FERNANDO BRITO LOPES

Researcher in Quantitative Genetics and Genomics

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RESEARCH INTERESTS

Quantitative and Molecular Genetics
Data Analysis, Big Data and Experimental Design
Bioinformatics, Biostatistics and Data Science
Statistical Genomics

PROFESSIONAL EMPLOYMENT

- **Researcher**, School of Agrarian and Veterinary Sciences of São Paulo State University (UNESP). Jaboticabal, SP, Brazil (from 2018)
- **Researcher**, Brazilian Agricultural Research Corporation (Embrapa), Goiânia, GO, Brazil (from 2018)
- **Research Associate**, Department of Animal Sciences, University of Wisconsin-Madison, WI, USA (2014 – 2017)
- **Geneticist –** GeneSeek, Inc., a Neogen Company, Lincoln, NE, USA (2016 – 2017)
- **Researcher - Technological and Industrial Development**, Brazilian Agricultural Research Corporation – Embrapa, Goiânia, GO, Brazil (2016 – 2017)
- **Researcher**, Brazilian Agricultural Research Corporation (Embrapa), Goiânia, GO, Brazil (2012 – 2014)
- **Lecturer**, Department of Animal Science, Federal University of Goiás (UFG), Goiânia, GO, Brazil (2011 – 2013)
- **Lecturer**, Department of Animal Science, Federal University of Tocantins (UFT), Araguaína, TO, Brazil (2007 – 2008)

ACADEMIC DEGREES

- **BS**, Animal Science, Federal University of Tocantins (UFT), Araguaína, TO, Brazil, June 2006.

- **MS**, Animal Science, Federal University of Tocantins (UFT), Araguaína, TO, Brazil, March 2009.

- **PhD**, Animal Science, Federal University of Goiás (UFG), Goiânia, GO, Brazil, August 2011.

RESEARCH EXPERIENCE

2017 - present *Genome-wide selection and feature subset selection of markers by Bayesian networks in beef cattle using multiple-trait model*. Brief Description: Several methods have been used for genome-enabled prediction, where multiple regression models describe a target variable with a linear function of a set or subset of covariates. Bayesian Networks has offered interesting tools for a more parsimonious representation of the join distribution of a set of variables, which are useful for prediction purposes, e.g. using Markov Blanket (MB) of the target variable. Genome prediction studies have been focused mostly on single-trait analyses. However, most of economically important traits are genetically correlated, and it is expected to increase the accuracy of prediction of genomic breeding values of genetically correlated traits using multiple-trait model. Thus, this study will be carried out to assess the accuracy of genomic prediction for carcass and meat quality traits in Nellore cattle using multiple-trait model on two different scenarios: i) genome-wide prediction using the whole SNP data; and ii) genomic prediction using subset of SNP markers selected using MB.

2017 - present *Improving Prediction Accuracy of Meat Tenderness in Nelore Cattle using Artificial Neural Networks*. Brief Description: Traditional genetic selection for meat tenderness in beef cattle is constrained by the cost and difficulty of its measurement, and genomic selection (GS) has arisen then as an alternative to improve it. Artificial Neural Networks (ANN) are gaining prominence in GS as it can fit complex relationships, potentially increasing predictive accuracy. A special case of ANN is the Deep Neural Networks (DNN), which have multiple hidden layers. DNN have been successfully used in the field of image analysis and speech recognition, but few studies have applied it on GS. Thus, this study was carried out to compare the predictive ability of ANN and DNN with Bayesian Ridge Regression, Bayesian Lasso, Bayes A, Bayes B, and Bayes Cπ in estimating genomic breeding values for meat tenderness in Nelore cattle.

2017 - present *Genomic strategies applied to characterization and breeding of Nelore beef cattle using next-generation sequencing*. Brief Description: The maintenance of the genetic variability is essential to preservation of alleles associated with rusticity and adaptability traits in Nelore breed, which is considered the most important breed to beef production in Brazil. Although the number of founders responsible for the formation of Nelore breed is small, there are genetic differences among lines. The characterization of these lines is important to directing mating to optimize the genetic progress consistent with the objectives of selection and to control inbreeding. The aim of this project is to describe the genomic structure of the Nelore population in Brazil to develop strategies to control the maintenance of genetic variability and inbreeding, as well as to improve the breeding goals of economic important traits. For this, a total of 150 samples of semen from several Nelore lines will be sequenced. The sequencing data will be used to identify homozygous segments, selection signatures, as well as causal and structural variants in Nelore genome. Imputation, genomic association and genomic selection studies will also be performed considering the Nelore genotype and phenotypic data available for the proposed project.

2016 - present *Genomic selection for improved fertility of dairy cows with emphasis on cyclicity and pregnancy*. Brief Description: The goal is to identify SNPs and haplotypes significantly associated with fertility traits by use of genome-wide analyses (GWAS) and use this information to obtain genomic-estimated breeding values that can be applied in selection of dairy cattle for improved fertility. Genome-wide studies (GWAS and prediction models). A GWAS will be conducted to detect genomic regions contributing to the variation of each phenotypic trait considered (anovulation, uterine disease, detection of estrus, pregnancy, and pregnancy loss), as well as for the reproductive index.

2015 - present *Causal effect of environmental factors on traits of economic importance in beef cattle*. Brief Description: The knowledge of causal relationships among growth traits is important to understand their biological system, and to define more efficient strategies for animal breeding and selection. This research goal is to investigate the causal structures involving gestation length, and weight from birth to 450 days of age in Nellore cattle. A multi-trait model and structural equation model will be fitted conditionally on a causal structure among traits, represented by a directed acyclic graph, and inferred using the inductive causation algorithm.

2014 - 2016 *Genomic Selection for meat tenderness in Polled Nellore Cattle*. Brief Description: The goal is to estimate genomic breeding values using SNP data. Analysis is being carried out using prediction models from the ‘Bayesian Alphabet’, including Bayesian Ridge Regression and Bayesian Lasso.

2012 - 2014 *Different regression models for genomic selection of Brazilian Polled Nellore are carried out aiming to increase meat tenderness*. Brief Description: Based on the Warner-Bratzler Shear Force (WBSF) index this project aims to help improve the quality of Nellore meat produced in Brazil. This research uses reference populations and commercial SNP chips to estimate genomic breeding values. Scheduled mating is carried out and muscle samples are collected at the moment of slaughtering for posterior tenderness evaluation.

2011 - 2014 *Climatic spatialization and longitudinal data analysis of Nellore cattle raised in the Amazon and Cerrado ecosystem in Brazil*. Brief Description: Spatialization is triggered as an attempt to understand the climatic factors that help to discriminate the regions were Nellore Cattle are bred under the Amazon and the Cerrado ecosystems. Phenotypic correlation between adjusted weights and reproductive traits are under consideration. Indexes for selection are one of the most important objectives.

2011 - 2014 *Genotype versus environmental interaction effects on Nellore productive traits in the tropical humid region of Brazil*. Brief Description: This project is designed to develop heritability estimates of genetic correlations and breeding values from the Nellore cattle breeding program (PMGRN-ANCP) in Brazil. The data set is built up over twenty years of field monitoring and registration.

2011 - 2013 *Causes of variation in productive and reproductive traits in Nellore cattle raised in the Amazon region*. Brief description: This project adopts an exploratory approach to detect inbreeding coefficients, general population structure, covariance and genetic parameter estimation for several phenotypic variables. The data set contains phenotypic data registration since 1970.

2010 - 2012 *Genetic trends for adjusted weights at ages 205, 365 and 550 days in Nellore cattle in Northern Brazil*. Brief Description: This Project uses data sets shared by the Brazilian Association of Zebu Breeders. More than 45.388 phenotypic registrations are accounted for. Covariance estimates are obtained using MTDFREML.

2009 - 2011 *Objectives and selection criteria in dairy goat breeding in Brazil*. Brief Description: characterization of dairy goat production systems, identification of objectives, selection criteria, profit, the effect of modifications in the breeding system are only a few of the goals of this project. Different levels of technification are established in order to understand and develop proper technology and also to develop farm level interventions.

TEACHING EXPERIENCE

- **Co-instructor**, Department of Animal Sciences, University of Wisconsin-Madison, WI, USA, in 2016, under supervision of Prof. Guilherme Jordão de Magalhães Rosa.

09/2017 - 12/2017	Department of Animal Sciences *Quantitative Genetics (AnSci/Genetics 610)*
01/2016 - 05/2016	Department of Animal Sciences *Quantitative Genetics (ansci875)*

- **Lecture**, Federal University of Goiás (UFG), Goiânia, GO, Brazil, from 2011 to 2013, teaching the following courses.

09/2013 - 12/2013	Department of Agronomy *Animal Breeding and Genetic*
03/2013 - 07/2013	Graduate Program in Animal Science *Introduction to SAS software* *Experimental methods in livestock science*
12/2012 - 07/2013	Graduate Program in Animal Science *Estimating genetic parameters (introduction)* *SAS software (introduction)* *Experimental methods in livestock Science* *Data mining* *Multivariate Statistics using SAS software*

- **Lecture**, Federal University of Tocantins (UFT), Araguaína, GO, Brazil, from 2007 to 2008, teaching the following courses.

08/2007 - 12/2007	Department of Animal Science *Technical drawing* *Mathematics*
03/2008 - 12/2008	Department of Animal Science *Basic Statistics* *Introduction in informatics*
03/2008 - 12/2008	Veterinary Department *Mathematics and elementary informatics*

- **Teacher**, Colégio Pequena Universidade (UNIPOSITIVO), Araguaína, TO, Brazil, in 2008, teaching the following courses.

08/2008 - 12/2008	High School *Mathematics* *Physics*

SHORT COURSES GIVEN

LOPES, F. B. **Application of Quantitative Genetics and Genomics in Animal Breeding.** Department of Animal Sciences, Federal University of Alagoas (UFAL), AL, Brazil 2018.

LOPES, F. B. **Running R on CHTC Cluster.** Department of Animal Sciences, University of Wisconsin-Madison, WI, USA 2017.

LOPES, F. B. **How to run R using HTCondor?** Department of Animal Sciences, University of Wisconsin-Madison, WI, USA 2015.

LOPES, F. B. **Multivariate analysis**. Federal University of Goiás (UFG), Goiânia, GO, Brazil, 2014.

LOPES, F. B. and MAGNABOSCO, C. U. **Introduction to Bayesian inference and its application to estimate genetic parameters in beef cattle**. Brazilian Agricultural Research Corporation (Embrapa), Goiânia, GO, Brazil, 2012.

LOPES, F. B. **Methods to estimate genetic parameters using MTDFREML and WOMBAT software in finite and infinitesimal models**. Brazilian Agricultural Research Corporation (Embrapa), Goiânia, GO, Brazil, 2012.

LOPES, F. B. **Architecting data and estimating covariance components using SAS and MTDFREML**. Federal University of Goiás (UFG), Goiânia, GO, Brazil, 2011.

LOPES, F. B. **Architecting and analyzing data using SAS software.** Federal University of Tocantins, Araguaína, TO, Brazil, 2011.

LOPES, F. B. and CAVALCANTE, T. V. **Research report on libido investigation in Santa Ines rams.** Federal University of Tocantins, Araguaína, TO, Brazil, 2006.

PUBLICATIONS

Book chapters

MACHADO, T. M. M., McMANUS, C. M., PAIVA, S. R., TEIXEIRA, L. T. D., PIRES, L. C., ARAÚJO, R. O., FACÓ, O., LOPES, F. B. **Goat Genetics and Breeding. In: Goat and Sheep Production in the semiarid of Brazil**.1 ed. Brasilia: Embrapa, 2011, p. 423-459.

Papers in refereed journals

PEREIRA, L. S., COSTA, B. M. P., SANTOS, G. C. J., **LOPES, F. B.**, LIRA, T. S., BARBOSA, S. M., RAMOS, A. T., FERREIRA, J. L. The influence of transportation on the frequency of cattle carcass injuries in Para, Brazil. ***Archives of Veterinary Science*** (*in press*).

MONTESINOS, I. S., SERENO, J. R. B., SILVA, M. C., **LOPES, F. B.**, McMANUS, C. M. Morphometric evaluation of ewes from the Humedales de Ité (Peru). ***Archivos de Zootecnia*** (*in press*).

LOPES, F. B., WU, X.L., LI, H., XU, J., PERKINS, T., GENHO, J., FERRETTI, R., TAIT JR., R. G., BAUCK, S., ROSA, G. J. M. Improving accuracy of genomic prediction in Brangus cattle by adding animals with imputed low-density SNP genotypes. ***Journal of Animal Breeding and Genetics***, v. 135, p. 14-27, 2018. DOI: 10.1111/jbg.12312.

KLUSKA, S., OLIVIERI, B. F., BONAMY, M., CHIAIA, H. L. J., FEITOSA, F. L. B., BERTON, M. P., PERIPOLLI, E., LEMOS, M. V. A., TONUSSI, R. L., LÔBO, R. B., MAGNABOSCO, C. U., DI CROCE, F., OSTERSTOCK, J., PEREIRA, A. S. C., MUNARI, D. P., BEZERRA, L. A., **LOPES, F. B.**, BALDI, F. Estimates of genetic parameters for growth, reproductive, and carcass traits in Nelore cattle using the single step genomic BLUP procedure. **Livestock Science**, v. 216, p. 203-209, 2018.

PERIPOLLI, E., METZGER, J., DE LEMOS, M. V. V., STAFUZZA, N. B., KLUSKA, S., OLIVIERI, B. F., FEITOSA, F. L. B., BERTON, M. P., **LOPES, F. B.**, MUNARI, D. P., LÔBO, R. B., MAGNABOSCO, C. U., DI CROCE, F., OSTERSTOCK, J., DENISE, S., PEREIRA, A. S. C., BALDI, F. Autozygosity islands and ROH patterns in Nellore lineages: evidence of selection for functionally important traits. **BMC GENOMICS**, v. 19, p. 1-14, 2018.

LOPES, F. B., FERREIRA, J. L., LÔBO, R. B., ROSA, G. J. M. Bayesian analyses of genetic parameters for growth traits in Nellore cattle raised on pasture. ***Genetics and Molecular Research***, v. 16, p. 1-10, 2017. DOI: 10.4238/gmr16039606.

CASTRO, L. M., ROSA, G. J. M., **LOPES, F. B.**, REGITANO, L., ROSA, A., MAGNABOSCO, C. U. Genome-wide association mapping and pathway analysis of meat tenderness in polled Nellore cattle. ***Journal of Animal Science***. 95:1945–1956, 2017. DOI: 10.2527/jas2016.1348.

FERREIRA, J. L., BRESOLIN, T., **LOPES, F. B**., GARCIA, J. A. S., NEPOMUCENO, L. L., SCHMIDT, A. B., LÔBO, R.B. Random regression models for growth trait in Guzerá cattle. ***Ciência Animal Brasileira***, v. 18, p. 1-12, 2017.

FERREIRA, J. L., **LOPES, F. B**., GARCIA, J. A. S., SILVA, M. P. B., NEPOMUCENO, L. L., MARQUES, E. G., SILVA, M. C. Climate spatialization and genotype-environment interaction effects on weaning weights of Nellore cattle in extensive systems in tropical regions of brazil. ***Ciência Animal Brasileira***, v. 18, p. 1-13, 2017.

LOPES, F. B., SILVA, M. C., MAGNABOSCO, C. U., SAINZ, R. D. Selection Indices and Multivariate Analysis Show Similar Results in the Evaluation of Growth and Carcass Traits in Beef Cattle. ***Plos One***, v. 11, p. e0147180, 2016.

MAGNABOSCO, C. U., **LOPES, F. B.**, FRAGOSO, R. C., EIFERT, E. C., VALENTE, B. D., ROSA, G. J. M., SAINZ, R. D. Accuracy of genomic breeding values for meat tenderness in Polled Nellore cattle. ***Journal of Animal Science***. DOI: 10.2527/jas.2016-0279. 2016.

MAGNABOSCO, C. U., **LOPES, F. B.**, ROSA, G. J. M., SAINZ, R. D. Bayesian estimates of genetic parameters for reproductive traits in Nellore cows raised on pasture in tropical regions. ***Revista Colombiana de Ciencias Pecuarias***, v. 29, p. 119-129, 2016.

LOPES, F. B., MAGNABOSCO, C. U., SOUZA, F. M., ASSIS, A. S., BRUNES, L. C. Analysis of longitudinal data in Polled Nellore cattle using nonlinear models. ***Archivos de Zootecnia***, v. 65, p. 123-129, 2016.

LOPES, F. B., MAGNABOSCO, C. U., SOUZA, F. M., ASSIS, A. S., BRUNES, L. C. Inbreeding effect on pre-weaning weight in polled Nellore cattle raised on pasture in the Cerrado biome. ***Archivos de Zootecnia***, v. 65, p. 177-182, 2016.

SOUZA, F. M., LEMOS, B. J. M., OLIVEIRA JUNIOR, R. C., MAGNABOSCO, C. U., CASTRO, L. M., **LOPES, F. B.**, BRUNES, L. C. Introdução de leguminosas forrageiras, calagem e fosfatagem em pastagem degradada de Brachiaria brizantha. ***Brazilian Journal of Animal Health and Production***, v. 17, p. 355-364, 2016.

GOWANE, G. R., PRINCE, L. L. L., **LOPES, F. B.**, SHARMA, R. C. Genetic and phenotypic parameter estimates of live weight and daily gain traits in Malpura sheep using Bayesian approach. ***Small Ruminant Research***, v. 128, p. 10-18, 2015.

FERREIRA, J. L., **LOPES, F. B.**, BRESOLIN, T., GARCIA, J. A. S., BARBOSA, S. M., LÔBO, R. B. Effect of age of dam on weight of calf in the genetic assessment of Zebu cattle in random regression models. ***Acta Scientiarum. Animal Sciences***, v. 37, p. 203-208, 2015.

GOMES, P. H. F., **LOPES, F. B.**, MURAD, B. T. M., GOMES, G. A. T. Use of multivariate approaches as a support tool to decision making in the hotel sector. ***Enciclopédia Biosfera***, v. 11, p. 2502-2526, 2015.

FERREIRA, J. L., **LOPES, F. B.,** PEREIRA, L. S., NEPOMUCENO, L. L., GARCIA, J. A. S., LÔBO, R. B., SAINZ, R. D. Estimation of (co)variances for growth traits in Nellore cattle raised in the Humid Tropics of Brazil by random regression. ***Semina. Ciências Agrárias***, v. 36, p. 1713-1724, 2015.

FERREIRA, J. L., **LOPES, F. B.,** LIRA, T. S., GARCIA, J. A. S., LÔBO, R. B., SAINZ, R. D. Genotype-environment interaction of maternal influence characteristics in Nellore cattle bred in the Brazilian humid tropical regions by reaction norm. ***Semina. Ciências Agrárias***, v. 36, p.2787-2798, 2015.

FERREIRA, J. L., ASSIS, A. S., **LOPES, F. B.,** MURPHY, T. W., SILVA, M. C.,

GARCIA, J. A. S., MARQUES, E. G. Reaction norms in weights at 365 days old in Nellore bulls in northern Brazil. ***Semina. Ciências Agrárias***, v. 36, p. 1, 2015.

FERREIRA, J. L. LIRA, T. S., **LOPES, F. B.,** GARCIA, J. A. S., LÔBO, R. B., SAINZ, R. Genotype-environment interaction of maternal influence characteristics in Nellore cattle bred in the Brazilian humid tropical regions by reaction norm. ***Semina. Ciências Agrárias***, v. 36, p. 2787-2798, 2015.

FRAGA, A. B., SILVA, F. L., HONGYU, K., SANTOS, D. S., MURPHY, T. W., **LOPES, F. B.** Multivariate analysis to evaluate genetic groups and production traits of crossbred Holstein × Zebu cows. ***Tropical Animal Health and Production***, v. 47, p. 1-6, 2015.

MAGNABOSCO, C. U., **LOPES, F. B.,** MIYAGI, E. S., LÔBO, R. B., SAINZ, R. D. Multivariate approach of inter-relationships among growth, consumption and carcass traits in Nellore cattle. ***Revista Ciência Agronômica***, v.41, p.168 - 176, 2014.

CASTRO, L. M., MAGNABOSCO, C. U., SAINZ, R. D., FARIA, C. U., **LOPES, F. B**. Quantitative genetic analysis for meat tenderness trait in polled Nellore cattle. ***Revista Ciência Agronômica***, v.45, p.393 - 402, 2014.

LOPES, F. B., MAGNABOSCO, C. U., MAMEDE, M. M. S., MOREIRA, L. C., SOUZA, F. M., ASSIS, A. S., BRUNES, L. C., NETO, M. D. F., NARCISO, M. G. Parameter and genetic trends for growth traits in polled Nellore cattle raised on pasture. ***Revista Científica Rural***, v. 16, n.1, p. 96-106, 2014.

LOPES, F. B., MAGNABOSCO, C. U., MAMEDE, M. M. S., MOREIRA, L. C., SOUZA, F. M., ASSIS, A. S., BRUNES, L. C., NETO, M. D. F., NARCISO, M. G. Estimates of genetic parameters and trends of weight gain from birth to 550 days of polled Nellore cattle. ***Revista Científica Rural***, v. 16, n.1, p. 75-88, 2014.

LOPES, F. B., MAGNABOSCO, C. U., MAMEDE, M. M. S., MOREIRA, L. C., SOUZA, F. M., ASSIS, A. S., BRUNES, L. C., NETO, M. D. F., NARCISO, M. G. (Co)variance estimation and genetic trend on pre-weaning weight in Nellore polled cattle. ***Revista Científica Rural***, v. 16, n.1, p. 62-74, 2014.

LOPES, F. B., MAGNABOSCO, C. U., MAMEDE, M. M. S., MOREIRA, L.C., SOUZA, F. M., ASSIS, A. S. BRUNES, L. C., NETO, M. D. F., NARCISO, M. G. Effect of heteroscedasticity on the estimative of (co)variances and genetic parameters for post-weaning weights in polled Nellore cattle. ***Revista Científica Rural***, v. 16, n.1, p. 46-61, 2014.

FERREIRA, J. L., **LOPES, F. B**., ASSIS, A. S., LÔBO, R. B. Climate spatialization and longitudinal data analysis of Nellore cattle raised in the states of Maranhão, Pará and Tocantins using univariate and multivariate approaches. ***Semina. Ciências Agrárias***, v.35, p. 2197-2210, 2014.

FERREIRA, J. L., **LOPES, F. B.**, EVERLING, D. M., BARBOSA, S. M., SILVA, M.

C., LIRA, T. S., FEREIRA, L. S. Impact of heterogeneity of residual variance on genetic estimates of Nellore cattle from the amazon biome. ***Revista Brasileira de Saúde e Produção Animal***, v.15, p.281 - 288, 2014.

PAUSE, A. G. S., FRANÇA, A. F. S., MIYAGI, E. S., DAMBROS, C. E., **LOPES, F. B**. Efficiency of nitrogen and phosphate fertilization on pearl millet cultivars. ***Ciência Animal Brasileira***, v.15, p.119 - 127, 2014.

FRANÇA, E. C., ASSIS, A. S., **LOPES, F. B.**, BARBOSA, S. M., ROSA, F.C., FERREIRA, J. L. Phenotypic characterization and decision factors in buying of organic chicken in the Araguaína city, Tocantins. ***Enciclopédia Biosfera***, v.10, p.840 - 851, 2014.

FERREIRA, J. L., **LOPES, F. B**., MARQUES, E. G., SILVA, M. C., ASSIS, A. S., PEREIRA L. S., NEPOMUCENO, L. L. Quantitative genetic study at production traits of Nellore cattle raised in Northern, Brazil. ***Revista Brasileira de Medicina Veterinária***, v. 36, p. 11-17, 2014.

LOPES, F. B., SILVA, M. C., MIYAGI, E. S., FIORAVANTI, M. C. S., FACO, O., McMANUS, C. M. Comparison of selection indexes for dairy goats in the tropics. ***Acta Scientiarum. Animal Sciences***, v.35, p.321 - 328, 2013.

GORDO, J. M. L., SILVA, MARCELO C., SOLANO, G. A., **LOPES, F. B.**, COSTA, M. F., ROCHA, F. E. C. R., FIORVANTI, M. C. S., SERENO, J. R. B. Cattle farmers: profile and speech content analysis while undergoing training to adopt artificial insemination in Goiás state, Brazil. ***Brazilian Journal of Animal Science***, v.42, p.162 - 167, 2013.

MARQUES, E. G., MAGNABOSCO, C. U., **LOPES, F. B.,** SILVA, M. C. Estimates of genetic parameters of growth characteristics, carcass and scrotal perimeter in Nellore cattle evaluated in weight gain performance tests in feedlot. ***Bioscience Journal***, v.29, p.159 - 167, 2013.

LOPES, F. B., MAGNABOSCO, C. U., MAMEDE, M. M. S., SILVA, M. C., MYIAGE, E. S., PAULINI, F., LÔBO, R. B. Multivariate approach for young bull selection from a performance test using multiple traits of economic importance. ***Tropical Animal Health and Production***, v. 45, p. 2, 2013.

SILVA, M. C., PAULINI, F., **LOPES, F. B**., FIORAVANTI, M. C. S., SERENO, J. R. B. Diversity of farming landscapes and production systems: a starting point to understand livestock conservation. ***Enciclopédia Biosfera***, v.9, p.1 - 24, 2013.

LIRA, T. S., FERREIRA, J., **LOPES, F. B.**, PEREIRA, L. S., FERREIRA, J. L. FERREIRA, J. L., LÔBO, R. B., SANTOS, G. C. J. Genetic trends for growth traits in Nellore cattle raised in the humid tropical region of Brazil. ***Ciência Animal Brasileira***, v.14, p.23 - 31, 2013.

SILVA, M. C., **LOPES, F. B**., VAZ, C. M. S., PAULINI, F., MONTESINOS, I. S., FIORAVANTI, M. C. S., McMANUS, C., SERENO, J. R. B. Morphometric traits

in Crioula Lanada ewes in southern brazil. ***Small Ruminant Research***, v.110, p.15 - 19, 2013.

NEPOMUCENO, L. L., LIRA, T. S., **LOPES, F. B.**, LÔBO, R. B., FERREIRA, J. L. Genotype-environment interaction for maternal effect traits in Nellore cattle from Maranhão, Mato Grosso and Pará states. ***Revista Brasileira de Saúde e Produção Animal***, v.14, p.269 - 276, 2013.

LOPES, F. B., MAGNABOSCO, C. U., PAULINI, F., MIYAGI, E. S., SILVA, M. C., LÔBO, R.B. Genetic analysis of growth traits in polled Nellore cattle raised on pasture in tropical region using Bayesian approaches. ***Plos One***, v.8, p.e75423, 2013.

SILVA, M. C., VAZ, C. M. S., **LOPES, F. B.**, McMANUS, C., FIORAVANTI, M. C. S., SERENO, J. R. B. Participation and empowerment: guidelines for on farm livestock conservation ***Archivos de Zootecnia***, v.62, p.93 - 104, 2013.

MARIANI, A. C. B., **LOPES, F. B.,** SOUZA, J. F., DIAS, F. E. F., ARRIVABENE, M., SOUZA, J. A. T., VIANA, G. E. N., CAVALCANTE, T. V. Influence of the estrus synchronization protocol and the size of the corpus luteum on the fertility rate in recipients implanted with embryos produced In Vitro. ***Comunicata Scientiae***, v.4, p.224 - 230, 2013.

SOLANO, G. A., SILVA, M. C., ROCHA, F. E. C., SILVA, D. C., **LOPES, F. B.**, FIORAVANTI, MARIA C. S., SERENO, J. R. B. Conservation issues for the traditional Campeiro horse breed in southern Brazil based on farmers´ speech analysis. ***Actas Iberoamericanas de Conservación Animal***, v. 3,8-14, 2013.

LIRA, T. S., PEREIRA, L. S., NEPOMUCENO, L. L., ALEXANDRINO, E., **LOPES, F. B**., LÔBO, R. B. Genotype-environment interaction of post-weaning weights in Nellore from Maranhão, Mato Grosso and Pará states. ***Acta Veterinaria Brasilica***, v.7, p.282 - 287, 2013.

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LOPES, F. B., CAVALCANTE, T. V., MARIANI, A. C. B. Evaluation of libido, seminal quality and testicular perimeter in Santa Ines rams in the north region of Tocantins. ***Pubvet***, v.03, p.1 - 8, 2009.

LOPES, F. B., CAVALCANTE, T. V., ROSANOVA, C, DIAS, F. E. F., SILVA, R. F. Economic analysis of the nutritional and sanitary management on sheep breeding in farms from the southern region of Tocantins state. ***Revista Caatinga***, v.21, p.43 - 50, 2008.

OTHER PUBLICATIONS

LOPES, F. B. **Computing G matrix using large genotype file**. Department of Animal Sciences, University of Wisconsin-Madison, WI, USA 2015.

LOPES, F. B., SILVA, M. C., McMANUS, C. M. **How to create maps of Brazil using SAS software?** Technical Series. Brasília - DF: INCT, Brazil, 2011.

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SILVA, M. C., McMANUS, C. M., SERENO, J. R. B., CASTRO, S., FIORAVANTI, M.C.S., **LOPES, F. B.,** VAZ, C., SEIXAS, L. **Crioula Lanada**. Technical series. Brasília, DF: INCT, Brazil, 2010.

SEMINARS GIVEN

- ***Genomic selection in animals and plants***. Brazilian Agricultural Research Corporation – Embrapa, Brasília, DF, Brazil, January 10th, 2016.

- ***Genomic prediction of meat tenderness using Bayesian regression models***. Brazilian Agricultural Research Corporation – Embrapa, Brasília, DF, Brazil, December 17th, 2015.

- ***Genomic prediction of meat tenderness using Bayesian regression models***. Department of Animal Sciences, UW-Madison, March 3th, 2015.

FUNDED PROJECTS

LOPES, B. F., BALDI, F., MAGNABOSCO, C. U., ROSA, G. J. M. Genome-wide selection and feature subset selection of markers by Bayesian networks in beef cattle using multiple-trait model. FAPESP/São Paulo State University, Jan 2018 – Dec 2018, US$ 55,500.00.

MAGNABOSCO, C. U., **LOPES, B. F.,** EIFET, E. C., ROSA, G. J. M., COSTA, M. F. O., et. al. Genetic characterization and selection for feed efficiency in Nellore cattle in the state of Goiás. FAPEG/EMBRAPA, Jan 2016 – Dec 2018, R$ 2,271,600.00.

LOPES, B. F., MAGNABOSCO, C. U., ROSA, G. J. M. Genomic selection for meat tenderness in Polled Nellore Cattle. CNPq/University of Wisconsin-Madison, Oct 2014 – Dec 2015, US$ 40,858.00.

MAGNABOSCO, C. U., **LOPES, B. F.,** REGITANO, L. C. A., ROSA, G. J. M., COELHO, A. S. G., et al. Genome-wide association study and genomic selection for meat tenderness in polled Nellore cattle. CNPq/EMBRAPA, Oct 2013 – Sept 2016, R$ 142,800.00.

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UNDERGRADUATE STUDENT COMMITTEES

- PAULO HENRIQUE FERREIRA GOMES & RENATO MELLO SOARES DE LIMA (BS). Analysis of online evaluations made by clients concerning Luxury and Superior class hotels in Goiania. 2014. Undergraduate in Hotel Management – Federal Institute of Education, Science and Technology of Goiás, Goiânia, Brazil.

- ADRIANA ALVES DE ANDRADE (BS). Quantitative genetics study using calculated weights at age 120 and 210 days in a Nellore herd from Embrapa Cerrados. 2011. Undergraduate in Zootechny – State University of Goias – UEG.

- RAFAEL PEDRO ZENY (BS). Biotecnologias da reprodução animal. 2008. Undergraduate in Animal Science - Universidade Federal do Tocantins – UFT.

- RONILDO PORTO DA SILVA (BS). National Program for Family Farming (PRONAF): A subsidy for family farming in Arraias, Tocantins. 2008. Undergraduate in Animal Science – Federal University of Tocantins – UFT.

- KEDMA NAYRA MARINHO (BS). Milk production in the State of Goias and the participation of Holstein cattle. 2008. Undergraduate in Animal Science - Universidade Federal do Tocantins - UFT

- CARLA REGINA ROCHA GUIMARÃES (BS). Estrous synchronization with different doses of eCG in Santa Ines sheep in the Southern region of Tocantins. 2008. Undergraduate in Animal Science - Federal University of Tocantins – UFT.

- REGINALDO PEREIRA DE OLIVEIRA (BS). Some aspects about mineral supplementation in dairy cattle raised at pastures. 2007. Undergraduate in Animal Science - Federal University of Goias – UFT.

- TATIANE VIEGAS BETTONI (BS). Simulation analysis to evaluate optimal cow replacement strategies.in breeding programs. 2007. Undergraduate in Animal Science - Federal University of Tocantins – UFT.

GRADUATE STUDENT COMMITTEES

- LETÍCIA MENDES DE CASTRO (PhD). Pathway analysis based on SNPs from a genome-wide association study of meat tenderness in polled Nellore cattle. 2016. Graduate Program in Animal Science - Federal University of Goiás, Goiânia, Brazil.

- GENEILDES CRISTINA DE JESUS SANTOS (MS). Genetic and non-genetic factors that influence growth traits in Nellore cattle in Northern Brazil. 2013. Graduate Program in Animal Science - Federal University of Goiás, Goiânia, Brazil.

- LETÍCIA MENDES DE CASTRO (MS). Identification and multiplication of genetic material aiming for meat tenderness in Polled Nellore cattle. 2012. Graduate Program in Animal Science - Federal University of Goiás, Goiânia, Brazil.

- THAYMISSON SANTOS DE LIRA (MS). Genetic and phenotypic trends in Nellore cattle raised in humid tropical regions of Brazil: contribution from the States of Maranhão, Mato Grosso, Para, Rondônia and Tocantins. 2011. Undergraduate in Medicine Veterinary – Federal University of Tocantins – UFT.

STUDENT SUPERVISIONS (concluded)

Co-supervisor of MS Students

- ALLINY SOUZA DE ASSIS CAVALCANTE. Characteristics of meat and carcass in Zebuine cattle using in vivo and post morten measures: meta-analyses. Animal Science Post-Graduation Program - PhD - Federal University of Goiás. 2017.

- FILIPE CHAGAS TEODÓZIO DE ARAÚJO. Estudo de (co)variâncias e tendência genética e fenotípica em características produtivas e reprodutivas em bovinos da raça Brahman. 2016. Animal Science Post-Graduation Program - Federal University of Alagoas.

- LEONARDO DE SOUSA PEREIRA. Heterogeneity of co-variances while estimating genetic parameters in Nellore Cattle. 2012. Post-Graduation Program, Animal Science in the Tropics (Federal University of Tocantins).

- THAYMISSON SANTOS DE LIRA. Effects of the interaction between genotype and environment on productive traits of Nellore Cattle. 2012. Post-Graduation Program - Animal Science in the Tropics - Federal University of Tocantins).

- GENEILDES CRISTINA DE JESUS SANTOS. Causes of variation on growing traits in Nellore cattle in the North region of Brazil. 2011. Post-Graduation Program, Animal Science in the Tropics (Federal University of Tocantins).

Co-supervisor of PhD Students

- BIANCA FERREIRA OLIVIERI. Principal component analyses and causal networks on fatty acid profiles in Nellore cattle. Animal Breeding Post-Graduation Program - PhD – São Paulo State University. 2017.

- FLÁVIA MARTINS DE SOUZA. Breeding goals and economic selection index in livestock system in Nelore cattle. Animal Science Post-Graduation Program - PhD - Federal University of Goiás. 2016.

- LETÍCIA MENDES DE CASTRO. Pathway analysis based on SNPs from a genome-wide association study of meat tenderness in polled Nellore cattle. 2016. Animal Science Post-Graduation Program - PhD - Federal University of Goias.

- MARIANA M. SANTOS MAMEDE. Mating schedules aiming for meat tenderness in Nellore Cattle. 2012. Animal Science Post-Graduation Program - PhD - Federal University of Goias.

PARTICIPATION IN SCIENTIFIC AND TECHNICAL EVENTS

- EAAP - 69th Annual Meeting of the European Federation of Animal Science, 2018, Dubrovnik, Croatia - 2018.
- 4th Meeting of Technical Consultants of the National Association of Breeders and Researchers – ANCP (Brazil, 2012).
- 18th National Seminar of the National Association of Breeders and Researchers - ANCP – "Equilibrium in the Fields: Environment, Productivity and Family". 2012.
- 9th Brazilian Buiatrics Congress (Poster presentation, 2011).
- Workshop on Genetic Improvement for Bio-Economic Sustainability in the Cerrado Ecosystem in Central Brazil. 2011.
- 10th International Conference on Goats, (Poster presentation, 2010).
- 3rd Workshop on Intensification of Agro Systems for Beef Cattle Production. 2010.
- 2nd Amazon Milk Event – Symposium Concerning Milk Production in the Brazilian Amazon. 2008.
- 2nd Scientific Initiation Seminar in the Federal University of Tocantins. 2006.
- 2nd Extension and Research Forum in Araguaína, Tocantins. 1st Post-Graduation Forum; 1st Extension and Research Unified Meeting in Tocantins – 2004.

ORGANIZATION OF SCIENTIFIC OR TECHNICAL EVENTS

- 5th Animal Science week: Symposium on Goat and Sheep Production in Northern Brazil. 2008.
- Workshop on Genetic Improvement for Bio-economic Sustainability in the Brazilian Cerrado Ecosystem. 2011.

ABSTRACTS (proceedings)

Published 12 papers as a first author and 58 papers as co-author (The 70 papers can be visualized at: http://lattes.cnpq.br/1399785191420919).

ORAL PRESENTATIONS

- ***Improving Prediction Accuracy of Meat Tenderness in Nelore Cattle using Artificial Neural Networks***. EAAP - 69th Annual Meeting of the European Federation of Animal Science, 2018, Dubrovnik, Croatia.

- ***A study on spatial variation concerning physical, social and economic factors that interfere on goat production in Brazil***. 8th Research, Education and Extension Congress, 2011, Goiania, Brazil. Annals of the 63rd Annual Reunion of the Brazilian Society for Scientific Progress - SBPC, 2011.

- ***Economic weights for selection objectives in dairy goat systems in Brazil***. 10th International Conference on Goats, 2010, Recife. Brazil.

- ***Libido tests in Santa Ines rams raised in the municipality of Araguaina, Tocantins, Brazil***. 2nd Scientific Initiation Seminar of the Federal University of Goias, 2008. Palmas, Brazil.

JOURNAL REVIEWER

- Acta Scientiarum (Animal Sciences)
- Brazilian Journal of Animal Health and Production
- Colombian Journal of Animal Science and Veterinary Medicine
- Journal of Animal Breeding and Genetics
- Pesquisa Agropecuária Brasileira (Online)
- Tropical Animal Health and Production

JOURNAL EDITOR

- Breeding & Genetics Section, *Animal Journal*

REVIEWER OF PROJECTS RELATED TO FOMENTATION AGENCIES

- JSC "NATIONAL CENTER OF SCIENCE AND TECHNOLOGY EVALUATION"

  2013 - present Peer-reviewer of scientific and technical research proposals submitted for grants of the Committee of Science of the Ministry of Education and Science of the Republic of Kazakhstan.

Fernando Brito Lopes

Curriculum Vitae

QR Code