



Flavio Lozano Isla

AGRONOMIST | PLANT BREEDER | DOCTORAL CANDIDATE

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Profile

Agronomist specialized in plant breeding with expertise in the areas of data science and bioinformatics.

RESEARCH INTEREST:

|> Plant breeding | Data science | Bioinformatics | Reproducible research | Seed science | Crop genetic resources <|

Education

Doctoral candidate in Agricultural Sciences

Germany

UNIVERSITY OF HOHENHEIM

2020-04-01 to present

- Project: "Utilizing the genetic diversity of Peruvian quinoa landraces for breeding improved varieties". At the Crop Plant Biodiversity and Breeding Informatics group at the Institute of Plant Breeding, Seed Science and Population Genetics.

Master of Science in Botany

Brazil

FEDERAL RURAL UNIVERSITY OF PERNAMBUCO

2015-02-01 to 2017-02-01

- Honor thesis: "Germinação de *Jatropha Curcas* L. sob envelhecimento/salinidade e desenvolvimento do pacote para análise de dados de germinação – Germinar". At the Plant Ecophysiology and Seed Science group at Ecophysiology Laboratory.

Agronomy Engineer

Peru

UNIVERSIDAD AGRARIA LA MOLINA

2015

- Honor thesis: "Evaluation of physiology and water use efficiency of fifteen potatoes (*Solanum tuberosum*) genotypes under drought stress treatment". At the Abiotic Stress group at the Genetic and Crop Improvement Global Program at CIP

Bachelor of Science in Agronomy

Peru

UNIVERSIDAD AGRARIA LA MOLINA

2007-08-01 to 2012-12-20

Teaching Experience

Professor

Peru

UNIVERSIDAD AGRARIA LA MOLINA

2021-01 to present

- Professor at the Faculty of Agronomy, Department of Agricultural Sciences. Lecturer of Plant Breeding, Agrotechnics and Botany courses

Invite Professor

Peru

UNIVERSIDAD INTERCULTURAL DE QUILLABAMBA

2020-12 to 2021-01

- Reproducible research lectures and use of interactive web apps with R + Rstudio

Assistant Professor

Brasil

FEDERAL RURAL UNIVERSITY OF PERNAMBUCO

2016-06 to 2016-11

- Seed science lectures using experimental designs and trial evaluations

Work experience

Research Assistance

Germany

UNIVERSITY OF HOHENHEIM & KWS

2017-02-20 to 2020-09-30

- Management of a PhD project at the University of Hohenheim entitled "Utilizing the genetic diversity of Peruvian quinoa landraces for breeding improved varieties". Project funded by KWS for capacity development in Peru. Responsible for project management for the development of a quinoa breeding program in the Peruvian Altiplano. Management and planning of field and greenhouse trials with students and farmers from different communities of the Peruvian Altiplano. Analysis of phenotypic and molecular data for the characterization and study of quinoa biodiversity in Peru. Supervising bachelor and master students in the development of their research work within the project.

Research Assistance Junior

Peru

INTERNATIONAL POTATO CENTER

2014-03-17 to 2015-02-28

- Planning of abiotic stress experiments on potato under field and greenhouse conditions in different regions of Peru. Management and analysis of experimental data using R statistical software. Presentation of seminars on drought stress and crop water management using CropWat. Implementing and improving evaluation protocols for drought stress trials. Use of precision equipment for evaluation of physiological parameters (i.e SPAD, Dew Point Microvoltmeter, meteorological stations, Fluorometer and Portable Photosynthesis System).

Internship

Peru

INTERNATIONAL POTATO CENTER

2012-11-21 to 2014-02-21

- Responsible for the evaluation of drought and water use efficiency experiments in potato under field and greenhouse conditions. Use of precision equipment for evaluation of physiological parameters (i.e SPAD, Dew Point Microvoltmeter, meteorological stations). Implementation and improvement of protocol for leaf area and relative water content measurement.

Crop manager

Peru

CROPS PERU SAC

NA to NA

Skills

Languages	Spanish (native) English (B2 - UNICert II) Portuguese (C1)
Data Science	R (highly advanced: published 3 packages in CRAN) Python SAS
Bioinformatics	gapit rmvp R/qtl plink bcftools vcftools Structure
Reproducible Reports	Quarto Markdown/Rmarkdown LaTeX Pandoc lua zotero
Pipelines	R shiny apps (advanced) Deep Learning
DevOps	Git Docker Travis CI
Front-End	HTML CSS JS Hugo
Back-End	Unix Linux Shell scripts bash
Quantitative Research	Experimental designs Repeated Measures linear/mixed models Multivariate
Qualitative Research	Surveys Case Studies Interaction Analysis Text Mining

Publications

PEER-REVIEWED PUBLICATIONS:

Aguilar, E. C. H., **Lozano-Isla, F.**, & Díaz, A. V. C. (2023). Tecnologías para una producción de arroz: Recomendaciones para el Perú basadas en investigaciones científicas. *South Sustainability*, 4(1), e069–e069. <https://doi.org/10.21142/SS-0401-2023-e069>

Lozano-Isla, F., Apaza, J.-D., Mujica Sanchez, A., Blas Sevillano, R., Haussmann, B. I. G., & Schmid, K. (2023). Enhancing quinoa cultivation in the Andean highlands of Peru: A breeding strategy for improved yield and early maturity adaptation to climate change using traditional cultivars. *Euphytica*, 219(2), 26. <https://doi.org/10.1007/s10681-023-0>

Lozano-Isla, F., Farfan-Vignolo, E. R., Gutierrez, R., Blas, R., & Awais, K. (2023). Harvest index is a key trait for screening drought-tolerant potato genotypes (*Solanum Tuberosum*). *Journal of Crop Science and Biotechnology*. <https://doi.org/10.1007/s12892-023-00215-2>

Bhatt, A., Bhat, N. R., **Lozano-Isla, F.**, Gallacher, D., Santo, A., Batista-Silva, W., Fernandes, D., & Pompelli, M. F. (2019). Germination asynchrony is increased by dual seed bank presence in two desert perennial halophytes. *Botany*, 97(11), 639–649. <https://doi.org/10.1139/cjb-2019-0071>

de Souza, L. M., Ribeiro Barbosa, M., Zárate-Salazar, J. R., **Lozano-Isla, F.**, & Rangel Camara, T. (2019). Uso de meta-topolina, una citoquinina no convencional en la multiplicación in vitro de *Opuntia Stricta* Haw. *Bioteología Vegetal*, 19(2), 85–97.

Lozano-Isla, F., Benites-Alfaro, O. E., & Pompelli, M. F. (2019). GerminaR: An R package for germination analysis with the interactive web application “GerminaQuant for R.” *Ecological Research*, 34(2), 339–346. <https://doi.org/10.1111/1440-1703.1275>

Lozano-Isla, F., Campos, M. L. O., Endres, L., Bezerra-Neto, E., & Pompelli, M. F. (2018). Effects of seed storage time and salt stress on the germination of *Jatropha Curcas* L. *Industrial Crops and Products*, 118, 214–224. <https://doi.org/10.1016/j.indcrop.2018.03.052>

Pompelli, M. F., Figueirôa, J. M., & **Lozano-Isla, F.** (2018). Allometric models for non-destructive leaf area estimation in *Eugenia uniflora* (L.). *Peruvian Journal of Agronomy*, 2(2). <https://doi.org/10.21704/pja.v2i2.1133>

Santos, M. A. dos, Jarma-Orozco, A., **Lozano-Isla, F.**, Barros, J. N. S., Rivera, J., Espitia-Romero, C., Castillejo-Morales, Á., Jarma-Arroyo, B., & Pompelli, M. F. (2018). Leaf area estimation in *Jatropha Curcas* (L.): An update. *AIMS Environmental Science*, 5(5), 353–371. <https://doi.org/10.3934/environsci.2018.5.353>

Zárate-Salazar, J. R., Santos, M. N., Santos, J. N. B., & **Lozano-Isla, F.** (2018). Comparação de softwares de análise de imagem para a determinação da área foliar. *Revista Brasileira de Meio Ambiente*, 3(1).

Lozano-Isla, F., Miranda, P., & Pompelli, M. F. (2017). Germination behavior of *Jatropha Curcas* L. After different imbibition times. *Peruvian Journal of Agronomy*, 1(1), 32–38. <https://doi.org/10.21704/pja.v1i1.1065>

Khan, M. A., Saravia, D., Munive, S., **Lozano-Isla, F.**, Farfan, E., Eyzaguirre, R., & Bonierbale, M. (2015). Multiple QTLs Linked to Agro-Morphological and Physiological Traits Related to Drought Tolerance in Potato. *Plant Molecular Biology Reporter*, 33(5), 1286–1298. <https://doi.org/10.1007/s11105-014-0824-z>

WORKS IN PROGRESS:

Lozano-Isla, F. (2023). *High-throughput phenotyping pipeline for quinoa (*Chenopodium Quinoa*) panicles using Mask R-CNN.*

Lozano-Isla, F. (2023). *Implementing a journal club as a teaching-learning strategy for plant genetics lectures during the COVID-19 pandemic.*

Lozano-Isla, F. (2023). *QTL mapping for yield-related traits in quinoa (*Chenopodium Quinoa*) based on three related populations.*

PATENTS:

Lozano-Isla, F., Benites Alfaro, O., & Pompelli, M. F. (2016). *GerminaQuant for R* (Patent BR 51 2016 001327-3).

R PACKAGES:

inti 0.6.2

TOOLS AND STATISTICAL PROCEDURES IN PLANT SCIENCE

2023-09-02

- The 'inti' package is part of the 'inkaverse' project for developing different procedures and tools used in plant science and experimental designs. The main aim of the package is to support researchers during the planning of experiments and data collection (`tarpu()`), data analysis and graphics (`yupana()`), and technical writing. Learn more about the 'inkaverse' project at <<https://inkaverse.com/>>.

huito 0.2.3

REPRODUCIBLE AND FLEXIBLE LABEL DESIGN

2023-07-04

- An open-source R package that deploys reproducible and flexible labels using layers. The 'huito' package is part of the 'inkaverse' project for developing different procedures and tools used in plant science and experimental designs. Learn more about the 'inkaverse' project at <<https://inkaverse.com/>>.

GerminaR 2.1.4

INDICES AND GRAPHICS FOR ASSESS SEED GERMINATION PROCESS

2022-05-18

- A collection of different indices and visualization techniques for evaluate the seed germination process in ecophysiological studies (Lozano-Isla et al. 2019) <[doi:10.1111/1440-1703.1275](https://doi.org/10.1111/1440-1703.1275)>.

Honors

RENACYT researcher Peru

CONSEJO NACIONAL DE CIENCIA, TECNOLOGÍA E INNOVACIÓN TECNOLÓGICA (CONCYTEC)

2019-10

- Qualified as a level 6 researcher in Peru by CONCYTEC with code P0052830.

Ph.D. Fellowship Germany

KWS SAAT SE & UNIVERSITY OF HOHENHEIM (UHOH)

2017-02

- Project for capacity development in Peru entitled "Utilizing the genetic diversity of Peruvian quinoa landraces for breeding improved varieties" in the research group of Crop Biodiversity and Breeding Informatics at the University of Hohenheim.

Master Fellowship Brasil

COORDENAÇÃO DE APERFEIÇOAMENTO DE PESSOAL DE NÍVEL SUPERIOR (CAPES)

2015-02

- Project to study of *Jatropha curcas* under salinity stress at the research group of the Plant Ecophysiology Laboratory at the Federal University of Pernambuco.