Benjamin Lopez

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Professional Goal

To use the latest techniques and technologies in a data driven approach to improve research in agriculture.

Education

University of Arkansas, Fayetteville Arkansas 2011 to 2015

Bachelor of Science in Agriculture Food and Life Sciences majoring in Crop Science with a minor in Wildlife Habitat

Work History

Research Professional, University of Georgia

Small Grains Breeding Program, 2016 to present:

College of Agricultural & Environmental Sciences profile link

- Oversee the planting and harvest of wheat, barley, oat, and triticale across three locations in Georgia.
- Rate various diseases of wheat for line selection and publication.
- Select from segregating populations for advancement.
- Conduct UAV missions with multispectral camera to analyze using PIX4DMapper and QGIS software. Produce different indices from multispectral and RGB images.
- Analyze various types of data using R statistical software.
- Conduct two crossing cycles per year, producing 800 wheat crosses on average with the assistance of student workers. Integrate new and novel traits into elite germplasm.
- Screen for yellow rust and hessian fly resistance using greenhouse and growth chamber.
- Marker assisted crossing.
- Hire and supervise undergraduate research assistants.

Undergraduate Research Assistant, University of Arkansas

Wheat Breeding Genetics and Genomics program, 2011 to 2016:

- Assisted in planting and harvesting wheat.
- Plant disease scoring.
- Hybridizing wheat.

Skills

- Data driven science.
- Data collection.
- GPS.
- Produce data summary tables with means, significance, and other statistics using R Studio.
- Experience using GIS and photogrammetry software such as QGIS and PIX4D.
- Possess a part 107 pilots license for flying a UAV.
- Familiar with DNA extraction, PCR.
- Produce inoculum for leaf and stripe rust.
- Operate small plot combines and tractors with Trimble GPS.

- Haul equipment to research locations around Georgia.
- Staying up to date on the new techniques and technologies related to the research in the program.

PUBLICATIONS

Google Scholar profile link

Bagwell, J.W.; Subedi, M.; Sapkota, S.; **Lopez, B**.; Ghimire, B.; Chen, Z.; Buntin, G.D.; Bahri, B.A.; Mergoum, M. Quantitative Trait Locus Analysis of Hessian Fly Resistance in Soft Red Winter Wheat. Genes 2023, 14, 1812. https://doi.org/10.3390/genes14091812

Mergoum, M., Johnson, JW., Buck, JW. (2021). 'GA JT141-14E45': A new soft red winter wheat cultivar adapted to Georgia and the U.S. Southeast region. *Journal of Plant Registrations*, 15, 471-478. https://doi.org/10.1002/plr2.20070

Mergoum, M., Johnson, JW., Buck, JW. (2021). A new soft red winter wheat cultivar, 'GA 07353-14E19', adapted to Georgia and the US Southeast environments. *Journal of Plant Registrations*, 15, 337–344. https://doi.org/10.1002/plr2.20113

Mergoum, M., Johnson, JW., Buck, JW. (2021). Soft red winter wheat 'GA 051207-14E53': Adapted cultivar to Georgia and the U.S. Southeast region. *Journal of Plant Registrations*, 15, 132–139. https://doi.org/10.1002/plr2.20102

Mergoum, M., Johnson, J., Buck, J., Buntin, G. D. (2022). A new soft red winter wheat cultivar 'GA 08535- 15LE29' adapted to Georgia and the U.S. southeast region. *Journal of Plant Registrations*, 00, 1-9. https://doi.org/10.1002/plr2.20235

Sapkota, S., Hao, Y., Johnson, J. (2019). Genetic mapping of a major gene for leaf rust resistance in soft red winter wheat cultivar AGS 2000. *Molecular Breeding* **39,** 8. https://doi.org/10.1007/s11032-018-0909-8

Sapkota, S., Mergoum, M., Kumar, A. (2020). A novel adult plant leaf rust resistance gene *Lr2K38* mapped on wheat chromosome 1AL. *Plant Genome*. 13: e 20061. https://doi.org/10.1002/tpg2.20061

Ward, BP., Merrill, K., Bulli, P. (2021). Analysis of the primary sources of quantitative adult plant resistance to stripe rust in U.S. soft red winter wheat germplasm. *Plant Genome*. 14: e 20082. https://doi.org/10.1002/tpg2.20082