Curriculum Vitae

Austin Pearce

2026-05-25

Email | LinkedIn | GitHub | Scholar

Education

PhD Crop and Soil Environmental Sciences

VIRGINIA TECH

July 2017 - August 2020

Dissertation: Moving Virginia Dairy Farms Toward Phosphorus Balance

Adviser: Dr. Rory Maguire

MS Environmental Science

BYU
BRIGHAM YOUNG UNIVERSITY

Jan 2015 - June 2017

Thesis: Assessing Phosphorus Sources with Synoptic Sampling in the Surface Waters of a Mixed-Use, Montane Watershed

Adviser: Dr. Neil Hansen

BS Environmental Science

BYU
BRIGHAM YOUNG UNIVERSITY

Sep 2007 - June 2008; Sep 2011 - Dec 2014

Graduated December 2014 with 3.7 GPA

Employment

Staff Scientist - Agronomic Data Science | Oct 2022 - Present

Field to Market: The Alliance for Sustainable Agriculture, Washington, DC (remote)

- Building reproducible data processing pipeline for the 2026 National Indicators Report
- Contributed to development and release of Fieldprint Platform v5

  - guided discussions and researched improvements for metric calculation revisions
  - co-developed custom, R-based scripts for automating testing of platform updates
  - tested and debugged across multiple components (e.g. crop drying, transportation, irrigation pumping, manure applications)
- Established GitHub-based infrastructure for FTM science and tech program
  - enabled version-control of key documents and code, created sources of truth for various work, and enabled smoother collaboration with external IT vendor and data science contractors
- Created source-of-truth repository for the Fieldprint Platform data and methods
  - designed and populated the Quarto framework of repo, which renders the files into the first-ever website of publicly available technical documentation of all Fieldprint Platform methods
    * authored/co-authored 25+ pages of technical documentation
- Debugged and developed the custom Fieldprint Project Report (demo output)
  - included setting up Docker-based dev environments and deployment to AWS Lightsail
- Leading reformation and management of the Science Advisory Council: recruited new cohort, drafted terms of engagement, led 4+ meetings
- Led Metrics Committee during staff transitions
- Contributed to development of the proposed WILD Index biodiversity metric
  - testing proposed metric and sensitivity analysis
  - presented preliminary findings at scientific conference
  - built custom website for gathering public comments and workshop notes
- Developed and delivered two editions of Data Analyst Training for Field to Market members
  - built a class website
- Piloted a science communication initiative using StreamYard to interview scientists and researchers on work relevant to Field to Market's mission

Postdoctoral Research Scholar | Sep 2020 - Sep 2022

w/ Deanna Osmond, Dept. of Crop and Soil Sciences, NC State University, Raleigh, NC

- Part of nation-wide team of soil fertility experts developing Fertilizer Recommendation Support Tool
- Translated historical data from older published papers into the FRST database
- Lead of 13-member committee through a study and publication about how to define *relative yield*
- Co-lead with Dr. Slaton of 17-member committee through a study and publication about how to estimate critical soil test values for the support tool
- Contributed to two publications on reproducible statistical analysis of soil test correlation data from fertilizer trials, including R code in the release of the `soiltestcorr` R package

Graduate Reseach Assistant | July 2017 - Aug 2020

w/ Rory Maguire, School of Plant and Environmental Sciences, Virginia Tech, Blacksburg, VA

- Conducted and published a survey of 58 Virginia dairy farms in new effort to calculate farm phosphorus balances and help farms increase P use efficiency
- Developed data analysis and reporting workflow with R/RMarkdown
- Present work at multiple stakeholder meetings and conferences
- Publish extension paper on P balance results
- Coursework in statistics, soil chemistry, farm finance
- Assist with soil chemistry course

Graduate Research Assistant | Jan 2015 - June 2017

w/ Neil Hansen, Dept. of Plant and Wildlife Sciences, Brigham Young University, Provo, UT

- Used spatiotemporal approaches and analytical chemistry for finding nonpoint source phosphorus pollution in a mixed-use montane watershed in north, central Utah (thesis)
- Coursework in hydrogeology, remote sensing, environmental chemistry

Laboratory Assistant Manager | May 2014 - May 2017

Environmental Analytical Laboratory, Brigham Young University, Provo, UT

- Oversaw daily operation of analytical lab and the students and researchers it supported
- Analyzed of soil, sediment, plant, water, and biosolid samples
- Proficient with common analytical instruments (ICP-OES, AAS, CN combustion analyzer, Hach Lachat FIA).
- Training and mentoring of 50+ undergraduate workers and researchers
- Performed quality control, prepared reports, and communicated lab results to both commercial and research customers.

Research Assistant | January 2013 - March 2014

Dr. Ryan Stewart, Department of Plant and Wildlife Sciences, Brigham Young University, Provo, UT

- Developed a climate envelope for predicting distribution of Agave utahensis, after self-driven training of ArcGIS and species modeling software

Publications

Slaton, N. A., **Pearce**, A., Gatiboni, L., Osmond, D., Bolster, C., Miquez, F., Clark, J., Dhillon, J., Farmaha, B., Kaiser, D., Lyons, S., Margenot, A., Moore, A., Ruiz Diaz, D., Sotomayor, D., Spackman, J., Spargo, J., & Yost, M. (2024). Models and sufficiency interpretation for estimating critical soil test values for the Fertilizer Recommendation Support Tool. Soil Science Society of America Journal, 88, 1419–1437. https://doi.org/10.1002/saj2.20704

Lyons, S. E., Clark, J. D., Osmond, D. L., Parvej, M. R., **Pearce**, A. W., Slaton, N. A., & Spargo, J. T. (2023). Current status of US soil test phosphorus and potassium recommendations and analytical methods. *Soil Science Society of America Journal*, *87*(4), 985–998. https://doi.org/10.1002/saj2.20536

Correndo, A., **Pearce**, A., Bolster, C., Spargo, J., Osmond, D., Ciampitti, I. (2022) The soiltestcorr R package: An accessible framework for reproducible correlation analysis of crop yield and soil test data. SoftwareX. https://doi.org/10.1016/j.softx.2022.101275

Bolster, C.H., Correndo A, Spargo, J.T., **Pearce**, A.W., Osmond, D.L., Slaton, N.A. (2022) A spreadsheet for determining critical soil test values using the modified arcsine-log calibration curve. Soil Sci Soc Am J. https://doi.org/10.1002/saj2.20498

Pearce, A.W., Slaton, N.A., Lyons, S.E., Bolster, C.H., Bruulsema, T.W., Grove, J.H., Jones, J.D., McGrath, J.M., Miguez, F.E., Nelson, N.O., Osmond, D.L., Parvej, M.R., Pena-Yewtukhiw, E.M. and Spargo, J.T. (2022), Defining relative yield for soil test correlation and calibration trials in the Fertilizer Recommendation Support Tool. Soil Sci Soc Am J. https://doi.org/10.1002/saj2.20450

Correndo A, **Pearce** A, Ciampitti I (2022). soiltestcorr: Soil Test Correlation and Calibration. R package version 2.1.1, https://CRAN.R-project.org/package=soiltestcorr.

(dataset) Spargo, J. T., Lyons, S. E., Clark, J. D., Osmond, D. L., Parvej, R. Md., **Pearce**, A. W., Slaton, N. A., et al. (2022). A survey to evaluate the current status of land grant university and state department of agriculture soil fertility recommendations and analytical methods. Ag Data Commons. doi.org/10.15482/USDA.ADC/1526506

Lyons, S. E., Arthur, D. K., Slaton, N. A., **Pearce**, A. W., Spargo, J. T., Osmond, D. L., & Kleinman, P. J. A. (2021). Development of a soil test correlation and calibration database for the USA. Agric Environ Lett, 6, e20008. doi.org/10.1002/ael2.20058

Slaton, N. A., Lyons, S. E., Osmond, D. L., Brouder, S. M., Culman, S. W., Drescher, G., Gatiboni, L. C., Hoben, J., Kleinman, P. J. A., McGrath, J. M., Miller, R. O., **Pearce**, A., Shober, A. L., Spargo, J. T., &

Volenec, J. J. Minimum dataset and metadata guidelines for soil-test correlation and calibration research. Soil Sci Soc Am J, 2021; 1- 15. doi.org/10.1002/saj2.20338

Pearce, AW, Maguire RO, Pokhrel S. Managing Phosphorus Balance on Virginia Dairy Farms. Virginia Cooperative Extension. 2021.

Pearce, A, Maguire, R. The state of phosphorus balance on 58 Virginia dairy farms. J Environ Qual. 2020; 49: 324-334. https://doi.org/10.1002/jeq2.20054

Johns, J., Pearce, A., Robinson, D., and Hansen, N.C. Mar 2015. Applying a phosphorus risk index in a mixed-use mountain watershed. Proceedings of the 2015 Western Nutrient Management Conference 11:117-122.

Presentations & Conferences

Invited talks

- Field to Market and Biodiversity. Virtual presentation to the Nutrient Management Spear Program, Cornell University. March 2026.
- Panelist on carbon credits in sustainability programs at the IRRI Greenhouse Gases Flux and Modelling from Rice Workshop. Sept 2025.
- Field to Market and how the Fieldprint Platform measures scope 3 emissions for farm crops. Clean Fuels Alliance Workshop, Kansas City, MO, March 2024
- Virtual guest lecture, Dr. Nelson's class at Arkansas State University. February 2024.

Selected presentations

Pearce, A., Carlson, J., Coronel, E., David, O., Geter, F. (2025) Advancing Field-Scale Soil Carbon Modeling: SWAT+ Integration in the Fieldprint Platform and Multi-Model API Standardization [Abstract]. CANVAS 2025, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2025am/meetingapp.cgi/Paper/168062

Pearce, A., Le, K. N., Coronel, E., David, O., Carlson, J., Geter, F., Cerkasova, N., & Arnold, J. (2024) Integrating SWAT+ for Field-Scale Assessment of Soil Carbon and Greenhouse Gas Emissions: The Case for Field to Market [Abstract]. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX. https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/160453

Pearce, A., Pilchak, G., & Coronel, E. (2023) Measuring Biodiversity in the Field to Market Fieldprint Platform [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/149652

Slaton, N. A., Gatiboni, L., **Pearce**, A., et al. (2023) The Journey to Defining the Critical Soil Test Value for FRST. [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/152224

Soil Test Correlation and the Fertilizer Recommendation Support Tool. Presentation at the 2022 SERA-6 Meeting in Nashville, TN. June 2022.

Fertilizer Recommendation Support Tool (FRST): Soil Test Correlation. Seminar at Dept. of Crop and Soil Sciences at NC State University. Feb 2022.

Pearce, A. Relative Yield: The Importance of Definitions and FRST. Presentation at 65th Annual Meeting of the Soil Science Society of North Carolina. Jan 2022.

Pearce, A., Lyons, S. E., Slaton, N. A., et al. Relative Yield: The Importance of Definitions and FRST. Presentation at ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. Nov 10, 2021. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/133761

Pearce, A., Maguire, R. Nov 2019. Temporal Changes in Phosphorus Balance on Virginia Dairy Farms. ASA-CSSA-SSSA International Meetings, San Antonio, TX.

Extension presentation of initial phosphorus balance results on VA dairy farms at nutrient management workshop by VA Dept. of Conservation and Recreation, Montezuma, VA. March 14, 2019.

Pearce, A, Maguire, R, Knowlton K. Moving Virginia Dairy Farms Toward Sustainable Phosphorus Balance. Presentation at ASA, CSSA, SSSA International Annual Meeting, Baltimore, MD. Nov 2018.

Multiple extension presentations on phosphorus balance for Virginia Department of Conservation and Recreation nutrient management workshops (Montezuma, Charlottesville, Rocky Mount, VA; 2018–2019).

Pearce, A., Johns, J., Hansen, N.C. Oct 2017. Repeated Synoptic Sampling and Phosphorus Fractionation: A Strategy for Sourcing Phosphorus at the Watershed Scale. Presentation at ASA, CSSA and SSSA International Annual Meetings, Tampa, FL.

Pearce, A., Hansen, N.C., and Johns., J. Nov 2016. Maxent and Soil Phosphorus Predictions In A Mixed-use Montane Watershed. Presentation at ASA, CSSA and SSSA International Annual Meetings, Phoenix, AZ.

Pearce, A., Johns, J., and Hansen, N.C. Aug 2016. Hunting For Nonpoint Source Phosphorus In A Mixed-use Mountain Watershed with a Synoptic Mass Balance Approach. Plenary Presentation at 22nd National Nonpoint Source Monitoring Workshop, Salt Lake City, UT.

Pearce, A., Johns, J., Jones. J., and Hansen, N.C. Nov 2015. Searching For Phosphorus Sources In A Mixed-use Mountain Watershed. Presentation at ASA, CSSA and SSSA International Annual Meetings, Minneapolis, MN and Presentation at Graduate Student Conclave, Brigham Young University.

Other Conferences Attended (recent)

- 18th ISSPA Conference, Durham, NC, June 2025
- BYU "For the Benefit of the World" Conference, November 2025
- Greenhouse Gases Flux and Modelling from Rice Workshop, IRRI, Philippines, September 2025
- Soil and Water Conservation Society Annual Conference, Myrtle Beach, SC, July 2024
- Clean Fuels Alliance Workshop, Kansas City, MO, March 2024
- All Field to Market annual member meetings, 2022–2025

Teaching

Environmental Chemistry Lab (BYU, PWS 406, 1 cr)

This one-credit course couples various principles of environmental analysis with laboratory experience. Students learn about and perform field sampling, sample preparation, chemical analyses, analytical instrumentation, and data interpretation within the context of environmental research.

Mentored Learning Experience (BYU; PWS 494R; 1-6 cr.)

This course provided undergraduate students with the opportunity to learn sample preparation and laboratory procedures pertinent to environmental research and quality testing. Conducted in the BYU Environmental Analytical Lab.

Skills

Professional

- Statistics and data analysis, primarily with R (tidyverse, reproducible workflows)
  - Building data processing pipelines from disparate national sources

- Establishing collaborative work environments for project management, code development, and documentation
- Science communication and stakeholder translation
- Field work: soil sampling, farm visiting, streamflow gauge installation and measurements

Software & Tools

- **R & RStudio / Positron** — primary analysis environment; tidyverse-leaning
- **Git & GitHub** — code, documentation, project management
- **Docker** — local dev/testing environments
- **Quarto** — reproducible scientific documents and websites
- **Claude Desktop & Claude Code (CLI)** — AI-assisted tasks and local code editing
- **StreamYard** — live streaming and recording for engaging science communication
- **SAS JMP** — statistics
- **ENVI, ERDAS IMAGINE, Esri ArcGIS, QGIS, MaxEnt** — geospatial work
- **Adobe Photoshop** — image processing
- **MIcrosoft and Ubuntu-based OS**

Hardware / Lab Instruments

- Lachat QuikChem FIA, LECO CN Elemental Analyzer, Perkin Elmer F-AAS, Thermo Fisher ICP-OES, Milestone Microwave Digestion System
- DSLR/M digital cameras
- Computer building
- Ham radio

Training & Certificates

- **Anthropic AI training**
  - *AI Fluency for Nonprofits* (in progress)
- *Master R for Data Science*(via LinkedIn Learning)
- *Time Management Fundamentals*
- *Learning ArcGIS Spatial Analyst*
- DEI in the Modern Workplace
- Managing Bias

Other

- Oral communcation and presentation
- Data visualization
- Field work
- Photographer
- Birder
- Amateur radio operator
- Speak Tagalog (Filipino) adequately
- Decent home chef and breadmaker

Awards

- Recipient of the 2018-2019 Horace E. & Elizabeth Alphin Scholarship. College of Agriculture and Life Sciences, Virginia Tech.
- **Third Place** Award in Fall 2017 Virginia Tech Library Student ePortfolio Showcase.

- **Honorable Mention**, ASA, CSSA and SSSA International Annual Meetings 2017 (Tampa, FL). *Repeated Synoptic Sampling and Phosphorus Fractionation: A Strategy for Sourcing Phosphorus at the Watershed Scale.*
- **Third Place** Poster, 2015 Western Nutrient Management Conference. *Applying a phosphorus risk index in a mixed-use mountain watershed.*

Professional Memberships

- American Society of Agronomy - Member (2015-present)
- Soil Science Society of America - Member (2015-present)
- Soil and Water Conservation Society — Member (2024–present)

Service

- Graduate student representative during the 2018 vision and planning process of the (then) newly formed School of Plant and Environmental Sciences (SPES) at Virginia Tech.
- Representative for graduate students of SPES to the Virginia Tech Graduate Student Assembly. 2018-2019 academic year.
- Participated in promo video encouraging high school students to study agronomy, crop, and soil science (ASA-CSSA-SSSA)

Community

- Coached tee ball and baseball, four seasons for Morrisville, NC, and one season for Myrtle Beach
- 7+ years as church youth instructor
- Voluntary ecclesiastical service in Philippines (2009-2011)
  - Tagalog teacher to Philippines-bound young adults (2011-2014)