analysis, Dr. J. Crossa (CIMMYT), Piracicaba
- 2016 Quantitative Genetics and Genomics Workshop, Drs. Morota & Spangler (UNL), Piracicaba, BR
- 2015 Brazilian Edition of the "Tucson Plant Breeding Institute", Org. Dr. Bruce Walsh, Piracicaba, BR
- 2015 EMBL-EBI Bioinformatics Workshop, EMBL-EBI, Piracicaba, BR