

EMMA TRACY (JOBSON)

Lecturer, University of Vermont

Emma.Tracy@uvm.edu

Higher education instructor and plant geneticist with enthusiasm for outreach and science communication. Experience in multiple plant species. Successfully published and secured funding for projects in plant breeding and genetics, bioinformatics, and plant pathology. Enthusiastic team worker and excellent communication skills for diverse audiences.

EDUCATION

Montana State University	Bozeman, MT	Ph.D	Plant Sciences	Dec. 2019
Dissertation: <i>Characterization and Identification of Novel Reduced Height Alleles in Wheat</i>				
Colorado State University	Ft. Collins, CO	B.S.	Horticulture	May 2015
Thesis: "Is Copper a Limiting Agent in Agriculture"				

PROFESSIONAL EXPERIENCE

Lecturer, UVM	August 2024 – Present
Teach undergraduate course work in agroecology, plant science, animal science and environmental science majors. Courses include: genetics, environmental movement of pollutants laboratory, crop breeding, and agronomy.	
Post-doctoral Research Associate, UVM	January 2024 – August 2024
Work as part of an interdisciplinary team to evaluate the sustainability of plant-based protein production in the Northeast.	
Lab Supervisor, Montana Seed Potato Certification	October 2022 – October 2023
Oversee day to day function of seed potato certification lab, manage up to 35 hourly employees, screen over 2 million plant samples for disease presence, troubleshoot technical difficulties, design and conduct experiments, communicate with stakeholders	
Ag Specialist Montana 4-H, Montana State University	May 2021 – October 2022
Develop and deliver agricultural programming to over 10,000 youth across Montana. Coordinate objectives with statewide Extension agents and volunteers, provide leadership and conflict management for organization.	
Post-Doctoral Researcher, Cornell University	March 2020 – May 2021
Researcher in Dr. Gregory Martin's lab focused on utilizing bioinformatics to investigate the role of genomic variation in tomato disease response and evolution. Extensive experience developing pipelines for data analysis utilizing multiple computer languages. Mentored high school student interested in computer science.	
Graduate Research Assistant, Montana State University	2015 - 2019
Advised by Dr. Mike Giroux, investigated the impact of <i>Reduced Height Alleles</i> on agronomic traits, photosynthesis, and end use quality. Identified 16 novel alleles using EMS mutagenesis. Designed field and greenhouse trials and analyzed data using R and SAS systems.	

PUBLICATIONS

- Jobson, E.M.**, Johnston, R.E., Oiestadt, A.J., Martin, J.M., and M.J. Giroux. (2019) The Wheat *Rht-B1b* Semi-Dwarfing Allele Reduces Flag Leaf Photosynthetic Rate and Modifies Seed Development. *Frontiers in Plant Science*, 10:51.
- Jobson, E.M.**, Martin, J.M., Schneider, T., and M.J. Giroux. (2018) The effect of semi-dwarfing genes on wheat end use quality. *Cereal Chemistry*, 95 (770-778)
- Jobson, E.M.**, Ohm, J., Martin, J.M., and M.J. Giroux. (2021) *Rht-1* semi-dwarfing alleles increase the abundance of high molecular weight glutenin subunits. *Cereal Chemistry*, 98 (337-345)
- Jobson, E.M.**, Martin, J.M., Sharrock, R., Hogg, A.C., and M.J. Giroux. (2021) Identification and molecular characterization of novel *Rht-1* alleles in hard red spring wheat. *Crop Science*, 61(1030 – 1037)
- Brown, M.K., Martin, J.M., **Jobson, E.M.**, Hogg, A.C., Carr, P.M., and M.J. Giroux. (2021) Evaluating the impact of *Rht* hypomorphic mutations in durum wheat. *Crop Science*, 62(247-258)
- Jobson, E.M.**, and R. Roberts. (2021) Genomic structural variation in tomato and its role in plant immunity. *Molecular Horticulture*.
- Powell, A.F., Feder, A., Li, J., Schmidt, M.H.-W., Courtney, L., Alseekh, S., **Jobson, E.M.**, . . . and Usadel, B. (2022), A *Solanum lycopersicoides* reference genome facilitates insights into tomato specialized metabolism and immunity. *Plant J*, 110: 1791-1810.
- Urgin, J., **Tracy, E.M.**, Hogg, A.C., Tillet, B.J., Cook, J., Martin, J.M., and Giroux, M. (2023), *Wheat Reduced Height Dosage Series Reveals Rht Importance in Wheat Development*. *Crop Science* 63 (6) 3457-3469.

TEACHING EXPERIENCE

UVM ALE 2990: Agronomy	Spring 2025
UVM ALE 3990: Crop Breeding	Spring 2025
UVM ASCI 2160: Animal Genetics	Fall 2024
UVM ENSC 3600: Environmental Movement of Pollutants	Fall 2024
MSU STAT 516 Guest Lecture: Experimental Design	2022
MSU BIOB 375 Guest Lecture: Cloning and Genome Sequencing	2022
MSU AGSCI 441 Guest Lecture: Potato Breeding and Genetics	2023
Undergraduate Mentoring, Montana State University	2019
Tavin Schneider, MSU Undergraduate Scholars Program	2018
Aishwarya Kothari, MSU Undergraduate Scholars Program	2018
Kendra Hertweck, MSU Undergraduate Scholars Program	2018
Maddison Milliman	2017
Claire Zahner	2017

EXTENSION PRESENTATIONS

2022 4-H Update	Lewistown, MT	2022
2021 4-H Horse Show	Joliet, MT	2021
2021 Working Ranch Horse Show	Great Falls, MT	2021
2021 4-H Congress	Bozeman, MT	2021

2021 4-H Ambassador Selection Committee	Bozeman, MT	2021
MAES Field Day	Havre, MT	2018
MAES Field Day	Huntley, MT	2018
MAES Field Day	Bozeman, MT	2016- 2018

ORAL PRESENTATIONS

Jobson, E.M., Martin, J.M., Schneider, T., and M.J. Giroux. The Impact of *Rht-1* semi-dwarfing alleles on end use quality in wheat. Cereals and Grains. October 21, 2018. London, England

Jobson, E.M., Martin, J.M., Hogg, A.C., and M.J. Giroux. Development and Characterization of Novel Reduced Height Alleles in Wheat. Nebraska Plant Breeding Symposium. March 13, 2018. Lincoln, NE

Jobson, E.M., Martin, J.M., Hogg, A.C., and M.J. Giroux. Identification and Characterization of Novel Reduced Height Alleles Using Gibberellic Acid Responsiveness Assays. Western Society of Crop Science Meeting. June 6, 2017. Parma, ID

OUTREACH AND SERVICE

UVM ALE Undergraduate Affairs Committee Member	2024 – Present
Reviewer for Journal of Extension	2021 - Present
Reviewer for Cereal Chemistry	2021
Event Captain for Montana Science Olympiad	2017 – 2023
Presenter for Montana Wheat and Barley in Schools	2021

COMPETITIVE FUNDING

Specialty Crop Block Grant: Investigating Novel Approaches to Improve PVY Detection in Dormant Tubers	\$83031
Montana Dept. Of Ag: Optimization of qPCR method for detecting PVY in tubers	\$14500
USDA 2020 NIFA Postdoctoral Fellowships Program <i>declined due to career change</i>	\$164648
Assisted as a graduate student/postdoctoral researcher with multiple successful grants to USDA, NSF, and Montana Wheat and Barley Committee	