

Ella Taagen

QUANTITATIVE GENETICIST · DATA VISUALIZATION EXPERT · USA & EU CITIZEN

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Education

Cornell University

PH.D. IN PLANT GENETICS

- Minors: Plant Molecular Biology and International Agriculture and Rural Development

Ithaca, NY, USA

2017 - expected 2022

University of Washington

B.S. IN MOLECULAR, CELLULAR, DEVELOPMENTAL BIOLOGY

- Minor: Nutritional Sciences

Seattle, WA, USA

2012 - 2016

Research Experience

Simulating controlled recombination in polyploid genomes

PH.D. | ADVISOR DR. MARK SORRELLS

- Leveraging simulation and bioinformatics tools to better understand controlled recombination's potential to reveal currently inaccessible genetic diversity and increase control over the inheritance of preferred haplotypes.
- Exploring the biological constraints of meiotic recombination and prediction-based decisions in a plant breeding context.

Cornell University

2017 - Present

Fine-mapping grain morphology gene in wheat

PH.D. | ADVISOR DR. MARK SORRELLS

- Applying traditional population development strategies, along with cutting-edge tools in genomics and transcriptomics to better understand the landscape of causal variation based breeding decisions.
- Fine-mapping and characterizing temporal expression profile of grain morphology gene.

Cornell University

2017 - Present

Small grains breeding and value chain engagement

POST-BACCALAUREATE | ADVISOR DR. STEPHEN JONES

- Surveyed and engaged supply chain stakeholders when setting breeding objectives.
- Delivered lab and field support for graduate student breeding projects sourced from a broad base of genetic diversity.

Washington State University

2016 - 2017

Circadian rhythm and mechanism of growth-phase transitions in Arabidopsis

UNDERGRADUATE | ADVISOR DR. TAKATO IMAIZUMI

- Assessed mechanistic sequence of genes involved in vegetative to reproductive growth transition and characterized circadian rhythm gene.
- Showcased at undergraduate research symposium.

University of Washington

2016-2017

Center for Global Infectious Disease Research, tuberculosis

UNDERGRADUATE LAB ASSISTANT | DR. DAVID SHERMAN

- Supported communication between researchers and maintained solution stocks for the lab.
- Developed a standardized protocol for unique growth media based on experimental design.

Seattle, WA

2013 - 2014

Expertise

Quantitative Genetics

genome to phenome modeling, reference genome database mining and navigation, fine-mapping, QTL mapping, GWAS, RNA-seq analysis, allopolyploid, research-based summary statistics

Programming

R, R tidyverse and ggplot, markdown, Linux command line, LaTeX

Bioinformatics

reproducible analyses, Git, multi-omics data, management of whole transcriptome sequencing (17 Gb genome)

Statistics

experimental design, analysis of variance, generalized linear and mixed model, principle component analysis, multi-dimensional data analysis, model comparisons, supervised statistical learning

Plant breeding

mapping population development (>7,000 lines), tissue culture/ growth chamber/ greenhouse/ field, cereal crossing techniques, marker assisted and phenotypic selection, value chain extension

Molecular Biology

DNA/RNA extraction, primer design/optimization, PCR, gel electrophoresis, agrobacterium transformation

Transferable

skillful data visualization, data cleaning and analysis, interdisciplinary communication, independent learner, creative problem solver, cross-functional team and project management, hire/ on-board/ mentor, industry professionalism, relationship building, listserv/ social media management

Publications

1. **Taagen, E.**, Bogdanove, A. J. & Sorrells, M. E. *Counting on Crossovers: Controlled Recombination for Plant Breeding*. (2020) [Trends in Plant Science](#)
2. **Taagen, E.**, Bogdanove, A. J. & Sorrells, M. E. *Achieving Controlled Recombination with Targeted Cleavage and Epigenetic Modifiers*. (2020) [Trends in Plant Science](#)
3. Sweeney, D. W., Sun, J., **Taagen, E.** & Sorrells, M. E. *Genomic Selection in Wheat*. (Woodhead Publishing, (2019) in *Applications of Genetic and Genomic Research in Cereals*, 273-302
4. Song, Y.H. et al. *Molecular basis of flowering under natural long-day conditions in Arabidopsis*. (2018) [Nature Plants](#)

Awards & Scholarships

2020	Borlaug Scholar , National Association of Plant Breeders	USA
2020	3rd Place , C7 Plant and Animal Genome conference poster competition	San Diego, CA, USA
2019	Awardee , Cornell IARD winter interim travel grant	India
2018	Awardee , ASA, CSSA and SSSA Congressional Visit Day travel grant	Washington DC
2018	Future Leader in Science , ASA, CSSA and SSSA	USA

Presentations

Topic: Counting on Crossovers: fine-mapping a kernel weight and morphology gene in wheat

2020	Plant and Animal Genome Conference , poster pdf	San Diego, CA
2019	ASA/CSSA/SSSA annual meeting , talk video link	San Antonio, TX
2019	Cornell Plant Breeding and Genetics seminar , talk video link, peer feedback: 4.8/5	Ithaca, NY

Topic: Dissecting yield: fine-mapping grain weight and shape genes in spring wheat

2019	Grass Group , Cornell University seminar series	Ithaca, NY
2018	Cornell Plant Breeding and Genetics seminar , talk video link, peer feedback: 4.6/5	Ithaca, NY

Topic: Fine-mapping grain weight and shape QTL in spring wheat

2018	ASA/CSSA annual meeting , poster abstract	Baltimore, MD
2018	Plant and Animal Genome Conference , annual grant meeting talk	San Diego, CA

Outreach

-	Twitter @etaagen , audience: geneticists, breeders, graduate students	-
2018	Grow NYC Variety Showcase , audience: chefs, bakers, consumers	NYC, NY
2018	ASA/CSSA/SSSA congressional visit days , audience: congressperson and staff	Washington DC
2018	Cornell Botanical Garden Judy's day , audience: children and families	Ithaca, NY
2018	Cornell small grains field days , audience: farmers, seed companies, extension agents	Ithaca, NY

Teaching Experience

Methods of Plant Breeding curriculum design & guest lecture

Cornell University

COURSE PLBRG 4060

2019

- Created and taught lecture and hands-on-learning for fine-mapping/cloning with Dr. Shantel A. Martinez
- View [lecture & exercise](#)

Graduate student mentor

Cornell University

CORNELL SMALL GRAINS LAB

2018-2020

- Hired, trained, and mentored three undergraduate research assistants

Mentorship & Management

Corteva and Cornell School of Integrative Plant Science (SIPS) networking

Cornell University

COORDINATOR

2020 - Present

- Built network and relationship pipeline with Corteva Global Academic Relations Manager and Cornell SIPS industry partnerships liaison.
- Developed system for matching 24 graduate students with Corteva scientists based on shared career interests.

Synopsis, Plant Breeding and Genetics GSA

Cornell University

PRESIDENT

2019-2020

- Executed 2020 graduate student recruitment visitation for 15 students.
- Oversaw communication between current plant breeding and genetics students and faculty.
- Served on the SIPS graduate student council.
- Co-authored survey and visualized results to assess SIPS graduate student satisfaction and concerns with unification of the five sections, career path exploration, mental health resources and inclusion initiatives.

Plant Breeding and Genetics faculty search committee

Cornell University

COMMITTEE MEMBER, GRADUATE STUDENT REPRESENTATIVE

2019-2020

- Screened and evaluated 54 applicant packages, and conducted full day interviews with top 3 candidates (research /teaching /chalk-talk).
- Facilitated graduate student meetings with top candidates and documented graduate student preferences for clear communication to faculty.

ASA, CSSA and SSSA annual leadership conference

San Antonio, TX

ACCEPTED APPLICANT

2019

- Trained in STEM industry professionalism and charted conflict management strategies.
- Learned personal DiSC assessment and tools for engaging successfully with all DiSC personalities.

Jannink/Sorrells lab meetings

Cornell University

COORDINATOR

2018-Present

- Streamlined meeting schedule and presentation rotations with access to centralized Google drive.
- Unified communication across listserv, Slack, and Zoom.

Graduate student mentor

Cornell University

UNDERGRADUATE PLANT SCIENCE SENIOR HONORS THESIS

2018-2019

- Trained talented young scientist and supervised honors thesis, titled *Fine-mapping wheat grain weight and length QTL on chromosome 2D*.
- Coached graduate school application and interview process, accepted to five plant sciences PhD programs.

Bonsai Professional Coaching Service

Virtual

MENTEE

2018-2020

- Partnered with leadership coach Loriana Sekarski to identify and apply personalized Clifton Strengths by Gallup.
- Top five strengths: *Learner, Achiever, Focus, Communication, Individualization*.

Graduate Women in Science

Cornell University

EXECUTIVE OF ONLINE COMMUNICATIONS

2017-2019

- Operated digital outreach and authored biweekly newsletter for >400 listserv members.
- Devised and improved advocacy, educational, and social events based on polled membership interests.

Pioneer Symposium

Cornell University

ORGANIZING COMMITTEE

2017-2018

- Coordinated symposium theme and speaker nominations, and established location to seat >200 attendees with technical support.
- Revitalized networking and panel event to highlight and discuss groundbreaking plant breeding innovations

Relevant Workshops

Enrolled **Statistical Learning**, ten-week course

edX Stanford Online

2020 **Collaborative and Reproducible Data Science in R**, Cornell NTRES 6940

Ithaca, NY

2019 **Linux for Biologists**, Cornell University Institute of Biotechnology

Ithaca, NY

2019 **Cornell IARD**, tours of farms and research stations in Kerala and Telangana, 3 weeks

India

2018 **Finding Your Research Voice**, science communications and presentations

Ithaca, NY

2018 **Story Collider**, writing true, personal stories about science

Ithaca, NY

2018 **Breeding for Quantitative Traits in Plants**, book club facilitator

Ithaca NY

2017 **Tucson Plant Breeding Institute**, quantitative genetics bootcamp

Ithaca, NY

Affiliations & Memberships

- **National Association of Plant Breeders**, student member, 2020-Present
- **Theoretical and Applied Genetics**, peer reviewer, 2019
- **Crop Science Society of America**, student member, 2017-Present