Jonathan M. Binder

jonathan.binder.2022@live.rhul.ac.uk · Github · LinkedIn · Personal Website · +44 (0)7723 131986

EDUCATION

Royal Holloway, University of London — Egham, Surrey, UK
PhD, Biological Sciences — 2022 - 2026 (expected)

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

Supervisors:

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

The Pennsylvania State University — State College, PA, USA
MSc, Agronomy — 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. Additional research on field-scale lysimeters explored the effects of cereal rye management on surface and subsurface nitrogen and phosphorus transport.

Supervisors:

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

Kyung Hee University, Global Campus — Suwon, Gyeonggi-do, South Korea
Korean Language Institute (한국어학당) — 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).

Vassar College — Poughkeepsie, NY, USA
BA, Environmental studies — 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

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* indehicent 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

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

UK Research and Innovation Global Challenges Research Fund — Mar 2025

£2000 awarded for networking trip to Guatemala to collaborate with researchers at Universidad de Valle de Guatemala on soil health and fertilizer recommendations for cardamom production.

London Interdisciplinary Doctoral Program Studentship Award — 2022-2026

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

WORK EXPERIENCE

Royal Holloway, University of London — Jan 2024-Mar 2024
Visiting tutor — Egham, Surrey, UK

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

NIAB East Malling — July 2021-June 2022
Research technician — Chatham Maritime, Kent, UK

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

NRI, University of Greenwich — Sept 2020-July 2021
Research technician — East Malling, 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 — Mar 2019-May 2020
Research associate — 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 Sept 2016-Mar 2019
Graduate research assistant State College, PA, USA

Conducted original research for my master's thesis on the topic of 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 Sept 2015-Aug 2016
Research technician 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.

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)