Rodrigo Rampazo Amadeu

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Education

Expected August 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

Research Experience

2018-present — **University of Florida, USA**
Graduate Research Assistant, Blueberry Breeding & Genomics Lab, Supervisor Dr. Patricio Munoz
- Planning and optimization of breeding program
- Genetic data analysis (genomic prediction, population genetics, gene discovery and mapping)
- Agricultural data analysis (experiment design and planning, linear mixed models)
- Development of statistical-genetics software (AGHmatrix, diaQTL, PedigreeSimR)
- Plant breeding activities (phenotyping, selection)

2016-2018 — **University of São Paulo, Brazil**
Graduate Research Assistant, Statistical-Genetics Lab, Supervisor Dr. Augusto F. Garcia
- Genetic data analysis (genomic prediction, population genetics, gene discovery and mapping)
- Agricultural data analysis (experiment design and planning, linear mixed models)
- Development of statistical-genetics software (onemap, onemap2pop, fullsibQTL)
- CNPq Scholarship

2014 — **University of Florida, USA**
Intern, Forage Breeding and Genomics Lab, Supervisor Dr. Patricio Munoz
- Development of software to build genomic relationship matrices (AGHmatrix)
- Plant breeding activities (pollination, phenotyping, selection)
- Science without Borders Scholarship

2010-2015 — **University of São Paulo, Brazil**
Intern, Statistical-Genetics Lab, Supervisor Dr. Augusto F. Garcia
- Development of pipeline for SNP dosage calling in autopolyploid data
- Population structure analysis of sugarcane panel
- CNPq & Santander scholarships

Awards & Scholarships

2020 — Scholarship ($5,000), Murial Rumsey scholarship, CALS, Univ. of Florida
2020 — Scholarship ($300), outstanding teaching assistantship, Univ. of Florida
2019 — Scholarship ($250), outstanding teaching assistantship, Univ. of Florida
2019 — Award ($300), poster competition Plant Science Symposium, Univ. of Florida - 1st Place
2016 — Award ($2,200), Prof Brieger, best graduating student of Dep. of Genetics, Univ. of São Paulo
2013 — Scholarship, Science without Borders - CAPES - 1yr at Univ. of Florida
2012 — Scholarship, Scientific Initiation - PIBIC/CNPq - 1yr
2011 — Scholarship, Scientific Initiation - Santander - 1yr

Journal Articles

Submitted manuscripts (4)

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". *bioRxiv*, link

2020 **Amadeu, RR**; Munoz, R; Zheng, C; Endelman, JB. "QTL mapping in outbred tetraploid (and diploid) diallel populations". *bioRxiv*, link

2020 Zheng, C; **Amadeu, RR**; Munoz, R; Endelman, JB. "Haplotype reconstruction in connected tetraploid F1 populations". *bioRxiv*, link

2020 Gazaffi, R*; **Amadeu, RR*** (**contributed equally for this study*); Mollinari, M; Rosa, JRBF; Taniguti, CH; Margarido, GRA; Garcia, AAF. "fullsibQTL: an R package for QTL mapping in biparental populations of outcrossing species". *bioRxiv*, link

Published in peer-reviewed journals (14)

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

Journals: BMC Genomics, Briefings in Bioinformatics

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
PedigreeSimR	author, simulation of multiparent and autopolyploid populations, link

Statistics consulting

2020	*RAPiD Genomics LLC*, optimization of molecular biology protocol with machine learning algorithm
2014-2016	*Daniel Reis Pereira*, agriculture big data wrangling & analysis, development of apps to guide decisions for risk in agriculture (multiple times for different Ag companies as Cargill, Geosys, BTG)
2015	*Instituto Terra Mater*, data wrangling and statistical analysis of vegetables prices from different venues sources link

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	shell/bash script, Linux, C/C++, ASReml, GitHub, AlphaGenes software, LaTeX
language	Portuguese (native), English (high proficiency)

Specialized training

2021	Fundamentals Deep Learning, Gainesville, FL Deep Learning Institute-NVIDIA
2019	Analysis of Experiments Using ASReml-R, Gainesville, FL Dr. Salvador Gezan (UF)
2017	Modelling GxE Interaction in Genomic Prediction Analysis, Piracicaba, Brazil Dr. José Crossa (CIMMYT)
2016	Quantitative Genetics and Genomics Workshop, Piracicaba, Brazil Dr. Gota Morota (UNL), Dr. Matt Spangler (UNL)
2015	Brazilian Edition of the "Tucson Plant Breeding Institute", Piracicaba, Brazil Dr. Bruce Walsh (UArizona), Dr. Michael Gore (Cornell), Dr. Lucia Gutierrez (UDELAR)
2015	EMBL-EBI Bioinformatics Workshop, Piracicaba, Brazil Dr. Yuen Man Tang (EBI), Dr. Sandra E. Orchard (EBI), Dr. Andrew P. Cowley (EBI)

References

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