

RAFAEL MASSAHIRO YASSUE

Campinas, SP, Brazil

✉ rafael.yassue@gmail.com

in [rafael-massahiro-yassue](https://www.linkedin.com/in/rafael-massahiro-yassue)

🔗 [RafaelYassue](#)

[Website](#)

RESEARCH INTERESTS

I am a Data Science Analyst at GDM with experience in plant breeding, field experimentation, quantitative genetics, statistical modeling, phenomics, and genomics. My work is to connect genomics, high-throughput phenotyping, and quantitative genetics to plant breeding. My goal is to solve challenges by applying multidisciplinary approaches. Furthermore, I continuously improve myself in communication, teamwork, and leadership.

EDUCATION

Virginia Tech

Visiting scholar

2022

Blacksburg, United States

Luiz de Queiroz College of Agriculture - University of São Paulo

2018 – 2022

Ph.D., Genetics and Plant Breeding

Piracicaba, Brazil

Luiz de Queiroz College of Agriculture - University of São Paulo

2016 – 2018

M.S., Genetics and Plant Breeding

Piracicaba, Brazil

Western Paraná State University - Unioeste

2011 – 2015

B.Sc. Agronomic Engineering

Mal. C. Rondon, Brazil

SKILLS

- | | | | |
|-------------------------|------------------------|-------------|---|
| • Quantitative genetics | • Statistical modeling | • Phenomics | • R, Python, and Julia |
| • Plant breeding | • Image processing | • Genomics | • Markdown, GitHub, and L ^A T _E X |

LANGUAGES

- | | | |
|-----------------------|----------------------|-------------------|
| • Portuguese (native) | • English (advanced) | • Spanish (Basic) |
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EXPERIENCE

Data Science Analyst, GDM

2022-present

Develop algorithms for experimental design and genetic analysis for breeding programs

Campinas, Brazil

Coordinator of plant breeding study group, Gvenck

2019

Coordinated the group's activities

Piracicaba, Brazil

Member of plant breeding study group, Gvenck

2016 – 2019

Promote discussions on relevant plant breeding issues, and soft skills improvement

Piracicaba, Brazil

Academic internship, Soybean breeding, Esalq

2015

Field experimentation, scientific discussion, and data analysis

Piracicaba, Brazil

Intern, Soybean breeding, Coodetec

2013-2014

Hands-on experience in an industry breeding program

Cascavel, Brazil

Undergraduate Research, Plant breeding, Unioeste

2011 – 2015

Learning in methods of research and development of scientific thought

Mal. C. Rondon, Brazil

ADDITIONAL TRAINING

- | | |
|--|------|
| • Introdução ao aprendizado de máquinas com Python | 2021 |
| • Workshop on Analysis of Breeding Experiments using ASReml-R | 2020 |
| • Workshop on Crop Growth Models Applied for Plant Breeding | 2020 |
| • Treinamento genotype to phenotype models in plant breeding | 2019 |
| • System biology and gene networks inference: application to livestock | 2019 |
| • IV Workshop on Longitudinal and Incomplete Data | 2018 |
| • Quantitative Genetics and Genomics | 2018 |
| • New methodologies for high-resolution mapping and development of molecular | 2017 |

PRESENTATIONS

- An assessment of the predictive ability of plant growth-promoting bacteria inoculation status and shoot dry mass using hyperspectral images in tropical maize. ASA, CSSA, and SSSA International Annual Meetings. Virtual – 2021
- A low-cost greenhouse-based high-throughput phenotyping platform for genetic studies in maize under inoculation with plant growth-promoting bacteria. NAPB Annual Meeting. Virtual – 2021
- Melhoramento do Milho. Aula da disciplina: Introdução à Engenharia Agronômica. ESALQ. Virtual – 2021
- Investigating the genetic architecture of the interaction between tropical maize and plant growth-promoting bacteria via high-throughput phenotyping. Translation Plant Science-Discussion Group (TPS-DG). Virginia Tech. Virtual – 2021
- Genetic architecture of the interaction between tropical maize and plant growth-promoting bacteria via high-throughput phenotyping. Genomics and machine learning discussion group. Virginia Tech. Virtual – 2021

PUBLICATIONS

- Yassue RM, et al. Genome-wide association analysis of hyperspectral reflectance data to dissect growth-related traits genetic architecture in maize under inoculation with plant growth-promoting bacteria. bioRxiv (Preprint), 2022. [doi](#)
- Yassue RM, et al. Classification of plant growth-promoting bacteria inoculation status and prediction of growth-related traits in tropical maize using hyperspectral image and genomic data. Crop Science (In press), 2022. [doi](#)
- Galli G, et al. Automated Machine Learning: a case study of genomic “image-based” prediction in maize hybrids. Frontiers in Plant Science, 2022. [doi](#)
- Yassue RM, et al. On the genetic architecture in a public tropical maize panel of the symbiosis between corn and plant growth-promoting bacteria aiming to improve plant resilience. Molecular Breeding, 2021. [doi](#)
- Yassue RM et al. A low-cost greenhouse-based high-throughput phenotyping platform for genetic studies: a case study in maize under inoculation with plant growth-promoting bacteria. The Plant Phenome Journal, 2021. [doi](#)
- Yassue RM, et al. CV- α : designing validation sets to increase the precision and enable multiple comparison tests in genomic prediction studies. Euphytica. 2021. [doi](#)
- Souza RS, et al. Combining ability for the improvement of vegetable soybean, Agronomy Journal. 2020. [doi](#)
- Espolador FG, et al. Assessing tolerance to Asian soybean rust in soybean inbred lines from exotic and adapted crosses. Euphytica, 2020. [doi](#)
- Yassue RM, et al. Uni and multivariate approaches for diallel analysis in early generation trials for soybean tolerance to rust. Bragantia. 2019. [doi](#)

REFERENCES

- Prof. Dr. Gota Morota – Assistant Professor of quantitative genetics at Virginia Tech – morota@vt.edu
- Prof. Dr. Roberto Fritsche-Neto - Senior Scientist at International Rice Research Institute – r.fritscheneto@irri.org
- Prof. Dr. James Chen - Assistant Professor of Animal Data Sciences at Virginia Tech – niche@vt.edu