

## Luís Felipe Ventorim Ferrão

Ph.D

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### 1 Academic

- 2017-present Postdoc at Blueberry Breeding and Genomics Lab, University of Florida, Gainesville, FL, USA.  
Project: Quantitative genetics and genomics in blueberry breeding  
Supervisor: Patricio Munoz
- 2013-2017 Ph.D in Genetics and Plant Breeding, Department of Genetics, "Luiz de Queiroz" College of Agriculture, University of São Paulo (ESALQ/USP), Brazil.  
Dissertation title: Development and application of statistical genetic methods to genomic prediction in *Coffea canephora*  
Supervisor: Antonio Augusto Franco Garcia
- 2016-2017 Visiting student in the Department of Human Genetics, University of Chicago, USA.  
Project title: Genomic prediction in *Coffea canephora* using polygenic modeling  
Supervisor: Matthew Stephens
- 2011-2013 M.Sc in Genetics and Breeding, Federal University of Viçosa (UFV), Brazil.  
Project title: Application of microsatellite markers in diversity studies, genetic mapping and QTL analysis in *Coffea canephora*.  
Supervisor: Eveline Teixeira Caixeta.
- 2006-2010 Bachelor in Biological Sciences. Federal University of Viçosa (UFV), Brazil.

## 2 Additional training

- 2015 Brazilian Edition of the Tucson Plant Breeding Institute, ESALQ/USP, Brazil. **Speakers:** B. Walsh, M. Gore and L. Gutierrez
- 2015 Introduction to Programming (ANSI C), IME/USP, Brazil.
- 2015 Technical course in Linux Certification, SENAC, São Paulo, Brazil.
- 2015 EMBL-EBI Bioinformatics Workshop, ESALQ/USP, Brazil.
- 2015 Analysis and Prediction of Complex Traits Using Whole-Genome Regression Methods, Universidad de la Republica, Uruguay. **Speakers:** G. de los Campos and D. Gianola
- 2014 PhD Course in Methods and Models for Plant Genomic Prediction and Selection in Plant Breeding, Swedish University of Agricultural Sciences (SLU), Alnarp/Sweden. **Speakers:** P. Perez and J. Crossa
- 2014 Workshop on Longitudinal and Incomplete Data, ESALQ/USP, Brazil. **Speaker:** Geert Molenberghs
- 2014 Workshop on Bayesian Biostatistic, ESALQ, Brazil. **Speaker:** Emmanuel Lesaffre
- 2014 Workshop on Generalized Additive Models with P-splines, ESALQ/USP, Brazil. **Speaker:** Maria Durban
- 2014 Module MCMC for Genetics, Brazilian Edition of the Summer Institute in Statistical, ESALQ/USP, Brazil. **Speakers:** E. Anderson and M. Stephens
- 2014 Module Mixed Models in Quantitative Genetics, Brazilian Edition of the Summer Institute in Statistical, ESALQ/USP, Brazil. **Speakers:** G. Rosa and B. Walsh
- 2014 Module Quantitative Genetics, Brazilian Edition of the Summer Institute in Statistical, ESALQ/USP, Brazil. **Speakers:** B. Walsh and G. Rosa
- 2014 Module Computing for Statistical Genetics, Brazilian Edition of the Summer Institute in Statistical, ESALQ/USP, Brazil. **Speakers:** T. Lumley and K. Rice

## 3 Additional academic activities

- 2015,2017 Monitor of the course: **Biometrics of Genetic Markers**, ESALQ/USP. Supervisor: Dr. Antonio Garcia.
- 2014 Monitor of the course: **Calculus I**, ESALQ/USP. Supervisor: Dra. Clarice Demétrio.
- 2014 Monitor of the course: **Molecular Genetics**, ESALQ/USP. Supervisor: Dra. Cláudia Vitorello.
- 2011 Monitor of the course: **Genetic Laboratory**, UFV. Supervisor: Dr. Pedro Crescencio
- 2010 Monitor of the course: **Molecular Biology I and II**, UFV. Supervisor: Dr. Everaldo G. Barros

## 4 Scholarships

- 2014-2017 São Paulo Research Foundation- FAPESP (Ph.D)
- 2016 BEPE-FAPESP (São Paulo Research Foundation) for an internship abroad at University of Chicago, USA
- 2013-2014 Brazilian National Council for Scientific and Technological Development- CNPq (Ph.D)
- 2011-2012 Brazilian National Council for Scientific and Technological Development- CNPq (Ms.C)
- 2010 Brazilian National Council for Scientific and Technological Development- CNPq (Undergraduate)

## 5 Areas of Research Interest

Statistical Genetics, Quantitative Genetics, Bayesian Statistic, Plant Breeding, Molecular Breeding, Statistical Computing, Mixed Models, Genomic Prediction and Genomic Selection.

## 6 Publications

### ARTICLES

- 2017 **Ferrão, L F V.**; Ferrão, R G.; Ferrão M A G.; Fonseca, A.; Garcia, A A F. Mixed model to multiple harvest-location trial applied to genomic prediction in *Coffea canephora*. Tree Genetics and Genomes.
- 2017 Perez-Jaramillo, J E. ; Carrion, V J.; Bosse, M.; **Ferrão L F V.**; de Hollander, M.; Garcia, A A F.; Ramírez, C.; Mendes, R.; Raaijmakers, J.M.. Back to the roots: dissecting rhizosphere microbiome assembly in wild crop relatives. The ISME Journal - Nature Microbiology, 1-14.
- 2015 **Ferrão, L F V.** ; Caixeta, E T. ; Pena, G. F.; Maciel-Zambolim, E ; Cruz, C D. ; Zambolim, L. ; Ferrão, M A G. ; Sakiyama, N S. . New EST-SSR markers of *Coffea arabica*: transferability and application to studies of molecular characterization and genetic mapping. Molecular Breeding 35 (1),1-5
- 2014 **Ferrão, L F V.** ; Caixeta, E T. ; Cruz, C D. ; Souza, F F. ; Ferrão, M A G. ; Maciel-Zambolim, E ; Zambolim, L. ; Sakiyama, N S. . The effects of encoding data in diversity studies and the applicability of the weighting index approach for data analysis from different molecular markers. Plant Systematics and Evolution, 300 (7):1649-1661.
- 2013 **Ferrão, L F V.** ; Caixeta, E T. ; Souza, F F. ; Cruz, C D. ; Maciel-Zambolim, E ; Zambolim, L. ; Sakiyama, N S. . Comparative study of different molecular markers for classifying and establishing genetic relationships in *Coffea canephora*. Plant Systematics and Evolution, 299: 225-238.
- 2013 Souza, F F ; Caixeta, E T.; **Ferrão, L F V.**; Pena, G F.; Sakiyama, N S.; Maciel-Zambolim, E; Zambolim, L.; Cruz, C D. . Molecular diversity in *Coffea canephora* germplasm conserved and cultivated in Brazil. Crop Breeding and Applied Biotechnology (Online), v. 13, p. 221.
- 2011 **Ferrão, L F V.** ; Cecon, P R. ; Finger, F L. ; SILVA, F F ; Puiatti, M . Genetic divergence among sub-samples of pepper based on morpho-agronomic characters. Horticultura Brasileira, 29: 354-358.

### BOOK CHAPTER

- 2017 **Ferrão, L F V.**; Garcia, A A F.; Ortiz, R. Genomic Selection - State of Art. Book: Genetic Improvement of Tropical Species. In: Hugo Campos and Peter D. S Caligari (Ed.). Springer.
- 2016 Souza, F F ; **Ferrão, L F V.**; Caixeta, E T.; Sakiyama, N S.; Pereira, A A.; de Oliveira, A C B; Aspectos Gerais da biologia e diversidade genética de *Coffea canephora*. Book: Café na Amazônia,

Embrapa, Brazil

- 2014 Caixeta, E T. ; **Ferrão, L F V.** ; Maciel-Zambolim, E; Zambolim, L. . Chapter: Molecular Markers. In: Borém and Fritsche-Neto. (Org.). Book: Biotechnology and Plant Breeding: Applications and Approaches for Developing Improved Cultivars. 1ed.: Elsevier, 1: 1-249.
- 2012 Caixeta, E T. ; **Ferrão, L F V.** ; Maciel-Zambolim, E; Marcadores Moleculares. In: Fritsche-Neto e Borém. (Org.). Book: Biotecnologia Aplicada ao Melhoramento de Plantas. 1ed.Viçosa: UFV, Brazil, 1:32-68.
- 2011 Ferrão, R G. ; Ferrão, M A G. ; Fonseca, A F A. ; Lani, J A. ; **Ferrão, L F V.** *A cafeicultura no estado do Espírito Santo: tecnologias e desafios*. In: Tomaz et al. (Ed.). Book: Tecnologias para a sustentabilidade da cafeicultura. Alegre, ES, Brazil: CAUFES, 2: 19-50.
- 2008 Ferrão, R G. ; Fornazier, M J. ; Ferrão, M A G. ; Prezotti, L. C. ; Fonseca, A F A. ; Alixandre, F T. ; **Ferrão, L F V.** . Estado da arte da cafeicultura no Espírito Santo. In: Tomaz et al. (Ed.). Book: Seminário para Sustentabilidade da Cafeicultura. 1ed.Alegre - ES: CCA- UFES, Brazil 1:29-47.

IN DEVELOPMENT (expectation of publication this year)

Chapter Biotechnology applied to *Coffea canephora* breeding. Book: Café Conilon, Brazil.

Chapter Methods of plant breeding in *Coffea canephora* Book: Café Conilon, Brazil.

## 7 Computer Skills

OS Linux, Mac and Windows  
Adv. training R and Bash (shell scripts)  
Basic training C and Python  
Typography  $\LaTeX$  and Markdown

## 8 Language

2013 TOEIC (Listening and Reading Official Score Report) score: 685 (equivalent to 69.20%).

## 9 Other Informations

TALKS

2017 Comparison of statistical methods and reliability of genomic prediction in *Coffea canephora* populations. Coffee Workshop. **PAG XXV - Plant and Animal Genome Conference**, San Diego, USA.

2017

Genomic Prediction in *Coffea canephora* using polygenic modeling. **Invited by Zhao-Bang Zeng**. Bioinformatics Research Center. NC State University, North Carolina, USA.

2016 Mixed model to multiple harvest-location trial applied to genomic prediction in *Coffea canephora*. Coffee Workshop. **PAG XXIV - Plant and Animal Genome Conference**, San Diego, USA.

#### EVENT ORGANIZATION

2014 Brazilian Edition of the Summer Institute in Statistical Genetics, in Department of Genetics, University of São Paulo, Piracicaba, SP, Brazil

2009 Brazilian Congress of Plant Breeding, Guarapari, ES, Brazil.

#### COLLABORATIONS

2017 Inference scheme for predicting genotype in polyploid species, given parental information and sequencing data; University of Chicago, Chicago, USA.

2016 Associative analysis between rhizosphere microbiome and SNPs. Brazilian Agricultural Research Corporation, Embrapa Environment, Brazil; and Department of Microbial Ecology, Netherlands Institute of Ecology (NIOO-KNAW), Wageningen, The Netherlands.

2015 SNP calling and population structure of polyploid potatoes. Brazilian Agricultural Research Corporation, Center for Temperate Climate Agricultural Research.

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#### QUANTITATIVE METRICS

28 Participation in Symposia and Congresses  
39 Participation in Short and Long Duration Courses  
11 Poster Presentation in Scientific Events  
7 Scientific Articles  
3 Oral Presentations  
8 Book Chapters

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Updated: July, 2017