

# SAMEER POKHREL

PhD Candidate | Institute of Plant Breeding, Genetics and Genomics (IPBGG),  
University of Georgia

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## **Professional summary**

PhD researcher in plant breeding and genetics with experience in multi-parent populations, pangenome construction, and data driven crop improvement. Experienced in integrating field phenotyping, high throughput genomics, and bioinformatics to develop drought and disease resilient peanuts.

## **Academic qualification**

2022 – current

[PhD in Plant Breeding, Genetics and Genomics](#) | University of Georgia, USA

2019 – 2021

[Master's in Horticultural Sciences](#) | University of Florida, USA

GPA: 4.0/4.0

2013 – 2017

[Bachelor's of Science in Agriculture](#) | Agriculture and Forestry University, Nepal

GPA: 3.6/4.0

## **Work experience**

2022 (Aug)- Current

[Graduate Research Assistant](#) | Peggy Ozias-Akin's lab, University of Georgia

Advisor: Dr. Peggy Ozias-Akins

- Led the development of a population-specific pangenome for a 16-way Multi-Parent Advanced Generation Intercross (MAGIC) peanut population (first report of such population and its pangenome in peanuts)
- Developed an interactive R shiny application to visualize genomic variation within the MAGIC founders ([link](#))
- Developed 3-4 highly drought-tolerant lines through breeding, with germplasm release targeted for March 2026
- Developing white mold resistant peanut lines, targeting germplasm release by December 2026
- Co-inventor on a patent application for a candidate gene associated with Tomato Spotted Wilt Virus resistance in peanuts
- Qualified for a certification in bioinformatics from UGA

2021 (Aug)- 2022 (June)

**Graduate Researcher** | World Food Crops Breeding Program, University of Florida

Advisor: Dr. Ali Babar

- Managed seed planting and machine harvesting, conducted detailed agronomic data collection, and controlled crossing for wheat breeding trials
- Maintained breeder's trial and trained in selection techniques for identifying superior genotypes in the trial.

2021 (May) – 2021 (July)

**Graduate Researcher** | Plant physiology lab, University of Florida

Advisor: Dr. Ute Albrecht

- Assisted in greenhouse and field experiments, contributing to studies on citrus physiology

2019 (Jan) – 2021 (May)

**Graduate Research Assistant** | Plant physiology lab, University of Florida, SWFREC

Advisor: Dr. Ute Albrecht

- Conducted multi-location and multi-year field evaluations of citrus root and shoot growth to assess rootstock performance in disease pressure
- Performed laboratory experiments including DNA extraction and qPCR to support physiological experiments.

2018 (Jan) – 2018 (Aug)

**High school teacher** | Shree Raghunath Adarsha Secondary School, Kailali, Nepal

- Instructor of the courses 'Agronomy' and 'Fruit crop production'

2017 (Mar) – 2017 (Sep)

**Intern** | District Agriculture Development Office, Government of Nepal

- Provided technical assistance in crop production and management, supporting local farmers with best practices, and information dissemination.

Contract recruitment (2017)

**Researcher** | Parbat Phedi Srijansil Yuwa Club, a local NGO

- Conducted feasibility studies for the establishment of eco-tourism corridors.
- Assessed potential for processing industries focused on under-exploited plants: *Reetha (Sapindus mukorossi)*, *Chiuri (Diploknema butyracea)*, and *Lokta (Daphne species)*

### **Research publications**

Biswal, A.K., Quiroz, S., **Pokhrel S.**, Flores, I.M., Gomez, L., Ozias-Akins, P., & Alakonya, A. Draft genome sequence of *Monographella maydis*, a fungus contributing to maize Tar Spot. *Genome biology* (Under submission)

Web, S., Chu, Y., Biswal, A., Korani, W., Botton, S., **Pokhrel, S.**, Thompson, E., Guo, B., Culbreath, A., Clevenger, J., Holbrook, C., & Ozias-Akins, P., High copy number of an *Arachis hypogaea* XXX gene is associated with increased resistance to Tomato spotted wilt virus. *Crop Science* (submitted), 2025-11

Lee, K., Korani, W., Bentz, P. C., **Pokhrel, S.**, Ozias-Akins, P., Harkess, A., ... & Clevenger, J. (2025). Long-read low-pass sequencing for high-resolution trait mapping. Preprint Available. *Nature Methods* (Under submission)

**Pokhrel S.**, Kharel P., Pandey S., Botton S., Nugraha GT., Holbrook C., & Ozias-Akins P. 2025. Understanding the impacts of drought on peanuts (*Arachis hypogaea* L.): exploring physio-genetic mechanisms to develop drought-resilient peanut cultivars. *Frontiers in Genetics*, 15, 1492434

**Pokhrel S.**, Pandey S., Ghimire A., & Kandel, S. 2021. Understanding citrus greening disease and its possible management strategies in Nepal. *International Journal of Applied Sciences and Biotechnology*. 9(4):227-234

**Pokhrel S.**, Meyering B., Bowman K.D., & Albrecht U. 2020. Horticultural attributes and root architectures of field-grown ‘Valencia’ trees grafted on different rootstocks propagated by seed, cuttings, and tissue culture. *HortScience*, 1 (aop), 1-10

**Pokhrel S.**, Dhakal S., & Pandey S. 2018. Economics of Maize Seed and Grain Production in Rolpa. *Acta scientific Agriculture* 2.11 (2018):43-50

Pandey S., Shrestha A.K., **Pokhrel S.**, & Ghimire A. 2019. Value Chain Analysis of Ginger in Sunsari district of Nepal. *Acta scientific Agriculture* 3.5 (2019):11-19

### **Honors and awards**

- ASA-CSSA-SSSA (tri-society) peer review mentorship program Spring, 2025
- George Hugh Boyd Memorial Scholarship; 2023-2024, Graduate school, UGA
- Travel awards:  
IPBGG; 2023, 2024, UGA Graduate School; 2024, American Society for Horticultural Sciences (ASHS); 2020, National Association of Plant Breeders (NAPB); 2025
- Full merit scholarship to study a Bachelor of Science in Agriculture, Agriculture and Forestry University, Nepal

### **Research grants**

John Ingle Innovation Award in plant breeding, 2024/2025 (Awarded \$5000)

Project: Developing Drought-Tolerant and Aflatoxin-Resistant MAGIC Peanuts Using Drone-Assisted Selection

### **Media publications**

- Root architecture, propagation method, and citrus tree growth, Citrus industry Magazine ([link](#))

- Valencia Performance and Rootstock Propagation Methods, Citrus Industry Magazine ([link](#))
- An incurable disease has been invading citrus orchards, The Kathmandu Post ([link](#)) Harmony and Discord, The Kathmandu Post ([link](#))
- Climate change threatens ‘Himalayan Viagra’ fungus, and a way of life, The Guardian ([link](#))
- Nepal needs to shift towards energy-efficient modern brick kilns, New spotlight magazine ([link](#))

## **Skills**

### **Computation and bioinformatics**

- RStudio, R shiny app development, statistical modeling
- Linux/HPC, genomic pipeline, variant and pangenome analysis, introgression and population genomics
- Python; data manipulation, visualization and statistical analysis

### **Research**

- Field, Greenhouse, and lab experiment designing and data analysis.
- Phenotyping, crossing, selection, multi-location trials.

### **Writing and public speaking**

- Scientific writing, peer review, oral/poster presentations and moderation

## **Professional activities**

### **Delegate and invited speaker**

Advances in Arachis Through Genomics and Biotechnology (AAGB), Goa, India. “Testing Agile Genetics in a complex multi-parental peanut population”. Oral presentation. 2025.

### **Research presentation**

- United States Peanut Federation (USPF). “Breeding drought-tolerant peanuts to reduce aflatoxin contamination”. Oral presentation. 2025.
- Plant and Animal Genome Conference (PAG). “Testing the components of Agile Genetics in peanut PanMAGIC populations”. Poster presentation. 2025.
- NAPB. “A Pan-MAGIC platform for peanut genetics study”. Poster presentation. 2024.
- PBGG, UGA Retreat. “Unleashing the power of pangenome in MAGICal peanuts”. Poster presentation. 2024.
- AAGB. “Genome assembly and comparative genomic analysis of tetraploid peanuts”. Poster presentation. 2023.
- PBGG, UGA Retreat. “An efficient approach for tetraploid genome assembly”. Poster presentation. 2023.

- ASHS. “Influence of rootstock propagation method and rootstock cultivar on the performance of young field-grown ‘Valencia’ sweet orange trees”. e-poster presentation. 2021
- ASHS. “Comparison of field performance of citrus trees on rootstocks propagated by seedling, cuttings, and tissue culture”. Oral presentation. 2020.
- Florida State Horticultural Society (FSHS). “Horticultural attributes and root architectures of field-grown ‘Valencia’ trees grafted on different rootstocks propagated by seed, cuttings, and tissue culture”. Oral presentation. 2020.
- 7<sup>th</sup> Annual South Florida Graduate Research Symposium. “Comparison of field performance of citrus trees on rootstocks propagated by seedling, cuttings, and tissue culture”. Poster presentation. 2019.
- Y-pard Nepal Research Symposium. “Comparative socio-economic analysis of maize seed and grain production in Rolpa”. Oral presentation. 2018

### **Participation and volunteering**

- Moderated Plant Breeding, Genetics, and Genomics Annual Retreat, UGA. 2025
- Core planning committee member. Plant Breeding, Genetics, and Genomics
- Annual Retreat, UGA. 2025
- Moderated ‘Citrus section’, ASHS. 2020
- Capacity building training. Carbon financing, REDD/REDD+ issues. Youth Alliance for Environment, Nepal
- Asia Agriculture Innovation Summit series Nepal. USAID-Feed the Future. 2016.
- Earth 2100 conference, Nepal. Our Task Inc., Arlington, USA, and Nepalese Youth Series

### **Membership**

- Tri-societies (ASA, CSSA, SSSA). 2025.
- NAPB. 2024 and 2025.
- PBGG, UGA graduate student association. 2022-2025; served as a secretary
- ASHS. 2019-2022.
- FSHS. 2019-2021.
- Plant Science Council, UF. 2019-2021; served as a travel award chair
- Graduate Student Organization, UF. 2019-2022.
- Gator Citrus Club, UF. 2019-2020.

### **References**

| <b>Dr. Peggy Ozias-Akins</b><br>Distinguished professor<br>Department of Horticulture<br>Tifton campus, UGA<br>Email:<br><a href="mailto:pozias@uga.edu">pozias@uga.edu</a> | <b>Dr. Justin Vaughn</b><br>Scientist in Residence<br>HudsonAlpha Institute for<br>Biotechnology, AL<br>Email:<br><a href="mailto:jvraughn@hudsonalpha.org">juvaughn@hudsonalpha.org</a> | <b>Dr. Corley Holbrook</b><br>Peanut Breeder<br>USDA-ARS<br>Tifton, GA<br>Email:<br><a href="mailto:corley.holbrook@usda.gov">corley.holbrook@usda.gov</a> |
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