

Vinicius Garnica

Plant Pathologist | Agronomist | Data Scientist

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Profile

Ph.D. candidate in Plant Pathology and Statistics with 11 years of experience in agricultural research and 7 years in data analysis. I have strong interpersonal and technical skills and a proven track record of delivering and communicating high-quality research results. My core values are integrity, intellectual curiosity, proactivity, and continuous development.

Work Experience

Graduate Research Assistant, North Carolina State University, Raleigh, NC Jan 2021 – Present
Development of a Bayesian model for plant disease forecasting.

- Leading 5 research projects on wheat disease management while acquiring advanced R coding skills and statistical background. Concurrently served as a TA for the epidemiology grad-course
- Developed **MSE FindR** Shiny app – a user-friendly tool for multidisciplinary research – for information extraction from scientific reports.
- Conducting meta-analysis of fungicide efficacy wheat foliar diseases in the U.S.
- Earned recognized fellowship on a competitive basis for professional development in STEM field.

Agronomy Research Site Coordinator, MT Foundation, Primavera do Leste, MT, Brazil Aug 2019 – Aug 2020
Industry role. Coordinated field research activities, budget planning, hiring, and project management.

- Led field operations for 100+ crop protection trials while supervising daily activities of 10+ collaborators.
- Worked closely with stakeholders for on-farm research protocols and recruited and trained collaborators for multidisciplinary data collection.

Graduate Research Assistant, University of Nebraska, Lincoln, NE May 2017 – May 2019
Enhancing soybean disease management through seed treatment and cultivar resistance.

- Investigated interactions between pre-emergent herbicides and soybean seedling diseases. Determined the composition of root-associated pathogens using lab techniques and microscopy.
- Conducted a statewide survey and reported a shift in resistance-gene efficacy for *Phytophthora* spp.
- Evaluated seed treatment and cultivar resistance for disease management and adapted the method to collect plant canopy using a cellphone app. Research efforts resulted in 4 peer-reviewed publications.
- Earned scholarship on a competitive basis in recognition of demonstrated creative promise.

Agronomist Trainee, Adriana Seeds, Alto Garças, MT, Brazil Aug 2016 – Mar 2017
Industry role. Coordinated field activities for soybean seed production.

- Coordinated broadcast fertilizer application, cover crop sowing, and soybean harvest operations while overseeing 10+ collaborators. Managed input delivery logistics and handed daily production reports to assist supervisors' decision-making.

Field Research Intern, DuPont-Pioneer, York, NE May 2015 – Aug 2015
Industry role. Training to become a research agronomist while gaining industry perspective.

- Collected and entered high-quality data for maize genotype selection. Communicated field observations, collected plant tissue samples for image acquisition, and performed equipment maintenance in accordance with companies' health and safety standards.

Research Intern, University of Nebraska, Lincoln, NE Oct 2014 – Apr 2015

Conducted basic research and lab assays for soybean nematode detection and estimation

- Carried out a greenhouse experiment evaluating foliar insecticides on soybean cyst nematode.

Research Intern, Federal University of Viçosa, Brazil Apr 2012 – Feb 2014

Conducted lab assays and routine laboratory activities

- Supported M.S. and Ph.D. students' research on mango canker disease evaluation and fungicide sensitivity. Carried out media preparation, dish cleaning, and fungal isolation.

Education

Ph.D., Major: Plant Pathology, Minor: Statistics Jan 2021 – Present

North Carolina State University, Raleigh, NC, USA GPA: 3.49

Field of study: Plant disease epidemiology.

M.S., Major: Agronomy, Minor: Statistics May 2017 – May 2019

University of Nebraska, Lincoln, USA GPA: 3.73

Thesis: Integrated management of Phytophthora stem and root rot of soybean and the effect of soil-applied herbicides on seedling disease incidence.

B.S., Agronomy Jan 2011 – Jun 2016

Federal University of Viçosa, Brazil GPA: 78.3/100

Thesis: Effect of foliar application of acephate and azadirachtin on population dynamics of soybean cyst nematode (*Heterodera glycines* Ichinohe) (in Portuguese).

Awards and Recognition

2nd place in the Advanced Machine Learning Hackathon, Raleigh, NC Oct. 2023

Dr. and Mrs. Robert Goss Memorial Scholarship June 2018

1st place poster competition at UNL spring undergraduate research fair April 2015

Hard and Soft Skills

Statistics and computing: Linear mixed models, meta-analysis, probability distributions, and Bayesian inference. High-performance parallel and cloud computing experience. Machine learning techniques: classification (random forest), clustering (K-means), dimension reduction (PCA, LASSO, net-elastic), stability selection, time-series analyses (ARIMA, window-pane), ANOVA, ANCOVA, multiple-comparison tests.

Leadership: Completed Crucial Conversations® and The Five Behaviors® workshops. Possess DISC and Clifton Strengths assessments. Excellent organizational, teamwork, and communication skills developed while I served different teams in the past.

Tech Stack

R programming | RMarkdown | Shiny app | JAGS | GitHub | Inkscape | Stan (intermediate) | SAS programming (intermediate) | SQL (beginner) | AWS (beginner) | Python programming (beginner)

Languages

English (Fluent) | Portuguese (Native) | Spanish (Intermediate)