

Larry Matthew York

Curriculum Vitae

Noble Research Institute
Root Phenomics Laboratory
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RESEARCH INTERESTS

Root functional phenomics, agroecology, simulation modeling, R statistics

EDUCATION

| | | | |
|------|-------------------------------|-------|---------|
| 2014 | Pennsylvania State University | Ph.D. | Ecology |
| 2006 | University of Kentucky | B.S. | Biology |

ACADEMIC POSITIONS

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| 2017– | Assistant Professor | Noble Research Institute |
| 2016–2017 | Postdoctoral Research Fellow | University of Missouri |
| 2014–2016 | Postdoctoral Research Fellow | University of Nottingham |

RESEARCH GRANTS

| | |
|------|---|
| 2016 | NSF-USDA EAGER (\$290,000), “High-throughput phenotyping of multiple ion uptake kinetics in maize roots.” |
| 2011 | College of Agricultural Sciences Competitive Grant, PSU (\$1000). |

PUBLICATIONS

Peer-reviewed Journal Articles (8 articles, 194 citations, h-index: 7)

York, L. M., Silberbush, M., and Lynch, J. P. (2016). Spatiotemporal variation of nitrate uptake kinetics within the maize (*Zea mays* L.) root system is associated with greater nitrate uptake and interactions with architectural phenes. *Journal of Experimental Botany* **67**, 3763-3775.

York, L. M., Carminati, A., Mooney, S. J., Ritz, K., Bennett, M. J. (2016). The holistic rhizosphere: integrating zones, processes, and semantics in the soil influenced by roots. *Journal of Experimental Botany* **67**, 3629-3643.

- York, L. M.** and Lynch, J. P. (2015). Intensive field phenotyping of maize (*Zea mays* L.) root crowns identifies phenes and phene integration associated with plant growth and nitrogen acquisition. *Journal of Experimental Botany* **66**, 5493-5505.
- York, L. M.**, Galindo-Castañeda, T., Schussler, J., and Lynch, J. P. (2015). Evolution of US maize (*Zea mays* L.) root system architectural and anatomical phenes over the past 100 years corresponds to increased tolerance of nitrogen stress. *Journal of Experimental Botany* **66**, 2347-2358.
- Colombi, T., Kirchgessner, N., Le Marie, C., **York, L. M.**, Lynch, J. P., and Hund, A. (2015). Next generation shovelomics: set up a tent and REST. *Plant and Soil* **388**, 1-20.
- Zhang, C., Postma, J. A., **York, L. M.**, and Lynch, J. P. (2014). Root foraging elicits niche complementarity-dependent overyielding in the ancient “three sisters” (maize, bean, squash) polycultures. *Annals of Botany* **114**, 1719-1733.
- Bucksch, A., Burrige, J., **York, L. M.**, Das, A., Nord, E. A., Weitz, J. S., and Lynch, J. P. (2014). Image-based high-throughput field phenotyping of crop roots. *Plant Physiology* **166**, 470–486.
- York, L. M.**, Nord, E. A., and Lynch, J. P. (2013). Integration of root phenes for soil resource acquisition. *Frontiers in Plant Science* **4**:355. doi: 10.3389/fpls.2013.00355.

Meeting Abstracts

- York, L. M.**, Seethepalli, A., Zare, A., Fritschi, F. (2017). A novel multi-perspective imaging platform for phenotyping soybean root crowns in the field increases throughput and separation ability of genotype root properties. Poster. IPG Root Biology Symposium. Columbia, MO, USA.
- York, L. M.** (2017). Functional phenomics: Relating phenes to function using high-throughput phenotyping and data analytics. Poster. Phenome Conference. Tucson, AZ, USA.
- York, L. M.**, Fritschi, F., Bennett, M. J., Foulkes, M. J. (2016). Rhizosphere functional phenomics: Using high-throughput phenotyping to understand root-soil interactions. Oral. ASA, CSSA, SSSA International Meeting. Phoenix, AZ, USA.
- York, L. M.**, Carvalho, P., Russel, J., Foulkes, M. J. (2016). Root phenotyping of barley chromosome substitution lines using X-ray computed tomography. Oral. Society for Experimental Biology Annual Meeting. Brighton, UK.
- York, L. M.**, Carvalho, P., Russel, J., Foulkes, M. J. (2016). Root phenotyping of barley chromosome substitution lines using X-ray computed tomography. Oral. Association of Applied Biologists, Novel Sensors. Nottingham, UK.

- Bennett, M. J., **York, L. M.** (2015). Systems analysis of roots: bridging molecular, rhizosphere, and field scales. Oral. International Society for Root Research. Canberra, Australia.
- York, L. M.**, Keating, S. L., Atkinson, J. A., Johnson, J., Fuente Canto, C., Waugh, R., Russell, J. R., Wells, D. M., Bennett, M. J., Foulkes, M. J. (2015). Root phene identification and linkage to agronomic utility in cereals using X-ray μ CT and field phenotyping. Poster. International Society for Root Research. Canberra, Australia.
- York, L. M.** and John Foulkes. (2015). Integration of root phenes revealed by intensive phenotyping of root system architecture and anatomy. Oral. Monogram Conference. Harpenden, UK.
- York, L. M.**, Malcolm Bennett, John Foulkes, and Lynch, J. P. (2015). Integration of root phenes revealed by intensive phenotyping of root system architecture and anatomy. Poster. European Geosciences Union. Vienna, Austria.
- York, L. M.** and Lynch, J. P. (2013). Nodal root growth angle and number influence nitrogen acquisition in maize (*Zea mays*). Poster. Interdisciplinary Plant Group Symposium. UM. Columbia, MO, USA.
- York, L. M.** and Lynch, J. P. (2012). Nodal root growth angle influences nitrogen acquisition and competition in maize (*Zea mays*). Oral. Ecology Society of America International Meeting. Portland, OR, USA.
- York, L. M.** and Lynch, J. P. (2012). Nodal root growth angle and number influence nitrogen acquisition in maize (*Zea mays*). Poster. ASA, CSSA, SSSA International Meeting. Cincinnati, OH, USA.
- Nord, E. A., **York, L. M.**, Postma, J. A., and Lynch, J. P. (2012). Interaction of root architectural and anatomical phenes in maize. Poster. International Society for Root Research. Dundee, Scotland.
- Postma, J. A., Zhang, C., **York, L. M.**, and Lynch, J. P. (2012). Complementarity in root architecture for nutrient uptake in ancient maize / bean and maize / bean / squash polycultures. Oral. German Society of Plant Nutrition Meeting. Bonn, Germany.
- Nord, E. A., Postma, J. A., **York, L. M.**, and Lynch, J.P. (2011). Synergism of root architectural and anatomical phenes in maize. Oral. ASA, CSSA, SSSA International Meeting. San Antonio, TX, USA.
- York, L. M.**, Henry, A., and Lynch, J. P. (2009). Utility of mixed root architecture stands in changing climates. Poster. Plant Biology Symposium. PSU. University Park, PA, USA.

INVITED SEMINARS

- 2016 Invited speaker: University of Iowa, Ames, IA, Dec. 7
- 2016 Invited speaker: Illinois Ag Masters, Springfield, IL, USA, Dec. 2
- 2016 Invited speaker: Soil Science Society of America, Phoenix, AZ, USA, Nov. 8
- 2016 Seminar speaker: University of Missouri, USA, May 17
- 2016 Seminar speaker: Michigan State University, USA, Feb. 15
- 2015 Keynote speaker: ISRR 9, Canberra, Australia, Oct. 9
- 2014 Seminar speaker: University of Nottingham, UK, Nov. 21

FELLOWSHIPS, AWARDS, AND HONORS

- 2016 UK Plant Phenotyping Network Travel Award (£500)
- 2010–2013 Walter Thomas Memorial Scholarship, PSU
- 2010 Root Biology Center Scholarship, South China Agricultural University
- 2009 China Root Biology Fellowship, PSU
- 2008 University Graduate Fellowship and Award for Excellence, PSU

INTERNATIONAL EXPERIENCE AND TEAM LEADERSHIP

Completed 2-years postdoctoral research in the United Kingdom working with a large, interdisciplinary team of PIs, postdocs, and students, 2014-2016

Conducted research at the Ukulima Root Biology Center (URBC) in South Africa. Coordinated planting and sampling of multiple field experiments for PSU researchers while managing a team of 4 college interns and 10 agricultural workers, 2012-2014

Conducted research with soybean at the South China Agricultural University in Guangzhou, China under the supervision of Hong Liao, 2010

SERVICE AND OUTREACH

Ad Hoc Article Review

Acta Physiologiae Plantarum, Annals of Botany, Canadian J. of Botany, Functional Plant Biology, J. of Integrative Plant Biology, J. of Experimental Botany, Plant Cell Reports, Plant and Soil, Plant Physiology, New Biotechnology, New Phytologist, Proceedings of the National Academy of Sciences

Community Service and Outreach

Member of Executive Committee of Root Phenotyping Working Group IPPN, 2017
Coordinated field demos for the UK Plant Phenomics Network meeting, 2016
www.rootbiologynews.com to blog about trends in root science, 2013–current
@RootBiologyNews on Twitter to tweet about new root research, 2013–current
Taught R and basic statistics to South African college interns at URBC, 2012–2013
Wrote *Tech Corner* pieces for PSU Ecology program newsletter, 2012–2014
Maintained and expanded Lynch lab website (roots.psu.edu), 2008–2013
Life of Plants badge demonstration for Girl Scouts, The Roots of Plant Growth, 2011

PROFESSIONAL AFFILIATIONS

Agronomy, Crop Science, and Soil Science Societies of America
Society of Experimental Biology
Ecology Society of America
International Society of Root Research