Matthew B. Espe

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Education

2014–2016	**PhD in Horticulture and Agronomy** *conc: Agroecology*	**University of California - Davis** *GPA: 4.00*
2012–2015	MSc in Horticulture and Agronomy *conc: Agroecology*	University of California - Davis *GPA: 4.00*
2002–2008	BSc in Horticulture *conc: Horticulture Science - Magna Cum Laude*	Colorado State University *GPA: 3.96*
2002–2008	BA in International Studies *conc: Asian Studies - Magna Cum Laude*	Colorado State University *GPA: 3.96*

Professional Experience

2017–present **Postdoc**
Data Science Initiative, UC Davis *Davis, CA*

Creating new data science tools to enable researchers to tackle problems in new ways. Collaborate in research with interdisciplinary teams. Present workshops and seminars on data science techniques and technologies.

2012–2016 **Graduate Student Researcher**
Agroecology Lab, UC Davis *Davis, CA*

Investigated the drivers of yield variability in US rice production systems. Employed multiple methods, including mechanistic and statistical models. Statistical models focused on spatial and temporal variation in yields using data sets spanning 8 to 10 sites across 15+ years.

2011–2012 **Water Use Research Technician**
Northern Colorado Water Conservancy District *Berthod, CO*

Assisted in irrigation and water conservation research. Collected and managed data on water use in long-term alfalfa research project. Maintained low water-use demonstration gardens. Assisted with community outreach and education, including weekly seminar series.

2010–2011 **Drought Tolerant Maize Development Intern**
Pioneer Hi-Bred *Evans, CO*

Planted and maintained research plots for nursery production and adaptive trait trials. Collected data on drought stress physiology in double-haploid observation blocks. Assisted in small-plot research on drought tolerance, disease resistance, and forage quality.

Computing Skills

Statistics	**R, Stan**, Python, SAS
Data	**R, SQL, bash, Git**, Go, C/C++, fortran, MS Excel, MS Access
Documents	**GNU Emacs, knitr, markdown, MS Word, LaTeX**
GIS	**R**, ArcMap, QGIS
OS	**Windows, OSX, Linux**

proficient working knowledge

Publications

Published

2017 **Matthew B. Espe**, Jim E. Hill, Robert J. Hijmans, Kent McKenzie, Randall Mutters, Luis A. Espino, Michelle Leinfelder-Miles, Chris van Kessel, and Bruce A. Linquist. Point stresses during reproductive stage rather than warming seasonal temperature determine yield in temperate rice. *Global Change Biology*

2017 Aifen Tao, Reza Keshavarz Afshar, **Matthew B. Espe**, and Chengci Chen. Variation in yield, starch, and protein of dry peas grown across Montana. *Agronomy Journal*, 2017

2016 **Matthew B. Espe**, Haishun Yang, Kenneth G. Cassman, Nicolas Guilpart, Hussain Sharifi, and Bruce A. Linquist. Yield gap analysis of US rice production systems shows opportunities for improvement. *Field Crops Research*, 193:123–132, 2016

2016 **Matthew B. Espe**, Haishun Yang, Kenneth G. Cassman, Nicolas Guilpart, Hussain Sharifi, and Bruce A. Linquist. Estimating yield potential in temperate high-yielding, direct-seeded us rice production systems. *Field Crops Research*, 193:123–132, 2016

2016 Rongzhong Ye, **Matthew B. Espe**, Bruce A. Linquist, Sanjai J. Parikh, Timothy A. Doane, and William R. Horwath. A soil carbon proxy to predict CH_4 and N_2O emissions from rewetted agricultural peatlands. *Agriculture Ecosystems and the Environment*, 220:64–76, 2016

2015 **Matthew B. Espe**, Emilie Kirk, Chris van Kessel, William R. Horwath, and Bruce A. Linquist. Indigenous nitrogen supply of rice is predicted by soil organic carbon. *Soil Science Society of America Journal*, 79(2), 2015

In preparation

2017 Myfanwy E. Johnston, Anna E. Steel, **Matthew B. Espe**, Ted Sommer, A. Peter Klimley, and David Smith. Survival of juvenile chinook salmon in the Yolo Bypass and North Sacramento Delta, California. 2017. *In Preparation*

2017 **Matthew B. Espe**, David McGill, Chris van Kessel, Kent McKenzie, and Bruce A. Linquist. Advances in rice grain yield are offset by yield erosion over time. *In Preperation*, 2017

2017 **Matthew B. Espe** and Duncan Temple Lang. Rtesseract: A package for Optical Character Recognition (OCR) in R. *In Preperation*, 2017

2017 **Matthew B. Espe** and Bruce A. Linquist. Poor air quality reduces solar radiation and yields in intensive rice production systems. *In Preperation*, 2017

2016 Hussain Sharifi, Robert Hijmans, **Matthew B. Espe**, and Bruce A. Linquist. Optimal estimation of phenological crop model parameters for rice (*Oryza sativa).* Agronomy Journal*, In review, 2016*

Presentations

2017	**Matthew B. Espe**. A gentle introduction to Bayesian inference, MCMC, and Stan. Data Science Initiative Workshop Series, 2017. *Oral presentation*
2016	**Matthew B. Espe**. Data management best practices: What I wish I knew my first year. Horticulture and Agronomy Graduate Group Seminar, 2016. *Oral presentation*
2016	**Matthew B. Espe**. Yield potential and opportunities in US rice production systems. Horticulture and Agronomy Graduate Group Seminar, 2016. *Oral presentation*
2016	**Matthew B. Espe**, Haishun Yang, Kenneth G. Cassman, Nicolas Guilpart, Hussain Sharifi, and Bruce A. Linquist. Calibration and validation of oryza(v3) for simulation of yield potential in us rice production systems. Rice Technical Working Group Conference, 2016. *Oral presentation*
2016	**Matthew B. Espe**. Future directions of agriculture. PLS101: Agriculture and the Environment, 2016. *Guest lecture*
2016	**Matthew B. Espe**. Introduction to Stan, a probabilistic programming language for Bayesian inference. The Hacker Within - Davis, 2016. *Oral presentation*
2015	**Matthew B. Espe**, Haishun Yang, Kenneth G. Cassman, Nicolas Guilpart, Hussain Sharifi, and Bruce A. Linquist. Calibration and validation of the oryza(v3) rice model for US rice production. Rice Research Field Day, 2014. *Poster presentation*
2014	**Matthew B. Espe**, Emilie Kirk, Chris van Kessel, William H. Horwath, and Bruce A. Linquist. The AFRI rice project: Developing a strategy for rice in the Sacramento-San Joaquin Delta. The Bay Delta Science Conference, 2014. *Oral presentation*
2014	**Matthew B. Espe**, Emilie Kirk, Chris van Kessel, William H. Horwath, and Bruce A. Linquist. Soil carbon provides nitrogen in continuously flooded rice paddy soils dominated by peat. Horticulture and Agronomy Seminar Series, 2014. *Oral presentation*
2014	**Matthew B. Espe**, Emilie Kirk, Chris van Kessel, William H. Horwath, and Bruce A. Linquist. The influence of soil total carbon on yield and nitrogen uptake in continuously flooded rice paddy soils dominated by peat. Rice Technical Working Group Conference, 2014. *Poster presentation*

Referee/Reviewer

Field Crops Research

European Journal of Agronomy

Soil Science Society of America Journal

Agricultural and Forest Meteorology

Teaching

Spring 2017	Instructor: STS198 - Data Sense and Exploration
Winter 2016	Teaching assistant: PLS101 - Agriculture and the Environment
Fall 2014	Teaching assistant: PLS206 - Multivariate Analysis of Agricultural and Ecological Data (*graduate level*)
Winter 2013	Teaching assistant: BIS2C - Introduction to Phylogeny and the Tree of Life

Service

2015–present	Affiliate, UC Davis Data Science Initiative
2015–2016	Member, Search committee for faculty hire - Crop Modeler
2015–2016	Member, Horticulture and Agronomy admissions committee
2015–2016	Member, Department of Plant Sciences website committee

Awards

2013–2016	Department of Plant Sciences Graduate Research Fellowship
2015–2016	Golden International Fellowship
2014–2016	Jastro Shields Graduate Research Fellowship
2014	Nor-Cal United Growers Fellowship
2013	Horticulture and Agronomy Fellowship
2004	US State Department Benjamin A. Gilman Fellowship

References

Chris van Kessel

Department Chair
Department of Plant Sciences
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Editor in Chief
Field Crops Research

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Bruce A. Linquist

Cooperative Extension Specialist
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Duncan Temple Lang

Core Developer
The R Project for Statistical Computing

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