

# Jonathan M. Binder

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## EDUCATION

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### Royal Holloway, University of London

PhD, Biological Sciences

Egham, Surrey, UK  
2022 - 2026 (expected)

- London Interdisciplinary Biosciences Consortium Doctoral Training (LIDo) Partnership studentship
- Researching microbiological effects on the longevity of agricultural weed (*Alopecurus myosuroides*) seeds in the soil seedbank
- Methods: microbiology, molecular biology, sequencing and bioinformatics, seed germination modelling, machine learning, and biochemistry
- Funding: Biotechnology and Biological Sciences Research Council (BBSRC)/United Kingdom Research and Innovation (UKRI) and Syngenta AG as industry partner.

#### Supervisors:

- Gerhard Leubner-Metzger, PhD - *Professor in Plant Biochemistry*
- Kazumi Nakabayashi, PhD - *Research Assistant in Molecular Seed Biology*
- Thomas Holloway, PhD - *Research Technical Lead, Syngenta*
- Ben Oyserman, PhD - *Global Technical Manager Plant & Soil Health, Syngenta*

### The Pennsylvania State University

MSc, Agronomy

State College, PA, USA  
2016 - 2019

- Field-based research examined the effects of cereal rye management, dairy manure application method, and timing of fall manure application on nutrient uptake, corn yields, and total forage production
- Research on field-scale lysimeters explored the effects of cereal rye management on surface and subsurface nitrogen and phosphorus transport
- Coursework included topics covering statistics, chemistry, weed science, crop nutrient management, forage management

#### Supervisors:

- Heather Karsten, PhD - *Associate Professor of Crop Production/Ecology*
- Douglas Beegle, PhD - *Distinguished Professor of Agronomy*

### Kyung Hee University, Global Campus

Korean Language Institute (한국어학당)

Suwon, Gyeonggi-do, South Korea  
2014 - 2015

- Awarded a post-graduate fellowship from Vassar College to study Korean.
- Took classes 20 hours per week for one academic year
- Achieved Level 6 (out of 6) on the Test of Proficiency in Korean (TOPIK) (한국어능력시험)

### Vassar College

BA, Environmental studies

Poughkeepsie, NY, USA  
2010 - 2014

- Concentrations in biology and geography
- Coursework included plant biology, genetics, and an experiential course on the American Grasslands.
- Participated in a learning and living community on food and farming.

## PUBLICATIONS

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### Journal articles

Steinbrecher, T., Bhattacharya, S., **Binder, J.**, Kleemeier, K., Przesdzink, F., Groene, F., et al. Comparative pericarp biomechanics and germination physiology of *Raphanus raphanistrum* and *Raphanus pugioniformis* indehiscent fruits. *Annals of Botany*, mcaf015, 2025. <https://doi.org/10.1093/aob/mcaf015>.

**Binder, J. M.**, Karsten, H. D., Beegle, D. B., and Dell, C. J. Winter annual management to increase nutrient recovery and forage production on dairies. *Agrosystems, Geosciences & Environment*, 4:e20157, 2021. <https://doi.org/10.1002/agg2.20157>.

**Binder, J. M.**, Karsten, H. D., Beegle, D. B., and Dell, C. J. Manure injection and rye double cropping increased nutrient recovery and forage production. *Agronomy Journal*, 112, 2968–2977, 2020. <https://doi.org/10.1002/agj2.20181>.

## COMMUNICATION

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### Presentations

EWRS Invasive Alien Plants and Biological Control Working Groups Workshop, Antalya, Turkey, 2024

Northeast Cover Crop Council Annual Meeting, State College, PA, 2018

ASA, CSSA, SSSA Annual Meeting, Baltimore, MD, 2018

Pennsylvania Double-Cropping Winter Farmer Workshop, State College, PA, 2018

### Posters

5th Plant Microbiome Symposium, Amsterdam, Netherlands, 2024

International Seed Science Society Annual Meeting, Paris, France, 2023

British Crop Protection Council Weeds Review, Cambridge, UK, 2022

Northeastern Plant Pest and Soils Conference, Washington, DC, 2018

Northeast Cover Crop Council Annual Meeting, Ithaca, NY, 2017

## FUNDING AWARDS

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### Global Challenges Research Fund

Mar 2025

- Funded by UK Research and Innovation (UKRI)
- £2000 awarded for networking trip to Guatemala
- Collaborating with researchers at Universidad de Valle de Guatemala
- Topics include soil health and fertilizer recommendations for cardamom production

### LIDo Program Studentship Award

2022-2026

- Awarded tuition waiver, stipend, and research funds valuing approx. £240,000

## WORK EXPERIENCE

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### Royal Holloway, University of London

Jan 2024-Mar 2024

*Visiting tutor*

Egham, Surrey, UK

- Taught R programming language for biology students enrolled in a pre-baccalureate program
- Constructed course materials and led computer lab sessions in statistical analysis and data visualization

### NIAB East Malling

July 2021-June 2022

*Research technician*

East Malling, Kent, UK

- Collected and analyzed various data related to precision agriculture and novel sensors
- Verified and develop technologies in concert with startup companies
- Duties included tractor-mounted LiDAR scans of apple orchards, lab-based soil chemical assays, plant leaf and fruit imaging, and data analysis

### NRI, University of Greenwich

Sept 2020-July 2021

*Research technician*

Chatham Maritime, Kent, UK

- Assisted senior researchers and PhD students with projects in entomology and agronomy departments at the Natural Resources Institute
- Responsibilities included maintaining insect colonies, plants, greenhouses, and research facilities

**Phospholutions**  
*Research associate*

Mar 2019-May 2020  
State College, PA, USA

- Developed and expanded understanding of novel phosphorus fertilizers and phosphorus capture and recycle systems
- Responsibilities included literature review, in-house adsorption and desorption studies, creation of protocols, data analysis, and communication with industry and academic researchers

**The Pennsylvania State University**  
*Graduate research assistant*

Sept 2016-Mar 2019  
State College, PA, USA

- Conducted original research for my master's thesis on cereal rye and manure management for dairies in the Northeast U.S.
- Collected and analyzed soil and crop data, scouted for pests, and presented research findings in academic and industry settings as part of a larger long-term, sustainable dairy cropping system project

**Hudson Valley Research Laboratory**  
*Research technician*

Sept 2015-Aug 2016  
Highland, NY, USA

- Assisted with research at an entomology lab primarily focused on apple pests
- Tasks included fruit damage assessments, microscope work, scouting, and insect rearing as well as upkeep of the research orchard and facility
- Pruned, mowed, managed weeds, and ran tractors and a skid steer
- Completed light construction, plumbing, and tractor maintenance

**Vassar College Biology Department Greenhouse**  
*Greenhouse assistant*

Sept 2011-May 2014  
Poughkeepsie, NY, USA

- Maintained glasshouse and plant collection
- Duties included watering, fertilizing, repotting, sweeping, and weeding

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**VOLUNTEERING**

**Durae Sandeul Farm (두레산들 농장)**  
*Farm volunteer*

June 2013-Aug 2013  
South Korea, Gyeonggi-do, Hwaseong-si

- Participated in a homestay on an organic farm through WWOOF Korea
- Activities included weeding, watering, planting, and harvesting in different vegetable cropping systems according to Korean natural farming (KNF - 한국식 자연농법) practices
- Participated in cultural activities including workshops in traditional music and crafts

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**SKILLS**

**Computer** - R, SAS, Microsoft Office, Git, Bash,  $\LaTeX$

**Soft** - Problem-solving, flexibility, critical thinking

**Dexterous** - Woodworking, plumbing, electrical

**Qualifications** - Safe Handling & Application of Pesticides (PA1), Hand Held Applicators on Land & Near Water (PA6AW)