

Sirjan Sapkota

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EDUCATION

CLEMSON UNIVERSITY

PHD CANDIDATE, PLANT SCIENCE
ABD, Exp. graduation: Dec 2019

UNIVERSITY OF GEORGIA

MS IN HORTICULTURE
Dec 2014 | Athens, GA

TRIBHUVAN UNIVERSITY

B. SC. AGRICULTURE
Dec 2010 | Kathmandu, Nepal

LINKS

Github:// [sirjansapkota](#)
LinkedIn:// [sirjansapkota](#)
Twitter:// [@seerzan](#)

COURSEWORKS

Bioinformatics
Computational Genomics
Design & Analysis of Experiments
Population & Quantitative Genetics
Advanced Genetics
Advanced Plant Breeding
Gene Technology
Responsible Science
Communication Seminar

SKILLS

PROGRAMMING

Shell • Python • R • Git • AWS
MS office • TeX • Markdown • Jupyter

Proficiency in

- R Packages: dplyr, purrr, ggplot2, plotly, lme4, nlme, rrBLUP, BGLR, randomForest, R/qtl, pegas, heritability, GAPIT, doMC, doParallel, foreach.
- Python Packages: pandas, numpy, scipy, scrapy, matplotlib, seaborn, plotly, StatsModels, scikit-learn

BREEDING AND GENETICS

RNA-DNA techniques • Sequencing technology • Genetic Mapping • Genomic Analysis • High-throughput phenotyping • predictive modeling • germplasm characterization • genomic prediction • big data analytics

GALLUP® CliftonStrengths™ Top 5

Includer • Ideation • Connectedness Positivity • Strategic

RESEARCH EXPERIENCE

CLEMSON UNIVERSITY | GRADUATE RESEARCH ASSISTANT

Jan 2017 - Present | Kresovich Lab, Clemson, SC

Dissertation: Genome-assisted selection for grain yield and quality in sorghum

- Phenotypic and genomic selection in sorghum breeding.
- Genetic diversity, population structure, and germplasm characterization
- Bayesian inference and random forest for model selection
- High throughput phenotypic data for grain and vegetative components
- Heterosis and combining ability of single cross hybrids in sorghum

UNIVERSITY OF GEORGIA | GRADUATE RESEARCH ASSISTANT

Aug 2012-Dec 2014 | Ozias-Akins Biotechnology Lab, Tifton, GA

Thesis: Physical and genetic mapping of the ASGR-carrier chromosome in *Pennisetum squamulatum*

- In silico* and physical mapping using fluorescent *in situ* hybridization.
- Targeted sequencing, *de novo* assembly, sequence alignment and genetic mapping.
- Comparative genomics to identify synteny and lack of synteny.

NEPAL AGRICULTURE RESEARCH COUNCIL | Research Assistant

Jan 2011-Dec 2011 | Entomology Division, Lalitpur, Nepal

Biological control of potato tuber moth. Biopesticides in insect pest management.

PUBLICATIONS

- [1] J. Conner, **Sapkota, Sirjan**, S. Deschamps, K. Fengler, M. Cigan, and P. Ozias-Akins. Targeted sequencing of a complex locus within a polyploid genome using reduced representation libraries. *Molecular breeding*, 36(5):60, 2016.
- [2] M. K. Tello-Ruiz, C. F. Marco, F.-M. Hsu, R. S. Khangura, P. Qiao, **Sirjan Sapkota**, M. C. Stitzer, R. Wasikowski, H. Wu, J. Zhan, K. Chougule, L. C. Barone, C. Ghiban, D. Muna, A. C. Olson, L. C. Wang, D. Ware, and D. A. Micklos. Double triage to identify poorly annotated genes in maize: The missing link in community curation. *bioRxiv*, jun 2019.
- [3] **Sapkota, Sirjan**, J. A. Conner, W. W. Hanna, B. Simon, K. Fengler, S. Deschamps, M. Cigan, and P. Ozias-Akins. In silico and fluorescence in situ hybridization mapping reveals collinearity between the pennisetum squamulatum apomixis carrier-chromosome and chromosome 2 of sorghum and foxtail millet. *PloS one*, 11(3):e0152411, 2016.
- [4] **Sirjan Sapkota**, J. L. Boatwright, K. Jordan, R. Boyles, and S. Kresovich. Genomic prediction and variable selection for sorghum grain composition. *In preparation*, 2019.
- [5] **Sirjan Sapkota**, R. Boyles, E. Cooper, Z. Brenton, M. Myers, and S. Kresovich. Impact of sorghum racial structure and diversity on genomic prediction of grain yield components. *Crop Science*, *In review*, 2019.

REFERENCES

- Stephen Kresovich, Clemson University, Clemson, SC, [skresov@clemson.edu](#).
- Richard Boyles, Clemson University, Florence, SC, [rboyles@clemson.edu](#).
- William Bridges, Clemson University, Clemson, SC, [wbrdgs@clemson.edu](#).
- Peggy Ozias-Akins, University of Georgia, Tifton, GA, [pozias@uga.edu](#).