Seren Villwock

Ithaca, New York, USA
ssv42@cornell.edu

EDUCATION

Cornell University — Ithaca, NY
School of Integrative Plant Sciences, Plant Breeding and Genetics PhD student — 2020 - present
Minors: Plant Biology and Plant Genetics

Lewis & Clark College — Portland, OR
Bachelor of Arts in Biology, with honors (GPA: 4.0) — 2015 - 2018

School for International Training — Rwanda & Uganda
Summer course: Peace & Conflict Studies in the Lake Victoria Basin — 2016

RESEARCH EXPERIENCE

Graduate research assistant — Ithaca, NY
Cornell University, School of Integrative Plant Sciences — AUG 2020 - present
Field of Plant Breeding and Genetics (Advisor: Dr. Jean-Luc Jannink)

- Investigating the effects of wild introgressions on vigor, yield, and quality traits in cassava
- Analyzing gene-metabolite networks to assess interactions between carotenoids and carbohydrate metabolism in biofortified cassava
- Leading field trials at the International Institute of Tropical Agriculture, Nigeria in collaboration with the NextGen Cassava Breeding Project
- Designed a panel of KASP markers for germplasm screening

Undergraduate thesis research — Portland, OR
Lewis & Clark College (Advisor: Dr. Paulette Bierzychudek) — JAN - DEC 2018

- Thesis: "Evaluating the Potential for the Evolution of Polygenic Glyphosate Resistance in Portland Populations of the Landscape Weed *Cardamine hirsuta*"
- Assessed shifts in herbicide sensitivity over multiple generations of *C. hirsuta* populations in greenhouse experiment using dose-response curve modeling in R
- Mentored two first-generation college student assistants interested in STEM research

NSF Research Experience for Undergraduates internship — St. Louis, MO
Donald Danforth Plant Science Center (PI: Dr. Malia Gehan) — MAY - AUG 2018

- Quantified temperature and water stress responses in *Setaria* with high-throughput phenotyping using Python-based image processing software "PlantCV"
- Presented research at public symposium

PROFESSIONAL EXPERIENCE

Synapsis Leadership — Ithaca, NY
Synapsis, Cornell Plant Breeding & Genetics Graduate Student Organization — SEPT 2020 - present

- Served on elected Leadership Council ('20-21), committees for Cornell Corteva Symposium ('21-22), Social Events ('20-'22), and Diversity & Inclusion ('21-22)

Plant Tissue Culture Technician — Portland, OR
Conception Nurseries — OCT 2019 - JUNE 2020

- Cultured and propagated plantlets using sterile technique in production environment
- Optimized micropropagation methods to increase production efficiency

Lead Resident Advisor Portland, OR
Lewis & Clark College Campus Living AUG 2016 - MAY 2018

- Led educational programs, paraprofessional counseling, policy enforcement, and crisis management for a residence hall complex housing the Multicultural Engagement community

Farming for Peace Program Logistics Manager Lira, Uganda
Children of Peace Uganda OCT 2015 - SEPT 2017

- Co-designed and implemented an agricultural training course for youth affected by war in northern Uganda in collaboration with local nonprofit
- Wrote a Davis Projects for Peace grant (2017) successfully funded for $10,000

Lab and Teaching Assistant Portland, OR
Biology Department, Lewis & Clark College JAN - MAY 2017

- Assisted with lab instruction, preparation, grading, and projects for the Investigations in Genetics and Evolutionary Biology course

Biology Tutor Portland, OR
Student Academic Affairs Board, Lewis & Clark College SEPT 2015 - DEC 2017

- Helped students review Investigations in Ecology and Environmental Science, Investigations in Genetics and Evolution, and Cell Biology course material

AWARDS AND HONORS

2022	Schmittau-Novak Small Grants Program Award
2022	Honorable Mention, NSF Graduate Research Fellowship Program
2020	Cornell University Recruitment Fellowship
2018	Phi Beta Kappa, junior year inductee
2018	Phi Beta Kappa Association of Oregon STEM scholarship
2017	Davis Projects for Peace Grant Award
2016 - 2018	Kent Swanson Jr. Memorial Biology Scholarship
2015 - 2018	Lewis & Clark Trustee Endowed Scholarship
2015 - 2018	Lewis & Clark Leadership & Service Award
2015	Optimist Club State Young Texanne of the Year Scholarship

PUBLICATIONS

Chan, A.W., **Villwock**, **S.S.,** Williams, A.L., & Jannink, J.L. *Sexual dimorphism and the effect of wild introgressions on recombination in cassava (Manihot esculenta Crantz) breeding germplasm.* **(2022)** G3 Genes|Genomes|Genetics 12(1).

SKILLS

Quantitative Genetics	Whole genome associations, multi-omics analysis, experimental design optimization
Molecular Biology	KASP marker design, CRISPR/Cas9 gRNA design, molecular cloning
Plant Science	Plant tissue culture, greenhouse cultivation, metabolite and nucleotide extractions
Bioinformatics	Multiple sequence alignment, genomic data analysis, RNAseq analysis
Programming	R, Python, Unix, LaTeX, Git, cloud computing, reproducible analyses