

Manoj Sapkota

<https://manoj34sapkota.github.io/>



Breeding Insight, Cornell University
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EDUCATION

University of Georgia (UGA), Athens, GA

Ph.D., Plant Breeding, Genetics and Genomics, Institute of Plant Breeding, Genetics and Genomics (IPBGG), 2023

Cumulative GPA: 3.84/4.00

Research focus: Genetics, genomics, metabolomics and bioinformatics underlying tomato fruits flavor, size and shape

Thesis title: Elucidating the genetic basis of flavor volatiles in tomato

Tribhuvan University (TU), Nepal

B.S., Agriculture, Institute of Agriculture and Animal Sciences, Rampur, Nepal

Major in Plant Breeding, 2016

Passed with 82.19% under Distinction Division

Thesis title: Agromorphological characterization of foxtail millet (*Setaria italica* L. Beauv) at Rampur, Chitwan

RESEARCH EXPERIENCE

Genomics Postdoctoral Associate, Breeding Insight, Cornell University

June 2023- Present

Supervisor: Dr. Dongyan Zhao and Dr. Moira J. Sheehan

- Collaborate with USDA breeders working on specialty crops like alfalfa, lettuce, hop, black berry, blueberry, and cucumber in projects related to exploring genetic diversity, QTL mapping, GWAS and Genomic selections.
- Perform genomic and bioinformatics analysis to help breeders develop breeding strategies.
- Develop marker panels for several specialty crops.
- Prepare reports, manuscripts, and presentations to share research results and findings.

This work has resulted in two publications, one under review and three under preparation. Breeding Insight (BI) is a U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) initiative hosted at Cornell University in Ithaca, New York. This work has resulted in two manuscripts that are currently under preparation.

Graduate Research Assistant, Institute of Plant Breeding, Genetics, and Genomics, University of Georgia

August 2017 – May 2023

Supervisor: Dr. Esther van der Knaap

- Identification and fine mapping of novel loci underlying fruit weight in tomatoes
- Genome-wide association mapping for volatiles contributing to flavor
- Identification and fine mapping of *METHYLESTERASE* locus controlling methyl salicylate levels in tomato fruits
- Genetic characterization of *METHYLESTERASE* and *NON-SMOKY GLUCOSYL TRANSFERASE1* in red-fruited tomato
- Identification of novel loci associated with lipid derived volatiles in tomato fruits using QTL mapping and genotyping by sequencing.

These works resulted in nine publications, one under review and two under preparation. These works were funded through NSF-IO5 1564366, Plant Genome Research Program, Exploitation of Genetic and Epigenetic Variation in the Regulation of Tomato Fruit Quality Traits and NSF-IO5 2151032, Plant Genome Research Program, Decoding the genetics of volatile aroma of tomato fruits (July 2022-June 2025).

Research Technician, International Maize, and Wheat Improvement Centre (CIMMYT), Nepal

November 2016-June 2017

Supervisor: Dr. AR Sadananda

- Design, setup and conduct varietal evaluation trials of tomato, maize, cauliflower, onion and lentils
- Data analysis and report preparation.
- Provide training and workshops to farmers and researchers.

This work was funded through Nepal Seed and Fertilizer (NSAF) Project at the Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT).

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Research Intern, Wheat Breeding Unit, Agriculture and Botany Division, Nepal Agriculture Research Council, Nepal

April 2016 – November 2016

Supervisor: Dr. Dhruva Bahadur Thapa

- Establishing and conducting various wheat varietal evaluation trials
- Observation and data analysis of various wheat and durum wheat varietal evaluation trials
- Writing varietal release proposal for several wheat and durum wheat varieties release request.
- Setting up and distributing trials sets for different research stations.

These works resulted in one publication and one under review and was funded through Nepal Agricultural Research Council, CIMMYT, the Bill and Melinda Gates Foundation and the Foreign, Commonwealth, and Development Office of the UK Government. I have also contributed significantly to proposal preparation and statistical analysis for variety release of two bread wheat varieties (Munal and Chyakhura) and Nepal's first two durum wheat varieties (Khajura Durum 1 and Khajura Durum 2).

RESEARCH GRANT

Contributions to Funded Research

Title: Decoding the genetics of volatile aroma of tomato fruits (July 2022-June 2025)

Principle Investigators: Esther van der Knaap, PhD, University of Georgia and Denise E. Tieman, PhD, University of Florida National Science Foundation, Plant Genome Research Program, IOS 2151032: \$1,499,986.00

Role: Co-author; My work on genome wide association mapping for novel loci controlling volatiles contributing to tomato flavor was the basis for this grant. I provided preliminary data, developed aims, developed extension program, and wrote the grant with Dr. van der Knaap and Dr. Tieman.

FELLOWSHIPS

- The Roger and Cindy Boerma Plant Breeding Excellence Scholarship Award 2022.
- The John Ingle Innovation in Plant Breeding Award 2021.
- Awarded research grant for B.S. thesis research by Local Initiatives for Biodiversity, Research and Development (LiBIRD), Nepal, 2016.
- Full scholarship to study B.Sc. Agriculture in Rampur Campus, Institute of Agriculture and Animal Sciences by Tribhuvan University in competition basis, 2012-2016

HONORS & AWARDS

- Travel award to attend and present a talk at Tools for Polyploids Workshop, University of San Diego, San Diego, California, January 2024
- 2nd place in the PhD poster competition at the 2022 PBGG Retreat, Jekyll Island, GA, May 2022.
- 3rd place in the PhD poster competition at the 2020 PBGG Retreat, virtual, July 2020.
- 1st place in the PhD poster at the 2020 PBGG Retreat. Dawsonville, GA, May 2019.
- Travel award to attend and present a talk at 3rd Annual University of Florida Plant Science Symposium, University of Florida, Gainesville, Florida, January 2019

SUPERVISED UNDERGRADUATE PROJECTS

Jeremiah Jackson, jljackson@presby.edu, under CCGv2 REEU 2022, Candidate gene identification for tomato monoterpenoid volatiles in fruits through an automated gene screening pipeline with GWAS.

Alexander Kim Sweet, xsweet@uga.edu, Fall 2021, Developing pipeline and Graphical User Interface program to analyze and classify scanned tomato fruit images based on ripeness.

Arman Spinola-Khazami, arman.spinolakh25@uga.edu, Spring 2021 and Summer 2021, Developing pipelines for local phylogenetic tree construction to study novel loci affecting fruit weight and flavor volatiles.

Seyedparsa Torabi, seyedparsa.torabi@uga.edu, Spring 2021, Identification and study of candidate genes underlying novel loci affecting methyl salicylate biosynthesis in tomato fruits.

TRAININGS PROVIDED

Resource person and curriculum developer

Educator Genetics Workshop, Georgia Mountain Research and Education Center, Blairsville, GA, July 10-12, 2023

This workshop was funded by National Science Foundation IOS 2151032.

Online teacher and mentor

PlantingScience - Online Mentoring Community (<https://plantingscience.org>), October 2023 to present

Mentor school and high school students in various science projects related to plant physiology, photosynthesis etc.

SELECTED PUBLICATIONS ([Google Scholar](#); Total citations: 340)

- Medina C., Lin M., Zhao D., **Sapkota M.**, Sandercock A., Beil C., Sheehan M., Irish B., Yu L., Poudel H., Classens A., Moore V., Crawford J., Hansen J., Viands D., Smith K., Peel M., Tilhou N., Riday H., Brummer C., and Xu Z. Pre-breeding in alfalfa germplasm develops highly differentiated populations, as revealed by genome-wide microhaplotype markers, *Nature Scientific Reports*, under review
- Topcu Y., **Sapkota M.**, and Aydin S., QTL-seq rapid, cost-effective, and reliable method for QTL identification, *Horticulture Studies*, under review
- Thapa D.B., Subedi, M., **Sapkota M.**, Bohora S.K., Pokhrel K.R., Aryal L., Acharya B., Tripathi S., Chaudhary C., Mahato B., Timsena K., Govindan V., and Joshi, A.K. The first assessment of grain yield and associated traits in durum wheat across a decade in Nepal. *Frontiers in Plant Science – Plant Breeding*, under review
- Topcu Y., Yildiz K., Kayikci H.C., Aydin S., Feng Q., and **Sapkota M.** Deciphering resistant to Tomato Brown Rugose Fruit Virus using genome-wide association studies. *Plant Breeding*, under review
- Zhao D., **Sapkota M.**, Bassil N., Mengist M.F., Iorizzo M., Heller-Uszynska, Molinari M., Beil C., and Sheehan M.J. A public mid-density genotyping platform for Blueberry (*Vaccinium corymbosum* L.), *Genetic Resources*, Vol. 5, No. 9, pp. 36-44, doi: <https://doi.org/10.46265/genresj.WQZS1824>
- Zhao D., **Sapkota M.**, Lin M., Beil C., Sheehan M.J., Greene S., and Irish B., Genetic diversity, population structure, and taxonomic confirmation in annual medic (*Medicago* spp.) collection from Crimea, Ukraine, *Frontiers in Plant science*, 15, p.1339298. doi: [doi: 10.3389/fpls.2024.1339298](https://doi.org/10.3389/fpls.2024.1339298)
- Sapkota, M.** 2023. ELUCIDATING THE GENETIC BASIS OF FLAVOR VOLATILES IN TOMATO (Doctoral dissertation, University of Georgia).
- Li Q., Luo S., Zhang L., Feng Q., Song L., **Sapkota, M.**, Xuan S., Wang Y., Zhao J., van der Knaap, E., Chen X. and Shen S. 2023. Molecular and genetic regulation of fleshy fruit shape and lessons from *Arabidopsis* and rice. *Horticulture Research*, doi: [doi: 10.1093/hr/uhad108](https://doi.org/10.1093/hr/uhad108)
- Sapkota, M.**, Pereira, L., Wang, Y., Zhang, L., Topcu, Y., Tieman, D. and van der Knaap, E., 2023. Structural variation underlies functional diversity at methyl salicylate loci in tomato. *PLOS Genetics*, <https://doi.org/10.1371/journal.pgen.1010751>
- Zhang, B., Li, Q., Keyhaninejad, N., Taitano, N., **Sapkota, M.**, Snouffer, A. and van der Knaap, E., 2023. Combinatorial TRM-OPF module is required to fine-tune tomato fruit shape. *New Phytologist*. <https://doi.org/10.1111/nph.18855>
- Frick, E., **Sapkota, M.**, Pereira, L., Wang, Y., van der Knaap, E., Tieman, D., and Klee, H. 2023. A family of methyl esterases convert methyl salicylate to salicylic acid in ripening tomato fruit. *Plant Physiology*. doi: 10.1093/plphys/kiac509
- Barnett, J., Buonauro, G., Kuipers, A., **Sapkota, M.**, van der Knaap, E., & Razifard, H. 2022. Genomic characterization of a wild-like tomato accession found in Arizona; a northward migration story. *Systematic Botany*. volume 47 issue 4 (October-December 2022). doi: 10.1600/036364422X16674053033895
- Thapa, D.B., Subedi, M., Yadav, R.P., Joshi, B.P., Adhikari, B.N., Shrestha, K.P., Magar, P.B., Pant, K.R., Gurung, S.B., Ghimire, S., Gautam, N.R., Acharya, N.R., **Sapkota, M.**, Mishra, V.K., Joshi, A.K., Singh, R.P., and Govindan, V. 2022. Variation in Grain Zinc and Iron Concentrations, Grain Yield and Associated Traits of Biofortified Wheat Genotypes in Nepal. *Frontiers in Plant Science*, 13:881965. doi: 10.3389/fpls.2022.881965
- Pereira, L., Zhang, L., **Sapkota, M.**, Ramos, A., Razifard, H., Caicedo, A.L. and van der Knaap, E., 2021. Unraveling the genetics of tomato fruit weight during crop domestication and diversification. *Theoretical and Applied Genetics*, 134(10), pp.3363-3378.
- Topcu, Y., **Sapkota, M.**, Illa-Berenguer, E., Nambeesan, S.U. and van der Knaap, E., 2021. Identification of blossom-end rot loci using joint QTL-seq and linkage-based QTL mapping in tomato. *Theoretical and Applied Genetics*, pp.1-15.
- Pereira, L., **Sapkota, M.**, Alonge, M., Zheng, Y., Zhang, Y., Razifard, H., Taitano, N.K., Schatz, M., Fernie, A., Wang, Y. and Fei, Z., 2021. Natural genetic diversity in tomato flavor genes. *Frontiers in plant science*, 12, p.914.
- Li Q., **Sapkota M.**, and van der Knaap E. 2020. Perspectives of CRISPR/Cas-mediated cis-engineering in horticulture: unlocking the neglected potential for crop improvement. *Horticulture research*, 7(1), 1-11.
- Poudel A., Thapa D.B., and **Sapkota M.** 2017. Cluster Analysis of Wheat (*Triticum aestivum* L.) Genotypes Based Upon Response to Terminal Heat Stress. *International Journal of Applied Sciences and Biotechnology*, 5(2), 188-193. DOI: 10.3126/ijasbt.v5i2.17614
- Bhattarai R.P., Ojha, B.R., Thapa D.B., Kharel R., Ojha, A., and **Sapkota M.** 2017. Evaluation of Elite Spring Wheat (*Triticum aestivum* L.) Genotypes for Yield and Yield Attributing Traits under Irrigated Condition. *International Journal of Applied Sciences and Biotechnology*, 5(2), 194-202. DOI: 10.3126/ijasbt.v5i2.17615
- Sapkota M.**, Timilsina D., Yadav M.K., and Ghimire S. 2016. Agromorphological Characterisation of Foxtail millet *Setaria italica* L. Beauv. at Rampur, Chitwan. Thesis. Himalayan Crops, Official site of the Local Crop Project. <http://www.himalayancrops.org/project/984/>
- Sapkota M.**, Pandey M.P., and Thapa D.B. 2016. Agromorphological Characterisation of Foxtail millet (*Setaria italica* L. Beauv) at Rampur, Chitwan, Nepal. *International Journal of Applied Science and Biotechnology*, 4(3), 298-307.
- Sapkota M.**, Pandey M.P., Thapa D.B., Yadav M.K., Ghimire S. and Timilsina D. 2016. Diversity Assessment of Foxtail millet (*Setaria italica* L. Beauv) Accessions Collected from Different Locations of Nepal. *International Journal of Applied Science and Biotechnology*, 4(4), 483-488. DOI: 10.3126/ijasbt.v4i4.16244.

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Vitrakoti D., Aryal S., Rasaily S., Ojha B.R., Kharel R., and **M. Sapkota**. 2016. Study on Genotypic Response And Correlation Analysis Of The Yield And Yield Attributing Traits Of Different Barley (*Hordeum vulgare*) Genotypes. *International Journal of Applied Science and Biotechnology*, 4(4), 529-536, DOI: 10.3126/ijasbt.v4i4.16269.

Under preparation:

Arabidopsis Consortium. "The complete sequence of the Arabidopsis genome." To be submitted in *Nature Genetics*.

Sapkota M., Sandercock A., Medina C., Lin M., Zhao D., Beil C., Sheehan M.J., and Yu L., Comparative Genotyping in Alfalfa: Insights from DArT 3K Panel and GBS Sequencing

Medina C., Viands D., Hansen J., **Sapkota M.**, Peel M., Xu Z., and Yu L., Genome-Wide Association and Genomic Prediction of Alfalfa Biomass Yield Under Drought Stress.

Tizro P., Sapkota M., Vail E., Zhang W., Gayhart MG. and Eno C. Unmasking additional mutations: A single study in Myeloproliferative Neoplasms. To be submitted in *Blood*.

Lin M., **Sapkota M.**, Tang X., Eriksen R., Mou M., Richardson K., Simko I., Beil C., and Sheehan M. Development and validation of a mid-density genotyping platform for lettuce (*Lactuca sativa*). To be submitted in *Genetic Resources*

Topcu Y., **Sapkota M.**, Toomey K., Wang Y., Zhang L., Feng Q., Liu J., Chen H., van Iersel M.W., Kvitko B., and van der Knaap E. Genetic characterization and mapping of a chlorophyll deficiency gene in tomato (*Solanum lycopersicum*)

Maharjan N., **Sapkota M.**, Bertoli D., and Bertoli S. Survey and deep sequence characterization of peanut viruses in Georgia, US

Sapkota M., Pereira, L., Zhang, L., Feng, Q., Hart, A., Topcu, Y., Tieman, D. and van der Knaap, E. Unraveling the Genetic Basis of Tomato Fruit Flavor Volatiles through an Integrated Genome-Wide Association and Biparental Mapping Approach.

R PACKAGES

Sandercock A.M., Chinchilla Vargas J., Chen S., **Sapkota M.**, Lin M., Zhao D., Breeding Insight Team (2024). BIGr: Breeding Insight Genomics functions for polyploid and diploid species. R package version 0.2.0. <https://github.com/Breeding-Insight/BIGr>

ORAL PRESENTATIONS

Sapkota M., *Genetic diversity, population structure, and taxonomic confirmation in annual medic (Medicago spp.) collections from Crimea, Ukraine*, Presentation talk at Plant And Animal Genomics Conference, PAG 31, San Diego, California, January 2024

Sapkota M., Zhao D., Bassil N., Babiker E., Heller-Uszynska K., Beil C., and Sheehan M. *A public mid-density genotyping platform for Blueberry (Vaccinium corymbosum L.)* at Tools for Polyploidy Workshop, San Diego, California, January 2024

Sapkota M. *Identification and characterization of novel loci underlying fruit weight and flavor volatiles in tomato*, Presentation talk at Institute of Plant Breeding, Genetics, and Genomics Departmental Retreat, Jekyll Island, May 2022

Sapkota M., *Identifying novel QTLs underlying fruit weight in tomato*, Presentation talk at Plant Functional Genomics Seminar, Miller Plant Sciences, UGA, February 2020

Sapkota M., *Elimination of Negative Flavor Volatiles for Breeding Tastier Tomatoes*, Presentation talk at 3rd Annual University of Florida Plant Science Symposium, University of Florida, Gainesville, Florida, January 2019

Sapkota M., *How tomatoes got bland & tastier ones on the way*, Presentation talk at Institute of Plant Breeding, Genetics and Genomics seminar. PBGG, UGA, November 2018

Sapkota M., *Breeding for tastier tomatoes: Eliminating negative flavor volatiles*, Presentation talk at Plant Functional Genomics Seminar, Miller Plant Sciences, UGA, October 2018

POSTERS PRESENTATIONS

Sapkota M., Zhao D., Lin M., Beil C., Sheehan M., Greene S., Irish B. *Genetic diversity, population structure, and taxonomic confirmation in annual medic (Medicago spp.) collections from Crimea, Ukraine*, Poster presentation at Plant And Animal Genomics Conference, PAG 31, San Diego, California, January 2024

Lin M., **Sapkota M.**, Tang X., Eriksen R., Mou M., Richardson K., Simko I., Beil C., and Sheehan M. Development and validation of a mid-density genotyping platform for lettuce (*Lactuca sativa*). Poster presentation at Plant and Animal Genomics Conference, PAG 31, San Diego, California, January 2024

Sandercock A., **Sapkota M.**, Medina C., Xu Z., Yu L., Zhao D., Mejia-Guerra K., Mollinari M., Samac D., Irish B., Heller-Uszynska K., Beil C., and Sheehan M. Development of a mid-density genotyping platform for alfalfa and its application in a drought tolerance breeding program. Poster presentation at Plant and Animal Genomics Conference, PAG 31, San Diego, California, January 2024

Sandercock A., **Sapkota M.**, Medina C., Xu Z., Yu L., Zhao D., Mejia-Guerra K., Mollinari M., Samac D., Irish B., Heller-Uszynska K., Beil C., and Sheehan M. Development of a mid-density genotyping platform for alfalfa and its application in a drought tolerance breeding program. Poster presentation at Tools for Polyploidy Workshop, San Diego, California, January 2024

Sapkota M., Pereira L., Wang Y., Topcu Y., Tieman D., and van der Knaap E., *Structural variation underlies functional diversity at methyl salicylate loci in tomato*, Poster presentation at Plant Center Retreat 2022, Brasstown Valley Resort and Conference Center, Young Harris, Georgia, December 2022.

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- Zhang L., **Sapkota M.**, Tieman D., and van der Knaap E., *A novel QTL for multiple tomato volatiles in a bi-parental population*, Poster presentation at Plant Center Retreat 2022, Brasstown Valley Resort and Conference Center, Young Harris, Georgia, December 2022.
- Jackson J., **Sapkota M.**, Hart A., Feng Q., and van der Knaap E., *Candidate gene identification for tomato monoterpenoid volatiles in fruits through a semi-automated gene screening pipeline with GWAS*, Poster presentation at Plant Center Retreat 2022, Brasstown Valley Resort and Conference Center, Young Harris, Georgia, December 2022.
- Jackson J., **Sapkota M.**, Hart A., Feng Q., and van der Knaap E., *Candidate gene identification for tomato monoterpenoid volatiles in fruits through a semi-automated gene screening pipeline with GWAS*, Poster presentation at REEU/REU Joint Poster Symposium, Georgia Center, Athens, Georgia, July 2022.
- Sapkota M.**, Pereira L., Wang Y., Tieman D., and van der Knaap E., *Genetic characterization of METHYLESTERASE and NON-SMOKY GLUCOSYL TRANSFERASE1 in red-fruited tomato*, Poster presentation at CROPS 2022, Huntsville, Alabama, May 2022.
- Feng Q., **Sapkota M.**, Pereira L., Tieman D., and van der Knaap E., *Candidate gene identification for tomato acetate ester volatiles through an automatic gene screening pipeline with GWAS and linkage mapping*, poster presentation at 2022 CROPS meeting, May 2022.
- Sapkota M.**, Pereira L., Zhang L., Singh J., Topcu Y., Feng Q., Tieman D., and van der Knaap E., *Genome-wide association mapping for volatiles contributing to flavor*, Poster presentation at 2022 PBGG Retreat Poster Competition, May 2022.
- Feng Q., **Sapkota M.**, Pereira L., Tieman D., and van der Knaap E., *Candidate gene identification for tomato acetate ester volatiles through an automatic gene screening pipeline with GWAS and linkage mapping*, poster presentation at 2022 PBGG Retreat Poster Competition, May 2022.
- Feng Q., **Sapkota M.**, Pereira L., Tieman D., and van der Knaap E., *Identification of Novel Fruit Flavor Aroma QTLs in Tomato*, poster presentation at 2021 UGA Plant Center Retreat Poster Competition, December 2021.
- Feng Q., **Sapkota M.**, Pereira L., Tieman D., and van der Knaap E., *Identification of Novel Fruit Flavor Aroma QTLs in Tomato*, poster presentation at 2021 UGA Plant Center Retreat Poster Competition, December 2021.
- Sweet A. K.**, Sapkota M., Zhang L., and van der Knaap E., *Automated Image Based Tomato Ripeness Categorization Using Python and the OpenCV Library*, poster presentation at 2021 UGA Plant Center Retreat Poster Competition, December 2021.
- Feng Q., Pereira L., **Sapkota M.**, Tieman D., and van der Knaap E., *Mapping novel tomato fruit weight and volatile QTLs using QTL-seq*, Virtual poster presentation at 2021 PBGG Retreat Poster Competition, May 2021.
- Sapkota M.**, Zhang L., Pereira L., Qiu Z., and van der Knaap E., *Identification of novel loci underlying fruit weight in tomato*, Virtual poster presentation at Sol International Online Meeting, November 2020
- Feng Q., Pereira L., **Sapkota M.**, Tieman D., and van der Knaap E., *Mapping novel tomato fruit weight and volatile QTLs using QTL-seq*, Virtual poster presentation at Sol International Online Meeting, November 2020.
- Pereira L., **Sapkota M.**, Alonge M., Taitano N., Razifard H., Wang Y., Fei Z., Caicedo A., Tieman D., and van der Knaap E., (2020) Natural genetic diversity in tomato flavor genes. Virtual poster presentation at Sol International Online Meeting, November 2020.
- Sapkota M.**, Zhang L., Pereira L., Qiu Z., and van der Knaap E., *Identification of novel loci underlying fruit weight in tomato*, Virtual poster presentation at Plant Biology 2020, Worldwide summit July 2020
- Pereira L., **Sapkota M.**, Taitano N., Caicedo A., Tieman D., Wang Y. and van der Knaap E., *Natural diversity in tomato flavor-related genes*, Virtual poster presentation at Plant Biology 2020, Worldwide summit July 2020
- Sapkota M.**, Zhang L., Pereira L., Qiu Z., and van der Knaap E., *Identification of novel loci underlying fruit weight in tomato*, Virtual poster presentation at 2020 PBGG Retreat Poster Competition, July 2020.
- Sapkota M.**, Li Q., Pereira L., Keyhaninejad N., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E., *Studying the genetics of negative flavor volatiles: propyl acetate, methyl salicylate and guaiacol for breeding tastier tomatoes*, Poster presented at Plant Center Fall Retreat. Helen, GA, October 2019.
- Sapkota M.**, Li Q., Pereira L., Keyhaninejad N., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E., *Elimination of negative flavor volatiles: propyl acetate, methyl salicylate and guaiacol for breeding tastier tomatoes*, Poster presented at National Association of Plant Breeders Annual Meeting. Callaway Gardens, GA, August 2019.
- Sapkota M.**, Li Q., Pereira L., Keyhaninejad N., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E., *Elimination of negative flavor volatiles: propyl acetate, methyl salicylate and guaiacol for breeding tastier tomatoes*, Poster presented at CROPS 2019. Huntsville, AL: June 2019.
- Sapkota M.**, Li Q., Pereira L., Keyhaninejad N., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E., *Elimination of negative flavor volatiles: propyl acetate, methyl salicylate and guaiacol for breeding tastier tomatoes*, Poster presented at Institute of Plant Breeding, Genetics and Genomics Retreat, Dawsonville, GA, May 2019. Achieved 1st position in the poster competition.
- Sapkota M.**, Li Q., Pereira L., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E. *Breeding for tastier tomatoes: Eliminating negative flavor volatiles*. Poster presented at Plant Center Retreat. Helen, GA: September 2018
- Sapkota M.**, Li Q., Pereira L., Tieman D., Frick E., Razifard H., Caicedo A., and van der Knaap E. *Breeding for tastier tomatoes: Eliminating negative flavor volatiles*. Poster presented at Institute of Plant Breeding, Genetics and Genomics Retreat. Callaway Garden, GA: May 2018

CAMPUS, COMMUNITY & PROFESSIONAL INVOLVEMENT

- Postdoctoral Association at Cornell University
 - o Member, 2023-2024
- Postdoc Leadership Program, Office of Postdoctoral Studies, Cornell University
 - o Cohort member, 2023
- Manuscript Reviewer
 - o Euphytica
 - o G3: Genes Genomes Genetics
 - o Genetic Resources
- A. thaliana Col-0 v.12 reannotation project
 - o Gene annotation and gene model reviewer
- Plant Breeding, Genetics and Genomics Graduate Student Association, UGA
 - o Journal club chair, May 2021 – May 2022
 - o Webmaster, May 2018 – May 2021
 - o Managed and handle following social handles:
 - <https://www.facebook.com/PBGGatUGA>
 - <https://twitter.com/PBGGatUGA>
 - o Designed [IPBGG Graduate Student Handbook](#)
 - o Volunteered student recruitment events for the department as a host and greenhouse/lab tour guide
- UGA Plant Center Symposium Organizing Committee
 - o Member, Social media manager, 2018 – 2023
 - o Manage and update following social handles:
 - <http://plantsymposium.uga.edu/>
 - <https://www.facebook.com/PlantCenterUGA>
 - <https://twitter.com/PlantCenterUGA>
 - o Invite speakers, communicate, and host the speakers during symposium
- UGA Integrated Plant Sciences (IPS)
 - o Hosted and assisted recruits during the recruitment week every year
 - o Volunteered as a tour guide from UGA greenhouses and lab buildings
- Nepalese Students Association at UGA
 - o President, 2018- 2020; Secretary, 2017-2018
 - o Organize social and cultural events for Nepalese Community in Athens, GA
 - o Assist new Nepalese students attending UGA to settle in Athens, GA
- Amnesty International Nepal, Rampur Youth Network, Nepal
 - o Coordinator, 2015-16; Vice Secretary, 2014-15; and Campaign Coordinator, 2013-14
 - o Organize various campaigns and programs, leadership trainings, awareness programs
 - o Participate in nation wise trainings, training of trainees and awareness programs

COMPUTATIONAL SKILLS

- Linux shell script programming and several Bioinformatics analyses for diploid and polyploid crop species
 - o Bulk segregant and QTLseq analysis
 - o RNAseq, differential expression, WGCNA and GO term analysis
 - o Genetic map construction and QTL mapping
 - o Genome-wide Association Study (GWAS)
 - o Genotyping by Sequencing (GBS)
 - o Genetic diversity and haplotype analysis
 - o Big data and whole genome sequencing analysis
- Graphic designing: Adobe Illustrator and Photoshop
- Programming: R, bash, Python, Perl, Matlab
- Cloud computing: Globus, Cyverse
- Website designing and management
- Gas Chromatography chromatograms analysis
- Proficient in using Microsoft Office package (Word, Excel and Powerpoint)

MOLECULAR SKILLS

- Marker assisted selection and assays
 - o Developing and using molecular markers (CAPS, dCAPS, KASP)
 - o PCR, RT-qPCR, KASP-PCR
 - o DNA and RNA extraction
- Gene editing and cloning

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- CRISPR/Cas9 gRNA designing
- Plasmid preparation, transformation, and cloning
- Tissue culture (tomato)
- Microscopy, imaging, and image analysis

HOBBIES

- Travelling, hiking, and kayaking
- Aqua scaping
- Cooking and trying new dishes
- Playing table tennis, soccer, and other field sports