Jose Franco Da Cunha Leme Filho

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Southern Illinois University
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CAREER OBJECTIVES

- To develop information on plant cultivation and precision agriculture to improve the productivity and sustainability of controlled and traditional agricultural systems

EDUCATION

Doctor of Philosophy (Ph.D.) 2016 – 2020
School of Plant and Environmental Sciences (SPES)
Virginia Polytechnic Institute and State University, Blacksburg – VA

- ❖ Dissertation Title: An integrated plant nutrition system (IPNS) for corn and cannabis in the Mid-Atlantic USA.
- ❖ Dissertation Advisor: Dr. Wade E. Thomason
- ❖ Concentration in Cropping Systems and Plant Nutrition Management

Master of Science (MSc.) 2014 – 2016
Department of Crop, Soil and Environmental Sciences
Auburn University, Auburn – AL

- ❖ Thesis: Evaluation of irrigation scheduling methods and nitrogen fertilization effect on corn production in Alabama.
- ❖ Thesis Advisor: Dr. Brenda Ortiz
- ❖ Concentration in Precision Agriculture and Soil Fertility Management

Bachelor of Science (Hons) in Agronomy 2005 – 2011
Universidade Estadual de Londrina, Londrina, Parana, Brazil

- ❖ Thesis: Comparing the rate of application of pesticides with the size and number of drops per unit of area. EAIC – Annual Meeting of Scientific Initiation

PROFESSIONAL EXPERIENCES

Assistant Professor of Cannabis Biology and Cultivation Systems *Aug 2021 – Present*
Southern Illinois University Carbondale, IL
School of Agricultural Sciences / School of Biological Sciences

- Research, teaching, and outreach in the areas of cannabis biology and controlled environment agriculture, nutraceutical/pharmaceutical biology, and cultivation systems
- Research and teaching collaborations within the School of Agricultural Sciences, School of Biological Sciences, School of Medicine, and the SIU – Cannabis Science Center
- Develop and maintain a vigorous externally-funded research program, maintain a record of scholarly productivity by initiating both independent research and research collaborations in the cannabis area leading to publications in national peer-reviewed journals
- Advise and mentor graduate and undergraduate researchers

- Teach undergraduate and graduate courses level that contribute to the teaching mission of the Schools of Agricultural Sciences and Biological Sciences including contribution to courses required for the Intensive Controlled-Environment Plant Production Certificate (Cannabis Production)
- Develop an outreach program to serve the emerging nutraceutical/pharmaceutical industry and agriculture in the region
- Development of techniques to maximize cannabinoids, non-cannabinoids (terpenes and flavonoids), fiber, and grain productivity/quality via plant physiological, biochemical, and agricultural approaches

Postdoctoral Associate *May 2020 – Aug 2021*
Virginia Polytechnic Institute and State University Blacksburg, VA
School of Plant and Environmental Sciences

- Work closely with farmer collaborators, the faculty advisor, technical staff, and students to design the experiments, manage field operations, collect data, and synthesize results for scientific publication and dissemination through Extension outlets
- Assessment of the use of foliar Zn products on Zn uptake and corn performance
- Coordinating the cover crop and soil health projects associated with the VA portion of the USDA-NIFA SAS project "Thriving Agricultural Systems in Urbanized Landscapes"
- Managing the cannabis project (indoor and outdoor conditions)

Graduate Research Assistant *Aug 2016 – May 2020*
Virginia Polytechnic Institute and State University Blacksburg, VA
School of Plant and Environmental Sciences

- Design and implement field experiments, greenhouse studies and growth chamber tests including corn, soybeans, wheat, barley, mung-beans, cover crops and cannabis
- Apply fertilizers and chemicals in the field
- Collect and process soil, grain, and forage samples and perform chemical analysis
- Collect, manage and analyze experimental data
- Interpret and write manuscripts and reports
- Present results at conference meetings and field days
- Experience on cannabis/industrial hemp management (greenhouse and field trials)
- Write proposals and promote partnership with the industry to obtain financial support

Graduate Research Assistant *May 2014 – Aug 2016*
Auburn University Auburn, AL
Department of Crop, Soil and Environmental Sciences

- Design and implement corn field experiments
- Manage the variable rate irrigation system in the experimental sites using sensors-based technology
- Install and maintain soil moisture sensors assessed in the research
- Operate the irrigation scheduling system based on the data wirelessly transmitted by the soil moisture sensors
- Set up the irrigation events and keep track of the hourly moisture records taken by the sensors
- Collect and process soil, grain, and forage samples and perform chemical analysis
- Develop soil water retention curves using pressure plate and vacuum system with gauges

Trading Supervisor *Jan 2011 – Aug 2013*
Cargill Inc. Cascavel and Maringa, Parana, Brazil

- Market monitoring and contract logistics operations
- Negotiation with customers
- Survey and analysis of the market potential of crops
- Crop status monitoring and periodical crop scouting
- Data analysis and production forecasting for soybean, corn, and wheat in the region
- Commodity trading and consulting

Short-Term Research Scholar *Apr 2013 – Jun 2013*
Oklahoma State University Stillwater, OK
Department of Plant and Soil Sciences
Advisor: Dr. Jeff Edwards. Small Grains Extension Specialist.

- Help graduate students in their research projects
- Monitoring wheat variety trials and organizing field days at several OSU research stations. The main research project was based on estimating wheat grain yield potential and soil water dynamics in winter wheat.

Trainee *Nov 2008 – Mar 2009*
Sun Harvest Citrus Fort Myers, FL

- Traineeship in the orange production chain (farm-to-table)
- Marketing of orange juice

Trainee *Mar 2008 – Nov 2008*
Byron and Paulson Farms Edinburg, ND

- General farm management (Plowing, Planting, Spraying, Harvesting, Machinery maintenance).

UNDERGRADUATE EXPERIENCES

Cropping Systems Mar 2007 – Nov 2007
Universidade Estadual de Londrina, Londrina, Parana, Brazil

- Research project: Selection and retention of maize landraces for smallholders.
- Responsibilities: Collect soil and plant samples all over Parana State, analyze samples for chemical properties and maintain good records.

Animal Science Mar 2006 – Nov 2006
Universidade Estadual de Londrina, Londrina, Parana, Brazil

- Research project: Potential absorption of different feed mixtures for beef production.
- Responsibilities: Feed preparation for the fistulated cows, manage animals in the feedlot, collect and analyze the feed samples inside the rumen fistulas.

Consoagro (Undergraduate consulting organization led by students) Aug 2006 – Dec 2011
Universidade Estadual de Londrina, Londrina, Parana, Brazil

- Responsibilities: co-Leader, consulting to regional farmers, and organizing field days.

TEACHING EXPERIENCES

Teaching Appointment
Southern Illinois University
College of Agricultural, Life and Physical Sciences Carbondale, IL
HORT 350 Controlled Environment Agriculture (CEA) Present
HORT 440 Applied Greenhouse Management Present
HORT 481 Cannabis Production and Supply Chain Present
HORT 482 Cannabis Practicum Present

PLB 590 Introduction to Research Present
CSEM / HORT 409 Crop Physiology Present
HORT 220 General Horticulture Present

Teaching Assistant (full semester)
Virginia Polytechnic Institute and State University
School of Plant and Environmental Sciences Blacksburg, VA
CSES 5744G Advanced Managed Ecosystems Services and Sustainability Jan 2018 – May 2018
CSES 1016 Foundations of Environmental Soil Chemistry Jan 2018 – May 2018

Guest Lectures
CROP 475/575 Principles of Cannabaceae Production: Hemp and Hops – Oregon State University
Oct 10, 2021
SBIO 3994 Industrial Hemp – Undergraduate Research (Virginia Tech) Feb 13, 2019
II Virginia Tech Hemp Forum May 8, 2019

STUDENT TRAINING

Graduate students (as a major professor/committee member)
Southern Illinois University
College of Agricultural, Life and Physical Sciences Carbondale, IL
- Spencer Schuchman (Masters's Degree) Graduation – May 2023
- Anthony Ally-Novak (Master's Degree) Graduation – May 2024
- Brian Gandy (Ph.D.) Graduation – May 2026
- Bryan Foster (Ph.D.) Graduation – May 2025
- Hunter Christenson (Master's Degree) Graduation – August 2024

Graduate students training/mentoring
Virginia Polytechnic Institute and State University
School of Plant and Environmental Sciences Blacksburg, VA
- Cameron Bermand (Master's Degree) Aug 2018 – Present
- Daniel Chongo (visiting scholar from Mozambique) Jan 2017 – Dec 2017
- Luke Boyd (master's degree)
  Aug 2016 – Jun 2018

Undergraduate students training
Virginia Polytechnic Institute and State University
School of Plant and Environmental Sciences Blacksburg, VA
- Paul Moore
- Aaron Price May 2019 – May 2021
- Lauren Seeley May 2019 – May 2021
- Meaghan Brown May 2019 – May 2021
- Carter Phillips May 2019 – May 2021
- Allison Magnant Aug 2016–Jun 2018
- Carolina Lancaster Aug 2016–Jun 2017

Auburn University
Crop, Soil and Environmental Sciences Auburn, AL
- Gustavo de Paulo Souza Mar 2015 – May 2016
- Edgar de Camargo Mar 2015 – May 2016

SUPERVISING/TRAINING EXPERIENCE

Research Appointment Present
Southern Illinois University
College of Agricultural, Life and Physical Sciences

- Supervise four graduate students working on areas of controlled environment agriculture, plant secondary metabolites, nutraceutical/pharmaceutical biology, and growing practices. We ar developing techniques to maximize cannabinoids, non-cannabinoids (terpenes and flavonoids), fiber, and grain productivity/quality via plant physiological, biochemical, and agricultural approaches.

Study Abroad - Ireland Mar 2020
Virginia Polytechnic Institute and State University
Global Education Office / Outreach and International Affairs Blacksburg, VA

- Led a study abroad program in Ireland during the Spring Break 2020. The group of 11 students under my supervision was able to learn about Irish history and culture and the environmental impacts of agriculture in the country.

Training/Tour
Southern Illinois University
School of Forestry and Horticulture / School of Biological Sciences Carbondale, IL

- AerosourceH – Metropolis IL (October/28/2021)
  The students from Controlled Environment Agriculture and Greenhouse Management (total of 21 students) were able to learn more about the hybrid indoor cultivation system (Hydroponic + Aeroponic) of cannabis and vegetable such as tomato and lettuce. Dr. Buck Hales, Dr. Katherine Hales, Lisa Doyle and other member of the community also attended this tour.
- AerosourceH – Kevil Ky (October/28/2021)
  The students from Controlled Environment Agriculture and Greenhouse Management (total of 21 students) were able to learn more about CBD and other cannabinoids extraction procedures. Dr. Buck Hales, Dr. Katherine Hales, Lisa Doyle and other member of the community also attended this tour.
- AerosourceH – Metropolis IL (October/07/2022)
  The students from Controlled Environment Agriculture and Greenhouse Management (total of 21 students) were able to learn more about the hybrid indoor cultivation system (Hydroponic + Aeroponic) of cannabis and vegetable such as tomatoes and lettuce.

Virginia Polytechnic Institute and State University
School of Plant and Environmental Sciences Blacksburg, VA

- Coordinated a training/tour in a CBD extraction facility located in Ohio. The department provided a financial support to cover transportation and lodging.
- The total of 10 undergraduate students were able to learn the different methods of CBD extraction and how to operate a CO_2 extraction equipment. (Spring 2020)

Shadowing Student Jan 2019
Virginia Polytechnic Institute and State University
School of Plant and Environmental Sciences Blacksburg, VA

- Undergraduate student shadowed my activities during a greenhouse study testing the effects of biostimulants on cannabis in the Spring 2019.
- The student was able to learn some data collection procedures and laboratory analysis

SKILLS

- Languages: fluent in English and Portuguese; intermediate in Spanish
- Geographic Information System: ArcMap software
- Statistical software: SAS and JMP software
- Data Management: Microsoft Access
- Image analysis software: Canopeo
- Operation of instruments: LICOR-191 Line Quantum Sensor, GreenSeeker optical sensor and CropCircle, handheld GreenSeeker, SPAD and AtLeaf Chlorophyll meter, SpecWare for WatchDog weather station, JAZ Ocean Optic spectrometer, Fluorometer (Opti-science - OS1p)
- Laboratory instruments: LECO/Elementar-vario Max CN dry combustion analyzer, Lachat (QuickChem 8500), X-ray diffraction (XRD) for soil mineral, FOSS–XDS Near Infrared (NIR) analyzer, Inductive Coupled Plasma–Optical Emission Spectrometry (ICP–OES), Milton Roy Spectronic 401 spectrophotometer

PROFESSIONAL / EXTENSION ACTIVITIES

Podcasts

- CannabisMan Podcast Sep 2022
- Chillinois Podcast Aug 2022

International Events

- American Moroccan Agricultural, Health, and Life Sciences Conference Dec 2022
  The First Cannabis & Hemp Sciences and Entrepreneurship Day
  Oral presentation: Effect of Biostimulants on Cannabis Productivity and Soil Microbial Activity Under Outdoor Conditions

Annual Report / Board Meetings

- Environment Virginia Symposium (Mar 18, 2018 Lexington, VA)

Extension / Field Days

- 2020 Virginia Tech Virtual Hemp Field Day (Sep 10, 2020 Blacksburg, VA)
- 2019 Virginia Tech Hemp Field Day (Aug 30, 2019 Blacksburg, VA)
- 2018 Ag Expo (Aug 5, 2018, Champlain, VA)
- 2014 Ag Discovery Adventure (Sep 20, 2014 Shorter, AL)
- 2015 Ag Discovery Adventure (Sep 19, 2015 Shorter, AL)

Workshops / Trainings

- 2022 Hemp / Cannabis Symposium at SIUC September 17, 2022
- 2014 Alabama Row Crops Short Course (Dec 13 – 14, 2014 Auburn, AL)
- 2015 Alabama Row Crops Short Course (Dec 13 – 14, 2015 Auburn, AL)

GRANTS

- Department of Energy / Office of Energy Efficiency and Renewable Energy Feb 2023
  Purpose: Reducing Agricultural Carbon Intensity and Protecting Algal Crops

Oxidative Hydrothermal Dissolution of Agricultural Biowaste for Climate Smart Carbon Sequestration and Biostimulation of Fuel Feedstocks (proposal submitted) Jan 2023

- National Science Foundation (proposal submitted)
  Purpose: MRI: Track 1 Acquisition of a Shimadzu LCMS-9030 with Nexera XS UHPLC and Photodiode Array Detector for Collaborative Research and Student Training
- $10,000 grant from Bion Environmental Technologies Oct 2021
  Purpose: Evaluate a new organic nitrogen fertilizer
- $11,000 grant from Microbiol Indrustria e Comercio LTDA Apr 2019
  Purpose: Evaluate a new biofertilizer product.
- $11,000 grant from Microbiol Indrustria e Comercio LTDA Apr 2018
  Purpose: Evaluate a new biofertilizer product.
- $5,000 grant from San Jacinto Environmental Supplies Apr 2017
  Purpose: Evaluate some biostimulant products.
- $11,000 grant from Microbiol Indrustria e Comercio LTDA Mar 2017
  Purpose: Evaluate a new biofertilizer product.

AWARDS

- Graduate Student oral session awards (virtual): Agronomic Production Systems Division - Industrial Hemp Production (Grain/Fiber and CBD)
  Nov 2020
  2nd place at ASA-CSSA-SSSA Conference, Phoenix, AZ ($100)
- Graduate Student poster competition awards: Biomedical, Health-Beneficial and Nutritionally Enhanced Plants Division Nov 2019
  3rd place at ASA-CSSA-SSSA Conference, San Antonio, TX ($100)
- $3,200 Scholarship award - William T. Steele, Jr. June 2019
- $3,100 Scholarship award - David J. Spence June 2019
- $700 Graduate Scholarship award - Celeste W. Reynolds June 2019
- $1,500 Scholarship award - Charles I. Rich Memorial May 2019
- Graduate Student poster competition awards: Soil Biology and Biochemistry Division Nov 2017
  3rd place at ASA-CSSA-SSSA Conference, Tampa, FL ($200)

AFFILIATIONS AND MEMBERSHIPS

- American Society of Horticultural Science May 2021 – Present
- American Society of Agronomy (ASA) May 2014 – Present
- Soil Science Society of America (SSSA) May 2014 – Present
- Crop Science Society of America (CSSA**)** May 2014 – Present

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PRESENTATIONS

1) **Da Cunha Leme Filho**, J. F., W. E. Thomason, B. Chim, C. Bermand and A.A. Diatta. The use of biostimulants on cannabis (CBD) under outdoor conditions. Presented at 2020 ASA-CSSA-SSSA International Annual Meetings, Phoenix, AZ, November 2020 (virtual)

2) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. Are humic products + biofertilizers increasing cannabis growth? Presented as oral presentation and poster at 2019 ASA-CSSA-SSSA International Annual Meetings, San Antonio, TX, November 2019

3) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. An Integrated Plant Nutrition System (IPNS) with biostimulants on Cannabis sativa 'Cherry Kandy' development. Presented as

poster at 2019 ASA-CSSA-SSSA International Annual Meetings, San Antonio, TX, November 2019

4) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. Corn response to an integrated plant nutrition system with humic acid and biofertilizers. Presented as poster at 2018 ASA-CSSA-SSSA International Annual Meetings, Baltimore, MD, November 2018.

5) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. An integrated plant nutrition system (IPNS) for corn in Virginia. Presented as poster at 2018 School of Plant and Environmental Sciences Research Symposium, Blacksburg, VA, February 2018.

6) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. An integrated plant nutrition system (IPNS) for corn-soybean rotations in the Mid-Atlantic USA. Presented as poster at 2017 ASA-CSSA-SSSA International Annual Meetings, Tampa, FL, November 2017.

7) **Da Cunha Leme Filho**, J. F., W. E. Thomason, and B. Chim. Soft red winter wheat response to MESZ fertilizer in Virginia. Presented as poster at 2017 Southern Regional Branch ASA, Mobile, AL, February 2017.

8) **Da Cunha Leme Filho**, J. F., B. Ortiz, M. Dougherty, and G. Pate. Sensor-based irrigation scheduling can help growers to increase profitability and environmental stewardship. Presented as poster at Auburn Research Student Symposium, Auburn, AL, April 2016.

9) **Da Cunha Leme Filho**, J. F., B. Ortiz, M. Dougherty, K. S. Balkcom, and T. Knappenberger. Irrigation scheduling on corn to increase profitability and environmental stewardship. Presented at 2016 Southern Regional Branch ASA, San Antonio, TX, February 2016.

PEER-REVIWED JOURNAL PUBLICATIONS

1) **Da Cunha Leme Filho**, J. F, W. E. Thomason, G. Evanylo, X. Zhang, M. Strickland, B. Chim, C. Bermand, and A. A. Diatta. 2020. Corn response to an integrated plant nutrition system (IPNS) with humic acid and biofertilizers. Journal of Agricultural Science. DOI: 10.5539/jas.v12n8p25

2) **Da Cunha Leme Filho**, J. F., W. E. Thomason, G. Evanylo, X. Zhang, M. Strickland, B. Chim, and A. A. Diatta. 2020. The synergistic effects of humic substances and biofertilizers on plant development and microbial activity: a review. International Journal of Plant and Soil Science. DOI: 10.9734/IJPSS/2020/v32i730306

3) Diatta, A.A., W.E. Thomason, O. Abaye, T.L. Thompson, M.L. Battaglia, L.J. Vaughan, M. Lo, and J.F. **Da Cunha Leme Filho**. 2020. Assessment of nitrogen fixation by mungbean genotypes in different soil textures using ^{15}N natural abundance method. Journal of Soil Science and Plant Nutrition. DOI: 10.1007/s42729-020-00290-2

4) **Da Cunha Leme Filho**, J. F., B. Ortiz, D. Damianidis, M. Dougherty, K. S. Balkcom, and T. Knappenberger. 2020. Irrigation scheduling to promote corn productivity in central Alabama. Journal of Agricultural Science. DOI: 10.5539/jas.v12n9p34

5) **Da Cunha Leme Filho**, J. F., W. E. Thomason, G. Evanylo, X. Zhang, M. Strickland, B. Chim, and A. A. Diatta. 2020. Biochemical and physiological responses of Cannabis sativa to an integrated plant nutrition system. Agronomy Journal. DOI: 10.1002/agj2.20400

6) **Da Cunha Leme Filho**, J. F., B. Ortiz, M. Dougherty, D. Damianidis, K. S. Balkcom, and T. Knappenberger. 2020. Evaluation of two irrigation scheduling methods and nitrogen rates on corn production in Alabama. International Journal of Agronomy. DOI: 10.1155/2020/8869383

7) **Da Cunha Leme Filho**, J. F., W. E. Thomason, G. Evanylo, X. Zhang, M. Strickland, B. Chim, and A. Diatta. 2020. An integrated plant nutrition system for corn in the Mid-Atlantic USA. Journal of Plant Nutrition. DOI: 10.1080/01904167.2020.1849298

8) Swoish, M., J. F. **Da Cunha Leme Filho**, M. S. Reiter, R. D. Stewart, and W.E. Thomason. 2021.Trinexapac-Ethyl rate and timing impact on malt barley production in Virginia. Crop, Forage and Turfgrass Management. DOI: 10.1002/cft2.20101

9) Swoish, M., J. F. **Da Cunha Leme Filho**, M. S. Reiter, J. B Campbell, and W.E. Thomason. 2022. Comparing satellites and vegetation indices for cover crop biomass estimation. Computers and Electronics in Agriculture. DOI: 10.1016/j.compag.2022.106900

PUBLICATIONS IN PREPARATION

10) **Da Cunha Leme Filho**, J. F., W. E. Thomason, B. Chim, C. Bermand, and A.A. Diatta. The use of biostimulants on cannabis under outdoor conditions. To be submitted in March 2023 to Journal of Soil Science and Plant Nutrition.

11) Diatta, A. A., O. Abaye, W.E. Thomason, L. J. Vaughan, M. L. Battaglia, J. F. **Da Cunha Leme Filho**, M. Lo., and T. L. Thompson. Potential of mungbean [Vigna radiata (L) Wilczek] in Sub-Saharan Africa: a review. To be submitted in March 2023 to Symbiosis.

12) Diatta, A. A., O. Abaye, W. E. Thomason, L. J. Vaughan, M. L. Battaglia, J. F. **Da Cunha Leme Filho**, M. Lo., and T. L. Thompson. Nitrogen fixation by mungbeans genotypes in different soil textures. To be submitted in May 2023 to Agriculture, Ecosystems & Environment.

13) Munir, M., K. Leonberger., K. Kesheimer., M. Bolt., M. Zuefle., S. I. Rondon., J.F. **Da Cunha Leme Filho**., C. D. Smart., A. Collins., A. Garfinkel., N. Gauthier. Occurrence and Distribution of Common Diseases and Pests of US Cannabis: A Survey. Submitted in January 2023 to Plant Health Progress (accepted).

EXTRA-CURRICULAR ACTIVITIES

- Treasurer and co-Founder of the Brasil Club at Virginia Tech (Brazilian Student Association).
- Brazilian Student Association at Auburn University
- Team-Handball (European Handball) player at Auburn University Club.