

# WILLIAM STAFSTROM

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## EDUCATION

**Cornell University**, Ithaca, NY

2017-2023: PhD in Plant Breeding and Genetics, expected May 2023

Advisor: Dr. Rebecca Nelson

Dissertation Title: *Mitigating Maize Mycotoxins Across Scales*

**Bowdoin College**, Brunswick ME

2008-2012: Bachelor of Arts, major: Biology with Honors; minor: Economics

## RESEARCH

**Cornell University**, Ithaca, NY

2017-present: *USDA-NIFA Fellow in Dr. Rebecca Nelson's Lab*

- Researched diverse methods for mitigating mycotoxin contamination in maize at different scales: genetic, organismal, and landscape

**Center for Translational Medicine at Thomas Jefferson University**, Philadelphia, PA

2012-2014: *Research technician in Dr. Ross Summer's Lab*

- Used molecular and histological methods to characterize the pathology of lung diseases in mice

**Bowdoin College**, Brunswick, ME

2011-2012: *Undergraduate researcher in Dr. Barry Logan's Lab*

- Investigated the effect of foliar anthocyanins on photosynthesis in *Solenostemon scutellarioides*

2010: *Undergraduate researcher in Dr. Anja Forche's Lab*

- Studied recombination patterns under nutrient stress in the *Candida albicans* fungus

## TEACHING & MENTORING

**Cornell University**, Ithaca, NY

2017-2023

- **Plant Behavior and Biotic Interactions**
  - Teaching assistant for a lab section
- **Genetic Improvement of Crop Plants**
  - Teaching assistant
  - Guest lecture, "Plant Breeding & Public Health: Limits and opportunities in maize-based systems"
- **Plant Genetics**
  - Teaching assistant for a lab section
- **Methods in Plant Breeding**
  - Three guest lectures with the Nelson Lab: "Methods for scoring mycotoxin-related traits" September 2018, October 2019, and October 2020.
- **Nelson Lab**
  - Mentor for three undergraduate students in the Nelson Maize Disease Lab

## **United States Peace Corps, Tanzania**

2014-2016: *Secondary School Teacher* at Nachingwea High School

- Form II Biology
- Form III Biology
- Form IV Biology
- Form IV Chemistry
- Form II Computers
- Lead teacher for Biology Club and Malaria Prevention Club

2016-2017: *Extension Volunteer* at Global Outreach Tanzania

- Computer skills curriculum development and trainer of trainers

## **GRANTS & AWARDS**

- **USDA-NIFA Predoctoral Fellowship** (2021-2023). “Improving maize resistance to Fusarium seedling rot by investigating phytoalexin dynamics in diverse near-isogenic lines.”
- **Outstanding Graduate Teaching Assistant** in the Cornell University SIPS Section of Plant Breeding (2021).
- **Cornell Atkinson Center Small Grant Fellowship** (2019). “Modelling Mycotoxin Risk in a Tanzanian Smallholder Farming System.”
- **Mario Einaudi Center Travel Grant** (2019). “Modelling Mycotoxin Risk in a Tanzanian Smallholder Farming System.”
- **HHMI Summer Undergraduate Research Fellow** (2011). “The photoprotective role of anthocyanins in *Coleus*.”
- **HHMI Summer Undergraduate Research Fellow** (2010). “Hyper-recombination in *Candida albicans*.”

## **SERVICE & OUTREACH**

- **Co-Organizer** of a journal club for Cornell plant breeding and genetics students (spring 2022)
- **Teaching Outreach Fellow** for the Cornell GRASSHOPR program. Co-taught and organized a series of four lessons on crop genetics at Southern Cayuga High School (spring 2022)
- **Committee Member** of the Cornell School of Integrative Plant Science Diversity and Inclusion Committee and its curriculum subcommittee (2020-2022)
- **Grants Reviewer** for the Cornell Atkinson Center Small Grants Program (2020 and 2021)
- **Co-Organizer** of monthly #OpenUpSTEM meetings for Cornell plant breeding graduate students (2020-2021)
- **Executive Council Member** of Synapsis, the graduate student group for Cornell plant breeding and genetics (2020-2021)
- **Committee Chair** for the Cornell-Corteva graduate student symposium “Common Plants for Uncommon Goals” (2019)
- **Outreach Volunteer** for Judy’s Day Family Learning Festival, a community plant science education event (2018)
- **Committee Member** for the Cornell-Corteva graduate student symposium “Breeding Across Fields” (2018)

## **PROFESSIONAL DEVELOPMENT**

- Cornell teaching workshop participant, “The Role of TAs in Cultivating an Inclusive Learning Environment” (February 2021)

- Research assistant for the Nature Sustainability Expert Panel on “Innovations to build sustainable, equitable, inclusive food value chains” (February 2020)
- Project Biodiversify workshop participant, “Race is/not Biological” and “Teaching accurate and inclusive sexual selection” (August 2020)
- Cornell Center for Teaching Innovation workshop participant, “Ally for Course Accessibility” (August 2020)
- Cornell science communications workshop participant, “Baptism by fire: Oh I mean a systematic approach to talking good” (October 2019)
- Public health education training participant “Stomp Out Malaria in Africa Bootcamp” (June 2015)
- Summer research intern at Planetary Emissions Management (2012)

## **SKILLS**

- **Coding and Software**
  - Proficiency in R
  - Familiarity with Linux command-line, Python, and Matlab
  - OpenDataKit
  - QGIS
  - TASSEL
  - PracticalHaplotypeGraph
- **Data Collection and Analysis**
  - Image analysis
  - Farmer surveys (Tanzania)
  - Enzyme-linked immunosorbent assays
  - RNA and DNA extraction, PCR and RT-PCR
  - Near-infrared spectroscopy
  - Maize research field trials
  - Linear mixed models
  - Genome wide association
- **Languages**
  - English-native language
  - Swahili-advanced
  - French-intermediate
  - Dutch-intermediate

## **PRESENTATIONS**

**Stafstrom, W.** (May 2022). “Monitoring mycotoxins across scales: digital tools for smallholder farming systems” [Invited Talk]. World Mycotoxin Forum, Parma, Italy.

**Stafstrom, W.** (March 2022). “Maize yield-component loci and their relationship with Fusarium ear rot resistance” [Oral Presentation]. Cornell Plant Breeding and Genetics Graduate Student Seminar, Ithaca, NY.

**Stafstrom, W.** (April 2021). “Exploring the genetic basis of Fusarium ear rot resistance and yield-component traits” [Oral Presentation]. Cornell Plant Breeding and Genetics Graduate Student Seminar, Ithaca, NY.

**Stafstrom, W.** (November 2019). "Predicting mycotoxin risk in a smallholder farming system" [Oral Presentation]. Cornell Plant Breeding and Genetics Graduate Student Seminar, Ithaca, NY.

**Stafstrom, W.** (October 2019). "Predicting mycotoxin risk in a smallholder farming system" [Poster]. Cornell Atkinson Center Small Grants Symposium, Ithaca, NY.

**Stafstrom, W** and Aoun, M. (April 2019). "A Hidden Threat to Food Systems Mycotoxin Risks and Mitigation Strategies" [Co-Presentation]. Cornell Program in International Nutrition Graduate Student Seminar, Ithaca, NY.

**Stafstrom, W.** (December 2018). "Sorting Fumonisin-Contaminated Maize" [Oral Presentation]. Cornell Plant Breeding and Genetics Graduate Student Seminar, Ithaca, NY.

**Stafstrom, W.** (May 2012). "The photoprotective role of anthocyanins in Coleus" [Oral Presentation]. Bowdoin College Department of Biology Honors Presentations, Brunswick, ME.

**Stafstrom, W.** (September 2011). "Situating foliar anthocyanin accumulation among photoprotective mechanisms employed by plants." [Poster] International Workshop on Anthocyanins. Charlotte, NC.

**Stafstrom, W.** (July 2011). "Examining the Photoprotective Role of Anthocyanins in Coleus." [Oral Presentation] Bowdoin College summer research presentations, Brunswick, ME.

**Stafstrom, W.** (July 2010). "Hyper-recombination in *Candida albicans*." [Oral Presentation] Bowdoin College summer research presentations, Brunswick, ME.

### **RELEVANT PUBLICATIONS**

**Stafstrom, W,** Wushensky, J, Fuchs, J, Xu, W, Ezera, N, & Nelson, RJ. 2021. Validation and Application of a Low-Cost Sorting Device for Fumonisin Reduction in Maize. *Toxins*, 13(9).

Ngure, FM, Ngure, C, Achieng, G, Munga, F, Moran, Z, **Stafstrom, W,** & Nelson, RJ. (2021). Mycotoxins contamination of market maize and the potential of density sorting in reducing exposure in unregulated food systems in Kenya. *World Mycotoxin Journal*, 14(2), 165-178.

**Stafstrom, W,** Wenndt, A, & Nelson RJ. 2021. Mycotoxin Surveillance for Low-resource Settings. In *Mycotoxins in Food and Beverages Innovations and Advances Part I* (pp. 1-29). CRC Press.

Aoun, M, **Stafstrom, W,** Priest, P, Fuchs, J, Windham GL, Williams, WP and Nelson, RJ. 2020. Low-cost grain sorting technologies to reduce mycotoxin contamination in maize and groundnuts. *Food Control*, 118.

Morales, L, Repka, AC, Swarts, KL, **Stafstrom, W,** He, Y, Sermonds, SM, Yang, Q, Lopez-Zuniga, LO, Rucker, E, Thompson, WE, Nelson, RJ, Balint-Kurti, PJ. 2020. Genotypic and phenotypic characterization of a large, diverse population of maize near-isogenic lines. *The Plant Journal*.

Logan, BA, **Stafstrom, W,** Walsh, MJL, Reblin, JS and Gould, KS. 2015. Examining the photoprotection hypothesis for adaxial foliar anthocyanin accumulation by revisiting comparisons of green- and red-leafed varieties of coleus (*Solenostemon scutellariodes*). *Photosynthesis Research*, 124: 267-274.