

**Lindsey E. Becker, Ph.D.**  
Dept. of Botany and Plant Pathology  
Oregon State University  
beckelin@oregonstate.edu, (919) 699-7877  
Website: [lielbe.com](http://lielbe.com)

## **EDUCATION**

- 2018 - 2023    **Ph.D – North Carolina State University, Raleigh, NC**  
Major: Plant Pathology  
Advisor: Dr. Marc Cubeta  
Dissertation Title: Unlocking the Wheat Seed Mycobiome: an Investigation of Drought Stress on Successive Generations
- 2015 - 2018    **M.Sc. – North Carolina State University, Raleigh, NC**  
Major: Plant Pathology  
Advisor: Dr. Marc Cubeta  
Thesis Title: Increased Flower Production and Plant Weight of *Calibrachoa x hybrida* by the Soil Fungus *Mortierella elongata*
- 2006 - 2010    **B.Sc. – The College of Wooster, Wooster, OH**  
Major: Biology  
Advisor: Dr. Marilyn Loveless  
Thesis Title: Reconstructing the Spread of Emerald Ash Borer (*Agilus planipennis*) in Southeastern Michigan Parks

## **APPOINTMENTS**

- 2023 - present    Postdoctoral Research Scholar, Oregon State University (OSU), Corvallis, OR
- 2018 - 2023    Plant Pathology Doctoral Student, NCSU, Raleigh, NC
- 2019 - 2021    NCSU Graduate Peer Mentor, NCSU, Raleigh, NC
- 2018 - 2021    Foundation for Food and Agriculture Research Fellow, NCSU, Raleigh, NC
- 2015 - 2018    Plant Pathology Masters Student, NCSU, Raleigh, NC
- 2011 - 2015    Laboratory and field technician, Duke University, Durham, NC
- 2009 - 2010    Undergraduate Research Assistant, Ohio State University, Wooster, OH
- 2007 - 2007    Undergraduate Research Assistant, The College of Wooster, Wooster, OH
- 2005 - 2006    Lab Technician, Duke University Medical Center, Durham, NC

## **GRANTS, AWARDS AND HONORS**

Total Funding Garnered to date (\$63,100)

<b>Year</b>	<b>Role</b>	<b>Funding Opportunity</b>	<b>Award</b>
2023	PI	USDA NIFA AFRI PostDoctoral Fellowship “Evaluating Plant Genotype and Genotype Mixture Effects on Wheat-Associated Microbial Communities and Drought Tolerance”	<i>Pending</i>
2023	PI	NSF BIO PRFB Fellowship “Evaluating the function of plant genotype-adapted rhizosphere microbiome and subsequent impacts on plant phenotype under drought stress”	<i>Pending</i>
2022	Awardee	Department of Entomology and Plant Pathology Award for Excellence; PhD in Plant Pathology	\$500
2021	Awardee	Best Student Oral Presentation Award, Mycological Society of America (MSA) Meeting	\$200
2020	Awardee	Mentor Student Travel Award, MSA Meeting	\$750
2019	Awardee	NCSU Graduate Peer Mentoring Collaborative (2 yrs)	\$2,000
2018	Awardee	Rockey FFAR Program Fellowship (3 yrs)	\$45,000
2017	Co-PI	Horticulture Research Institute Grant	\$14,000
2017	Co-PI	NCSU Student Government Grant for Plant Pathology Graduate Student Association Outreach	\$650

## **PEER REVIEW RESEARCH ARTICLES**

- 2024 **Becker L. E.** and Cubeta M.A. 2024 Impact of multigenerational drought on the wheat seed microbiome. (*Accepted: PBIOMES-08-23-0083-R.R2*)
- 2020 **Becker L. E.** and Cubeta M.A. 2020. Increase of flower production and plant weight of *Calibrachoa x hybrida* by the soil fungus *Mortierella elongata*. Journal of Environmental Horticulture DOI: 10.24266/0738-2898-38.4.114

## **PEER REVIEW EXTENSION PUBLICATIONS**

- 2021 **Becker L. E.**, Adhikari U., Mays T., Shishkoff N., Crouch J.A., Cubeta M.A. 2021. Evaluation of boxwood cultivars for resistance to boxwood blight, 2020. Plant Disease Management Reports. Vol 15: OT008
- 2020 **Becker L. E.** and Cubeta M. 2020. Evaluation of calibrachoa cultivars for black root rot resistance, 2019. Plant Disease Management Reports. Vol 14: OT013

## **MANUSCRIPTS IN PREPARATION**

- 202X **Becker L. E.**, Hawkes C.V., Heiniger R., and Cubeta MA. (*In prep*) Identifying the core wheat seed mycobiome at a regional scale. *To be submitted to Phytobiomes 2/2024.*

- 202X **Becker L. E.**, Marshall D.M., and Cubeta M.A. (*In prep*) A synergistic culture dependent and independent approach reveals a conserved wheat seed mycobiome. *To be submitted to Mycologia* 4/2024.
- 202X **Becker L. E.** and Cubeta M.A. (*In prep*) Leveraging the wheat seed mycobiome for a climate resilient future. *To be submitted to Environmental Microbiology* 3/2024.
- 202X Benitez M.S, Hersh M., **Becker L.E.**, Vilgalys R., and Clark J. (*In prep*) Fungal community and taxa specialization to host and environment interactions in two temperate forests. *To be submitted to PLOSOne* 3/2024.

### **ORAL RESEARCH PRESENTATIONS**

- 2023 **Becker, L.E.** Investigation of factors that influence the wheat seed mycobiome. AgMicrobiome Group at Oregon State, Corvallis, OR.
- 2022 **Becker, L. E.**, Hawkes, C.V, Heiniger, R.W., and Cubeta, M.A. Identifying the core wheat seed microbiome at a regional scale. Plant Health, Pittsburgh PA.
- 2022 **Becker L. E.** and Cubeta, M.A. The influence of moderate drought on the wheat seed mycobiome. Mycological Society of America Annual Meeting, Gainesville FL.
- 2022 **Becker, L. E.** and Cubeta, M.A. The influence of moderate drought stress on the wheat seed mycobiome. Collaborative Crop Resilience Program Annual Meeting, Middelfart Denmark
- 2021 **Becker, L. E.** and Cubeta, M.A. Seed to seed: yield and germination response to surface disinfestation and moderate drought stress. INTERACT Bi-annual meeting (Virtual)
- 2021 **Becker L. E.** and Cubeta, M.A. Elucidating the seed mycobiome of four wheat cultivars: a culture-based approach. Mycological Society of America Annual Meeting/Botany (Virtual)
- 2021 **Becker L. E.** and Cubeta, M.A. Post-anthesis drought stress impacts wheat physiology, but what about the seed microbiome? INTERACT Annual Meeting (Virtual)
- 2020 **Becker L. E.** and Cubeta, M.A. *In Silico* Analysis of the Wheat Seed Microbiome, Collaborative Crop Resilience Program Semi-Annual Meeting (Virtual)
- 2020 **Becker L. E.** and Cubeta, M.A. New insights into the wheat seed microbiome: an *in silico* approach. Plant Health (Virtual)
- 2020 **Becker, L. E.** and Cubeta, M.A. Unlocking the wheat seed microbiome. Research & Development Team at Novozymes, Durham NC.
- 2018 **Becker, L. E.** and Cubeta, M.A. Susceptibility of calibrachoa to black root rot (*Thielaviopsis basicola*). 21st Ornamental Workshop on Insects and Diseases, Hendersonville NC.

- 2017 **Becker L. E.** and Cubeta, M.A. *Mortierella elongata* root endophyte promotes flowering within the *Calibrachoa* floriculture system. Mycology Society of America Annual Meeting, Athens GA.
- 2017 **Becker, L. E.**, Cubeta, M.A., and Vilgalys, R.J. Plant growth promoting activity of the soil fungi *Atractiella* and *Mortierella* within the *Calibrachoa* floriculture system. Mid-Atlantic States Mycology Conference, Raleigh NC
- 2016 **Becker L. E.**, Hameed K., Uehling J.K., Vilgalys R.J., Andrews M., Reberski J., and Cubeta M.A. Potential plant growth promotion and biological control of pathogenic soil fungi with endophytic strains of *Mortierella elongata*. Mid-Atlantic States Mycology Conference, University Park PA

### **POSTER PRESENTATIONS**

- 2022 **Becker L. E.**, Ingraham, P.I., and Cubeta, M.A. Examining the legacy of multi-generational drought on the wheat seed mycobiome. Plant Health, Pittsburgh PA
- 2022 **Becker L. E.** and Cubeta, M.A. Elucidating the seed mycobiome of four wheat cultivars: a culture-based approach. Graduate Student Research Symposium, Raleigh NC
- 2021 **Becker L. E.** and Cubeta, M.A. Elucidating the wheat seed mycobiome: a culture-based approach. Mid-Atlantic States Mycology Conference (Virtual)
- 2018 Ferri, A.M., **Becker, L. E.**, and Cubeta, M.A. Colonization of tomato roots by the soil fungus *Mortierella elongata*. Undergraduate Research Symposium, Raleigh NC
- 2017 Sulzer, J., **Becker, L. E.**, and Cubeta, M.A. Siderophore production by the plant growth promoting fungus *Mortierella elongata*. Undergraduate Research Symposium, Raleigh NC

### **PROFESSIONAL AND ACADEMIC EXPERIENCES**

Professional Societies: Pacific Division American Phytopathological Society, American Phytopathological Society and Mycological Society of America

#### Teaching roles:

- 2024 Guest Lecturer for Fungal Ecology graduate course, OSU
- 2021 Teaching assistant (TA) graduate Introduction to Mycology course, NCSU
- 2016, 2018 TA for undergraduate Kingdom of Fungi course, NCSU

#### Mentoring roles:

- 2023- present Melissa Vergara (OSU PhD Student)
- 2023- present Hayley Park (OSU PhD Student)
- 2023- present Sofia Green (OSU CAREER-REU)
- 2021-22 Parker Ingraham (NCSU Provost's Scholar)
- 2018 Alyssa Ferri (NCSU BESST-REU)
- 2017 Jakob Sulzer (NCSU BESST-REU)

## **SERVICE**

Peer reviewer: *Plant Disease, Plant Health Progress, Molecular Plant Pathology*

President: NCSU Plant Pathology Graduate Student Association (PPGSA) (2017-2018)

Member: Botany and Plant Pathology Search Committee, OSU (2023-24); Graduate Peer Mentoring Collaborative, NCSU (2019-21); Communications Chair for the Student Executive Board of MSA (2018-19), Plant Pathology Academic Affairs Committee Student Representative, NCSU (2017-18), PPGSA (2015-19)

Moderator: American Phytopathological Society Annual Meeting Technical Session (2020): “Wheat Microbiome”

## **OUTREACH**

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|---------|--|
| 2022    | Idea Cafe “ <i>Extension to Bridge the Gap Between Agriculture and Consumers</i> ” Plant Health. Pittsburgh, NC                            |
| 2021    | “ <i>Mycology: Fungi are everywhere!</i> ” NC School of Science and Math. Durham, NC (Virtual)   |
| 2019    | “ <i>Fungi and Plants</i> ” NC Museum of Natural Sciences (North Carolina Museum of Natural Sciences). Raleigh, NC                         |
| 2017    | NSF STEM Microfungi Collections Consortium High School Biology and Environmental Science Teachers Workshop, MSA Annual meeting. Athens, GA |
| 2017    | “ <i>Zoom!</i> ” Forest View Elementary School. Durham, NC   |
| 2015    | “ <i>What is Plant Pathology?</i> ” McGee Middle School. Benson, NC  |
| 2015-19 | Plant Pathology Exhibit, Bugfest North Carolina Museum of Natural Sciences Raleigh, NC   |

## **EXTENSION ACTIVITIES**

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|------|--|
| 2016 | Calibrachoa grower visit to identify key diseases, Rockwell, NC      |
| 2018 | Boxwood grower visit to conduct on-farm field trial, Piney River, VA |

## **REFERENCES**

Dr. Marc Cubeta (Professor, NC State University, [macubeta@ncsu.edu](mailto:macubeta@ncsu.edu))

Dr. David Marshall (USDA Professor Emeritus, [dsrm1257@gmail.com](mailto:dsrm1257@gmail.com))

Dr. Amy Grunden (Professor, NC State University, [amgrunde@ncsu.edu](mailto:amgrunde@ncsu.edu))