

BOTANY AND PLANT PATHOLOGY RESEARCH SHOWCASE — 2023 —



Wednesday, November 15, 2023

3:30 - 7:15 pm

BECK AGRICULTURAL CENTER



Botany and Plant Pathology

SCHEDULE OF EVENTS

- 3:30 to 3:35 pm** Opening Remarks
Dr. Tesfaye Mengiste
Department Head, Botany and Plant Pathology
- 3:35 to 4:35 pm** First Round of Poster Viewing
(odd-numbered posters)
- 4:35 to 5:30 pm** 2023 Weier Award Winners
Postdoctoral talks
- 5:30 to 6:30 pm** Second Round of Poster Viewing
(even-numbered posters)
- 6:30 to 7:00 pm** Graduate Student lightning talks
- 7:00 pm** Closing Remarks and Best Undergraduate Poster Award

The 2023 Research Showcase highlights findings that advance the Department of Botany and Plant Pathology's mission to protect the environment, improve plants and manage natural resources.

NOTES OF IMPORTANCE

FIRST ROUND OF POSTER VIEWING

- Understanding growth differences between northern red oak trees in urban and rural sites – **Levi A. Berry**, *BS-Undergraduate Student*
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- The role of plant hydraulics in tomato defense against *Ralstonia solanacearum* – **Sana A. Mohammad**, *PhD-Graduate Student*
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- Development of a reproducible protocol to characterize the temporal dynamics of *Phyllachora maydis* under greenhouse conditions – **Fidel E. Jimenez-Beitia**, *Visiting Scholar*
-
- Herbicide active, carrier volume and spray deposition for optimizing drone herbicide applications – **Hunter A. Medenwald**, *MS-Graduate Student*
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- Characterization of multiple resistant waterhemp *Amaranthus tuberculatus* response to soil-applied herbicides – **Claudia Bland**, *MS-Graduate Student*
-
- A conserved signaling module in the control of shoot apical meristems in *Arabidopsis* – **Minghao Xu**, *PhD-Graduate Student*
-
- Universal reduction on nighttime transpirations during drought – **Talitha Soares Pereira**, *Visiting Scholar*
-
- "What should drive the application rate of preemergence, residual herbicides: Weed control at the postemergence application timing or at crop harvest?" – **Grant D. Isaacs**, *MS-Graduate Student*
-
- Weed management in early planted soybean – **Estevan G. Cason**, *MS-Graduate Student*
-
- Intracellular signaling cascades of bacterial-derived peptides in tomato roots elicit distinct pattern-triggered immune responses – **Rebecca Leuschen-Kohl**, *PhD-Graduate Student*
-
- Utility of encapsulated Saflufenacil – **Jada N. Davis**, *MS-Graduate Student*
-
- Vulnerability to drought in the deciduous forest of the Wabash Valley – **Ian M. Rimer**, *PhD-Graduate Student*
-
- MLO15 promotes root hair elongation in *Arabidopsis* – **Sienna T. Ogawa**, *PhD-Graduate Student*
-
- A *Ralstonia solanacearum* type III effector alters the actin and microtubule cytoskeleton to promote bacterial virulence in plants – **Abigail K. Rogers**, *PhD-Graduate Student*

29. Identification of a virulent *Meloidogyne incognita* population from grafted tomatoes with root-knot nematode-resistant rootstocks in Indiana – **Vijay S. Kunwar**, *PhD-Graduate Student*
31. First report of *Calonectria illicicola*: The emergence of red crown rot in Indiana soybeans – **Cora J. Reynolds**, *BS-Undergraduate Student*
33. Evaluation of the interaction of hybrid susceptibility and fungicide timing on tar spot of corn – **K. Morgan Goodnight**, *PhD-Graduate Student*
35. Improved stomatal physiology in evolutionary point of view – **Muhammad Haroon**, *PhD-Graduate Student*
37. Function and regulation of *Arabidopsis* callose synthase PMR4 in plant senescence – **Mengxue Wang**, *PhD-Graduate Student*
39. Function and regulation of GRAS-domain proteins in *Ceratopteris* meristems – **Yijie Wang**, *PhD-Graduate Student*
41. Quantifying data disparities between tropical and non-tropical fungi – **Jeffery K. Stallman**, *PhD-Graduate Student*
43. Effect of natural variation on pollen tube (traits) sensitivity to synergid signals – **Iyanu Adedeji**, *MS-Graduate Student*
45. Understanding MATE transporter ADS1's role in plant immunity – **Maddy Schaidler**, *PhD-Graduate Student*
47. Hormone signals and meristem development – **Shunxin Zhou**, *PhD-Graduate Student*
49. Transcriptional regulation in *Arabidopsis* shoot apical meristems – **Menghui Liu**, *PhD-Graduate Student*
51. Mapping the genetic basis of heterosis using near-isogenic lines – **Juan Diego Rojas-Gutierrez**, *PhD-Graduate Student*
53. Comparison of fungal communities growing with tar spot lesions in Ecuador, Guatemala and the United States – **Wily Sic**, *MS-Graduate Student*
55. Investigation of the lesion mimic Mutant *les-2014* – **Sendi Mejia Jimenez**, *PhD-Graduate Student*
57. Evaluating multisource data's potential for tar spot prediction – **Mariela Fernandez-Campos**, *PhD-Graduate Student*
59. Investigating the role of AtPIEZO as a possible mechanoreceptor during plant defense – **Feyisayo Akande**, *MS-Graduate Student*

61. Tomato receptor-like cytoplasmic kinase TPK09 mediates plant response to both disease and light stress – **Sara G. Hailemariam**, *PhD-Graduate Student*
63. Uncovering the mechanism of Rid1-dependent RIP in *Fusarium graminearum* – **Zeyi Wang**, *PhD-Graduate Student*
65. A perspective of mitochondrial functions in sperm cells and double fertilization – **Keila Jellings**, *BS-Undergraduate Student*
67. The effect of chitin on rice blast disease progression – **Morgan A. Murff**, *BS-Undergraduate Student*

SECOND ROUND OF POSTER VIEWING

2. Multi-omics approach to the systems biology for understanding cotton fiber development – **Youngwoo Lee**, *Postdoc-Research Assistant*
4. Should variable soil residual herbicide rates be determined by soil type, weed seedbank densities or both? – **Alexander R. Mueth**, *MS-Graduate Student*
6. Modeling with short stature corn hybrids – **Alex S. Wassgren**, *MS-Graduate Student*
8. Advancing white mold management: Uniform fungicide evaluation in Indiana soybean – **Nileshwari Raju Yewle**, *Visiting Scholar*
10. D16 – The dwarfing trait with the potential to revolutionize corn production worldwide – **Akanksha Singh**, *Postdoc-Research Assistant*
12. Temporal characterization of *Phyllachora maydis* through images – **Andres Cruz**, *Research Technician*
14. Where the Red Queen sleeps: How *Laboulbeniomyces* can elucidate past Red Queen dynamics through molecular methods – **Helen Law**, *PhD-Graduate Student*
16. Epidermal development in the pitchers of *Nepenthes* – **Jonathan M. Lu**, *BS-Undergraduate Student*
18. Exploring protein-bound Chlorophyll a's vibrational spectrum at room temperature through microsampling and isotope substitution – **Sarah Alvarez**, *BS-Undergraduate Student*

20. Understanding carbon storage and allocation in almond trees in response to stress – **Shreya S. Veeravelli**, *MS-Graduate Student*
22. Investigating the roles of the MLO1 and MLO15 calcium channels in plant development and reproduction – **Molly E. Kosiba**, *BS-Undergraduate Student*
24. Fungicide efficacy and timing for foliar diseases in Indiana soybean – **Monica Sayuri Mizuno**, *Visiting Scholar*
26. Management of tar spot in organic corn in Indiana from 2021 to 2023 – **Camila Rocco da Silva**, *PhD-Graduate Student*
28. Impact of rainfall on atrazine fate in cover cropping systems – **Lucas Maia**, *PhD-Graduate Student*
30. The ethylene signaling kinase CTR1 phosphorylates Toc33 and prevent it from SP1-mediated ubiquitination and degradation – **Yuan-Chi Chien**, *PhD-Graduate Student*
32. Identification of anthracnose resistance gene in *Sorghum bicolor* – **Pascal Okoye**, *PhD-Graduate Student*
34. Phenotypic consequences of cold acclimation – **Stephen C. Mills**, *BS-Undergraduate Student*
36. Postemergence herbicide injury in non-GMO soybean using site-specific herbicide application technologies – **Marcelo Zimmer**, *PhD-Graduate*
38. An EMS screen to identify suppressors of *faNTA* complementation of *feronia* root hairs – **Kelly E. Sammons**, *BS-Undergraduate Student*
40. Evaluation of interseeding methods for conversion of golf fairways to bentgrass cultivars with enhanced dollar spot resistance – **Justice Ruwona**, *PhD-Graduate Student*
42. Mechanisms of infection and response of the fungal wheat pathogen *Zymoseptoria tritici* during susceptible, resistant and non-host interactions – **Sandra Gomez**, *PhD-Graduate Student*
44. Genome wide association studies uncover marker trait associations for resistance to *Pythium irregulare* and *Fusarium graminearum* – **Christopher Evan Detranaltes**, *PhD-Graduate Student*
46. Spatial and temporal freezing dynamics of leaves revealed by time-lapse imaging – **Cade N. Kane**, *PhD-Graduate Student*
48. Genome-wide informative microsatellite markers and population structure of *Fusarium virguliforme* from Argentina and the USA – **Leandro L. Silva**, *Postdoc-Research Assistant*
50. Development of prediction tools for diseases and mycotoxins affecting corn to better inform management decisions as part of the National Predictive Modeling Tool Initiative (NPMTI) – **Juan D. Pena Roncancio**, *Visiting Scholar*
52. Cellular basis of male-to-hermaphrodite conversion and *de novo* meristem formation in *Ceratopteris* gametophytes – **Xi Yang**, *PhD-Graduate Student*
54. Transmission of tracer organisms through percolated water in a simulated golf green construction – **Mariah K. Cashbaugh**, *PhD-Graduate Student*
56. The use of salicylic acid as a stress inducing agent when applied exogenously with synthetic auxin herbicides – **Emma J. Lagerhausen**, *MS-Graduate Student*
58. What does “bottom-up” actually mean for crop disease? A case study on tar spot in corn – **Brenden Lane**, *PhD-Graduate Student*
60. Biotechnological foundations of *Sporobolomyces lactucae* for romaine lettuce food safety applications – **Samira Fatemi**, *PhD-Graduate Student*
62. Tar spot in Ecuador – **Alex Acosta**, *Visiting Scholar*
64. Temporal dynamics of the relationship between mycorrhizal dominance and local tree species richness in an Indiana forest reserve – **Kathryn Maley**, *PhD-Graduate Student*
66. Identifying novel regulators of exocytosis through a chemical genetic screen in *Arabidopsis* – **Xiaohui Li**, *PhD-Graduate Student*

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