Aaron I. Plex Sulá

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Research areas – Global pathogen diversity; geographic pest and pathogen risks; global biosecurity, surveillance, and mitigation systems; artificial intelligence (AI); geographic information systems (GIS); invasion and epidemic networks; landscape epidemiology.

Affiliations

- Department of Plant Pathology, University of Florida.
- Global Food Systems Institute, University of Florida.
- Emerging Pathogens Institute, University of Florida.

Education

2022 – 2026 **University of Florida, Gainesville, Florida – College of Agricultural and Life Sciences**
PhD in Plant Pathology (GPA 4/4)
Expected graduation: May 2026

2016 – 2019 **EAP Zamorano – Panamerican School of Agriculture (Escuela Agrícola Panamericana)**
University of Zamorano, Honduras
BS in Agricultural Sciences and Livestock Production (GPA 3.8/4)

2013 – 2015 **ENCA National School of Agriculture (Escuela Nacional Central de Agricultura), Guatemala**

Professional experience

2020 – 2025 **Graduate Research Assistant in Dr. Karen Garrett's lab**

- Developed an ensemble of machine-learning algorithms to assess the global and local environmental suitability of invasive plant pests in R
- Co-developed the new R package geohabnet to evaluate habitat connectivity risk for the spread of pathogens, pests, and invasive species globally and nationally
- Developed a new trade network analysis to evaluate international pest introduction risk globally and nationally
- Constructed the new global dataset Pathogenica compiling the country-level distribution and seven epidemiological traits of 1518 plant pathogen species
- Co-conducted an expert knowledge elicitation to evaluate geographic risks of 33 major wheat diseases and pests in Pakistan
- Co-instructed two CURE (Course-based Undergraduate Research Experience) courses at the University of Florida

2019 **Research Intern in Dr. Gary Vallad's lab**

- Set up *in-vitro,* greenhouse, and field trials to evaluate the efficacy of fumigants on Fusarium wilt of tomato (*Fusarium oxysporum* f. sp. *lycopersici*)
- Set up experiments for *ex vivo* cultivation of cucurbit downy mildew

(*Pseudoperonospora cubensis*)
- Conducted visual screening of grey leaf spot of tomato (*Stemphylium lycopersici*) on greenhouse trials

2010 – 2015 **Smallholder farmer, Guatemala**
- Produced tomatoes, maize, green and dry beans, bell peppers, pea, tomatillo, and *Cucurbita pepo* in a small-scale family business.
- Acquired in-field experience with chemical control of major diseases and pests of the crops listed above (e.g., late blight of tomato, damping-off, thrips, whiteflies).

2015 **Assistant manager at AGROBELSA, HAME, Guatemala**

Was co-manager of a 10-ha farm for banana production in AGROBELSA
- Conducted on-farm monitoring activities for black sigatoka (*Mycosphaerella fijiensis*), banana spider mite (*Olygonichus* sp.), and banana weevil (*Cosmopolites sordidus*)
- Conducted chemical control activities for Moko disease of bananas (*Ralstonia solanacearum*)

2014-2015 **Manager of a small company, ENCA, Guatemala**
- Developed a small-scale business for greenhouse production and commercialization of the mushroom *Pleurotus ostreatus* (16% net profit)

2013-2019 **Learning by doing programs offered by Zamorano and ENCA**

These programs included extensive field and laboratory experience in the following four components
- Environmental sciences (e.g., forest management, organic agriculture)
- Agricultural sciences (e.g., pest management, plant propagation)
- Agribusiness (e.g., cost-benefit analysis, marketing)
- Food sciences (e.g., dairy processing, honey processing)

Grant proposals (2)

- **Plex Sulá AI,** Garrett KA**.** Global biogeography of 1518 pathogens in major terrestrial agroecosystems. *NSF 21-621*: *Human-Environment and Geographical Sciences (HEGS) Program – Doctoral Dissertation Research Improvement (DDRI).* Submitted on September 10, 2025: $30,700.
- Stanley J, Fairbanks K, Gaskin A, Garrett KA, **Plex Sulá AI**. Network analysis of regulatory pests in Florida: human-mediated transport and increased surveying efficiency. *Plant Protection Act Section 7721* (*PPA 7721) – Plant Pest and Disease Management and Disaster Prevention Program (PPDMDPP)*. Submitted on August 6, 2025: $180,184.

Publications

Journal articles (9)

- Robledo J, **Plex Sulá AI**, Jaworski L, Mouafo-Tchinda RA, Andersen Onofre KF, Thomas-Sharma S, Garrett KA. 2025. Expert knowledge elicitation: Accessing the big data in experts' brains. *Phytopathology*. DOI: 10.1094/PHYTO-06-25-0220-FI
  - Contributions – I co-led this research project, from project conceptualization to submission to the journal.
- **Plex Sulá AI**, Orozco J. 2025. Contribution to the knowledge of Honduran flesh flies (Diptera: Sarcophagidae). *Biota Neotropica* 25(2): e20241740. DOI: 10.1590/1676-0611-BN-2024-1740
  - Contributions – I co-led this research project, from project conceptualization to submission to the journal.
- Etherton BA, **Plex Sulá AI**, Mouafo-Tchinda RA, Kakuhenzire R, Kassaye HA, Asfaw F, Kosmakos VS, McCoy RW, Xing Y, Yao J, Sharma K, Garrett KA. 2025. Translating Ethiopian potato seed

networks: Identifying strategic intervention points for managing bacterial wilt and other diseases. *Agricultural Systems* 222: 104167. DOI: 10.1101/2024.02.12.579952
    - Contributions – I constructed the trade network analysis to evaluate the potential international (re)introduction of *Ralstonia solanacearum* race 3 biovar 2 in Ethiopia and globally (Fig. 5).
    - Contributions – I participated in the project conceptualization, interpretation of results, writing the manuscript, and responding to reviewers.
- **Plex Sulá AI**, De Col V, Etherton BA, Xing Y, Agarwal A, Ramic L, Bonaiuti E, Friedmann M, Proietti C, Thiele G, Garrett KA. 2024. What traits of collaboration networks are associated with project success? The case of two CGIAR agricultural research programs for development. *Agricultural Systems* 219: 104013. DOI: 10.1016/j.agsy.2024.104013
    - This publication is Chapter 1 of my PhD dissertation.
    - Contributions – I led this research project, from conceptualization to final publication.
- Etherton BA, Choudhury RA, Alcalá-Briseño RI, Mouafo-Tchinda RA, **Plex Sulá AI,** Choudhary M, Adhikari A, Lin Lei S, Kraisitudomsook N, Robledo Buritica J, Cerbaro VA, Ogero K, Cox CM, Walsh SP, Andrade-Piedra J, Omondi BA, Navarrete I, McEwan MA, Garrett KA. 2024. Disaster plant pathology: Smart solutions for threats to global plant health from natural and human-driven disasters. *Phytopathology* 114(5): 837-1149. DOI: 10.1094/PHYTO-03-24-0079-FI
    - Contributions – I generated the global maps of vulnerability of plant landscapes to extreme events based on historical event records (Fig. 3).
    - Contributions – I participated in the project conceptualization, writing the manuscript, and responding to reviewers.
- Alcalá-Briseño RI, Batuman O, Brawner J, Cuellar WJ, Delaquis E, Etheron BA, French-Monar RD, Kreuze J, Navarrete I, Ogero K, **Plex Sulá AI,** Yilmaz S, Garrett KA. 2023. Translating virome analyses to support biosecurity, on-farm management, and crop breeding. *Frontiers in Plant Science* 14:1056603. DOI: 10.3389/fpls.2023.1056603
    - Contributions – I generated the map of international movement of germplasm materials for potato, sweetpotato and Andean roots from the International Potato Center (Fig. 5).
    - Contributions – I participated in the project conceptualization, writing the manuscript, and responding to reviewers.
- Etherton BA, Choudhury RA, Alcalá-Briseño RI, Xing Y, **Plex Sulá A,** Carrillo D, Wasielewski J, Stelinski L, Grogan KA, Ballen F, Blare T, Crane J, Garrett KA. 2023. Are avocados toast? A framework to analyze decision-making for emerging epidemics, applied to laurel wilt. *Agricultural Systems* 206: 103615. DOI: 10.1016/j.agsy.2023.103615
    - Contributions – I participated in the project conceptualization, interpretation of results, writing the manuscript, and responding to reviewers.
- Garrett KA, Bebber DP, Etherton BA, Gold KM, **Plex Sulá AI**, Selvaraj MG. 2022. Climate change effects on pathogen emergence: Artificial intelligence to translate big data for mitigation. *Annual Review of Phytopathology* 60(16):1-22. DOI: 10.1146/annurev-phyto-021021-042636
    - Contributions – I participated in the project conceptualization, writing the manuscript, and creating the frameworks in Fig. 1 and 2.
- Buddenhagen CE, Xing Y, Andrade Piedra JL, Forbes GA, Kromann P, Navarrete I, Thomas-Sharma S, Choudhury RA, Andersen Onofre KF, Schulte-Gelderman E, Etherton BA, **Plex Sulá AI,** Garrett KA. 2021. Where to invest project efforts for greater benefit: A framework for management performance mapping with examples for potato seed health. *Phytopathology* 112 (7): 1431-1443. DOI: 10.1094/phyto-05-20-0202-r
    - Contributions – I help map the importance of potato cropland locations in epidemics in Ecuador (Fig. 5) and Kenya (Fig. 6).
    - Contributions – I participated in writing the manuscript, and interpreting results.

Book chapters (2)

- Garrett KA, Thomas-Sharma S, Forbes GA, Hernandez Nopsa JF, **Plex Sulá AI**. 2023. Climate change and plant pathogen invasions. Chapter 3. In: Ziska L. Invasive species and global climate change, 2nd edition. *CAB International*: 22-49. DOI: 10.1079/9781800621435.0002
- Alcalá-Briseño RI, Etherton BA, **Plex Sulá AI**, Choudhury M, Mouafo-Tchinda R, Garrett KA. 2022. Adapting vegetable disease management to climate change. Chapter in Handbook of Plant Disease Management. Handbook of Vegetable and Herb Diseases. Invited, currently in revision.

R package (1)

- Keshav K, **Plex Sulá AI,** Garrett KA. 2023. 'geohabnet': Geographical risk analysis based on habitat connectivity. Comprehensive R Archive Network (CRAN): https://cran.r-project.org/web/packages/geohabnet/index.html

Manuscripts in review (4)

- **Plex Sulá AI**, Batuman O, Cellier G, Dufault NS, Etherton BA, Hodges A, Lowe-Power TM, Paret M, Penca C, Schroeder K, Takeuchi Y, Stilian E, Suder P, Tonnang H, Wang Y, Garrett KA. An integrated risk assessment framework for proactive global surveillance of invasive pathogens and pests. In review, *Science Advances*. A copy of this manuscript is available at *https://aaronplex.github.io/PlexOnline/publications.html*
    - Contributions – I led this research project, from conceptualization to submission to the journal.
- Mouafo-Tchinda RA, **Plex Sulá AI**, Etherton BA, Okonya JS, Valentine Nakato GV, Xing Y, Robledo Buritica J, Adhikari A, Blomme G, Kantungeko D, Nduwayezu A, Kreuze J, Kroschel J, Legg J, Garrett KA. Pest and pathogen communities in food security crops across climate gradients: Anticipating future challenges in the Great Lakes region of Africa. In review, *Agricultural Systems,* June 2025. A preprint is available at DOI: 10.1101/2025.01.08.631994
    - Contributions – I participated actively in the project conceptualization, analysis, interpretation of results, writing the manuscript, and submitting the manuscript to the journal.
- Mouafo-Tchinda RA, Etherton BA, **Plex Sulá AI**, Andrade-Piedra J, Ogero K, Omondi BA, McEwan M, Tene Tayo PM, Harahagazme D, Cherinet M, Gebeyehu S, Sperling L. Garrett KA. Pathogen and pest risks to vegetatively propagated crops in humanitarian contexts: Geographic priorities for Cameroon and Ethiopia. In review, *Food Security*, June 2025. A preprint is available at DOI: 10.1101/2024.02.12.580019
    - Contributions – I created the maps of disasters and humanitarian issues in Cameroon and Ethiopia (Fig. 1).
    - Contributions – I participated actively in analyzing data, interpretation of results, writing the manuscript, and responding to reviewers.

Theses (2)

- **Plex Sulá AI**. 2019. Insectos descomponedores asociados a carroñas de gallina y cerdo en Zamorano. Escuela Agrícola Panamericana (EA) Zamorano, Honduras. Bachelor thesis, with a copy available at https://bdigital.zamorano.edu/handle/11036/6607
- **Plex Sulá AI**. 2015. Guide to banana production in Tiquisate, Guatemala: Producción de banano Musa sapientum L. variedad Gran Enano en Tiquisate Escuintla: desfloración, desdede y desmane (eliminación de frutos), monitoreo de araña roja *Olygonichus zeae* y picudo del banano *Cosmopolites sordidus*, y riego por aspersión y microaspersión. ENCA, Guatemala. High-school thesis, with a copy available at Academia.

In-progress research projects with major contributions (11)

- **Plex Sulá AI**, Sarwar MA, Ali S, Qureshi N, Saleem K, Singh PK, Garrett KA, Afzal Z. A nationwide assessment of major wheat diseases and pests in Pakistan. Target journal: *Phytopathology*. A PDF copy of the manuscript is available at https://aaronplex.github.io/PlexOnline/publications.html
    - Contributions – I co-led the project conceptualization, interpretation of results, writing the manuscript, and preparing materials for submission to a journal.
- **Plex Sulá AI**, Robledo Buritica J, Choudhary M, Garrett KA. Future scenarios for pest and disease management of major crops in California. *Report pending approval by the California Department of Food and Agriculture (CDFA).* Contact reference: Brianna McGuire (bmcguire@ucdavis.edu). A PDF copy of this manuscript is available at https://aaronplex.github.io/PlexOnline/publications.html
    - Contributions – I co-led this research project, including the project conceptualization, data analysis, interpretation of results, and writing the report.
- **Plex Sulá AI**, Keshav K, Adhikari A, Choudhary M, Mouafo-Tchinda RA, Robledo Buritica J, Shah S, Garrett KA. geohabnet: An R package for habitat connectivity of pathogens and pests. Target journal: *Methods in Ecology and Evolution.* This manuscript is ready for review as an application note, including the GitHub repository and webpage.
    - This publication will be Chapter 3 of my PhD dissertation.
    - Contributions – I co-developed geohabnet with the stable version 2.1.3 available in CRAN and the development version in GitHub.
    - Contributions – I co-led the project conceptualization, interpretation of results, and writing the manuscript.
- **Plex Sulá AI**, Alcalá Briseño RI, Xing Y, Etherton BA, Andersen Onofre K, Andrade-Piedra JL, Avelino J, Carvajal-Yepes M, Cuellar W, Dita Rodriguez MA, Gazis R, Hodson D, Jarvis A, Kenyon L, Kreuze JF, Legg J, Mosquera Cifuentes GM, Sonder K, Mahabaleswara SL, Vallad G, Garrett KA. Proactive global biosecurity priorities for pest invasions on crop landscapes and trade networks. Target journal: *Nature Communications*. A PDF copy of this manuscript is available at https://aaronplex.github.io/PlexOnline/publications.html
    - This publication will be Chapter 4 of my PhD dissertation.
    - Contributions – I am leading the project conceptualization, interpretation of results, writing the manuscript, and preparing materials for submission to a journal.
- Mouafo-Tchinda RA, **Plex Sulá AI**, Etherton B, Choudhury R, Gazis R, Crane J, Garrett KA. A global risk assessment and surveillance strategy for laurel wilt. Target journal: *Nature Ecology and Evolution*.
    - Contributions – I participated actively in the project conceptualization, data analysis, interpretation of results, and writing the manuscript.
    - Contributions – The results of this project, presented in 2024, acquired a second-year funding by the USDA Specialty Crop Research Initiative (SCRI).
- **Plex Sulá AI,** Suder P, Danner B, Hodges A, Tonnang HE, Garrett KA. Designing proactive surveillance strategies based on geographic invasion risk assessment: The case of *Phthorimaea absoluta* in Southeast United States. Target journal: *NeoBiota*.
- **Plex Sulá AI,** Garrett KA. Pathogenica: A global data compilation of epidemiological traits of 1000+ pathogens. Target journal: *Scientific Data*. This manuscript will be prepared in the format for submission.
    - 90% of pathogenica is already in a tabular format, pending description of the methods.
    - In extramural collaboration with Dr. Robert P. Guralnick at the Florida Museum of Natural History, we are already using a portion of Pathogenica to build species distribution models for >600 plant species associated with wheat pathogens, and to understand the extent of the host landscape available for these pathogens globally.
- Adhikari A, **Plex Sulá AI**, Mouafo-Tchinda RA, Robledo J, Etherton BA, Alcock K, Fontan R, Stronkowsky IV TK Garrett KA. Rice health: the global emergence of false smut and ongoing threats

in Nepal. Target journal: *Plant Disease*.
    - Contributions:

- **Plex Sulá AI**, Adhikari A, Arinaitwe W, Choudhary M, Choudhury RA, Delaquis E, Etherton BA, Yubak Dhoj GC, Hamelin F, Jones C, McVay JD, Mouafo-Tchinda RA, Navarrete I, Robledo Buritica J, Tankam I, With KA, Garrett KA. Ten principles for surveillance of pathogens and pests in regional landscapes: A primer on network perspectives. Target journal: *Methods in Ecology and Evolution*. A copy of this manuscript is available at.
    - Contributions – I am co-leading the project conceptualization, synthesizing knowledge, and writing the manuscript.
- Jaworski LG, **Plex Sulá AI**, Alzamora A, George DM, Robledo J, Leandro M, Garrett KA. A new disease threat to cacao in the Caribbean: developing strategies for frosty pod. *Analyses in development, part of the ROAR-Monilia project 2024-2025.*
    - Contributions – I am co-leading in the project conceptualization, data analysis and interpretation of results.
- **Plex Sulá AI**, Adikari A, Wang Y, Goss E, Garrett KA. The global population genetic structure of Potato spindle tuber viroid in major agroecosystems. *First manuscript draft is advanced.*
    - Contributions – I am leading this project, in which we have conducted the project conceptualization, data analysis, interpretation of results, and writing the first draft of this manuscript.

Teaching experience

- **2025,** Co-instructor, Workshop – *Tackling Global Challenges in Plant Pathology with AI: Forecasting, Imaging, and Protein Prediction*, Plant Health 2025, Hawaii, United States (40 research participants). Contact reference: Jacobo Robledo Buritica, MS.
- **Fall 2024** Instructor for the laboratory on *Fundamentals of Plant Pathology*, University of Florida (23 undergraduate students). Contact reference: Dr. Brantlee Spakes-Richter.
- **Fall 2024** Co-instructor, *Epidemiology & Data Science*, University of Florida (6 graduate students, 6 undergraduate students, 28 international participants). Contact reference: Dr. Karen A. Garrett.
- **Fall 2024** Co-instructor, *Workshop 2024 – R2M rapid risk assessment for diseases of cacao in the Caribbean & banana, cassava, potato, and sweetpotato in East Africa* (3 undergraduate students).
- **2024** Co-instructor, *Network Analysis in Plant Pathology Research Workshop*, Plant Health 2024, Memphis, TN, United States (32 research participants). Contact reference: Dr. Ashish Adhikari.
- **2022** Co-instructor, *International Workshop on Network Analysis in Agricultural Systems*, University of Agriculture Faisalabad, Pakistan (20+ participants). Contact reference: Dr. Zunaira Afzal.
- **Fall 2021** Co-instructor, *Impact Network Analysis Workshop*, University of Florida, United States (9 undergraduate students). Contact reference: Dr. Karen A. Garrett.
- **Spring 2019** Instructor for the practical module on *small grain production* (22 undergraduate students).
- **Fall 2015** Instructor for the practical module on *vegetable production* (18 high-school students).

Mentoring experience

- Mentoring four undergrads in Fall 2025, for a research workshop focused on
    - *A national assessment of rice health in Pakistan*
- Mentored three undergrads in Fall 2024, for a research workshop focused on
    - *Modeling the potential spread of frosty pod of cacao in the Caribbean region*
- Mentored three undergrads in Spring 2022, for a research workshop focused on
    - *Evaluating project success of global agricultural research collaboration networks*
- Mentored three undergrads in Spring 2022, for a research workshop focused on
    - *Developing a geographic risk analysis for solanaceous pests in Florida and the surrounding area*

Presentations

Invited oral presentation (1)

- **Plex Sulá A**. 2025. Proactive global biosecurity: Prioritizing pathogen risks using crop landscapes and trade networks under climate change. In the special session – From models to action: Global strategies for surveillance and management of plant disease spread. *Plant Health 2025*, Honolulu, Hawaii, USA.

Invited webinars (3)

- **Plex Sulá A**, Garrett KA. 2025. A GIRAF for plant pests! Global invasion risk assessment framework. USDA APHIS Plant Protection and Quarantine Working Group, Raleigh, NC.
- **Plex Sulá A**. 2022. Global structures of trade networks to prioritize phytosanitary efforts for crop pathogen and pest spread: challenges and opportunities. *Institut National de la Recherche Agronomique* (INRAE), France.
- Garrett KA, Etherton BA, **Plex Sulá A**. 2022. Scaling up of disease management to climate change. In Climate change – Emerging pathogens. *Plant Health 2022*, virtual session.

Contributed presentations (18): 13 as presenter* and 5 as a contributor.

- **Plex Sulá A***. 2025. A GIRAF (Global Invasion Risk Assessment Framework) for plant pathogens! *2025 Joint Meeting of the Caribbean and Southern Division*, Gainesville, FL.
- **Plex Sulá A***, Suder P, Garrett KA. September 5, 2024. Geographic surveillance and mitigation priorities for invasive pests and pathogens of solanaceous crops in Florida and globally. *Florida Tomato Conference 2024*, Clewiston, FL.
- **Plex Sulá A*,** Adhikari A, Etherton BA, Mouafo-Tchinda RA, Robledo Buritica J, Garrett KA. July 27-30, 2024. Global host-pathogen infection networks in major terrestrial agroecosystems. *Plant Health 2024*, Memphis, TN.
- **Plex Sulá A*,** Mouafo-Tchinda RA, Garrett KA. June 13, 2024. Global proactive surveillance strategies for plant diseases under climate change: The case of laurel wilt. *Corteva New Frontiers Conference*, Indianapolis, IN, United States.
- **Plex Sulá A***, Garrett KA. April 9, 2024. Global host-pathogen infection networks in major terrestrial agroecosystems. *International Epidemiology Workshop*, Foz do Iguaçu, Brazil.
- **Plex Sulá A***, de Toledo Franceschi B, Mouafo-Tchinda RA, Garrett KA. 2024. Proactive biosecurity priorities revealed by the global biogeography of 1000 plant pathogens. *Invasion Science Research Symposium*, Gainesville, FL, United States.
- **Plex Sulá A***, Choudhary M, Etherton BA, Mouafo-Tchinda RA, Garrett KA. 2023. Proactive global biosecurity strategies: Priorities based on crop landscapes, trade networks, and the ecological niches of 930 pathogens. *International Congress of Plant Pathology*, Lyon, France.
- **Plex Sulá A***, Avelino J, Choudhary M, Cuellar W, Etherton BA, Gazis R, Kreuze JF, Mouafo-Tchinda RA, Suresh LM, Garrett KA. 2023. Proactive global biosecurity priorities based on crop landscapes, trade networks, and the ecological niches of 930 pathogens. *Plant Health 2023*, Denver CO. DOI: 10.1094/PHYTO-113-11-S3.1
- Mouafo-Tchinda RA*, **Plex Sulá A**, Etherton B, Choudhary M, Choudhury R, Gazis R, Crane J, Garrett KA. 2023. Building global surveillance and mitigation strategies for laurel wilt. *International Congress of Plant Pathology*, Lyon, France.
- Mouafo-Tchinda RA*, **Plex Sulá A**, Etherton BA, Choudhary M, Choudhury RA, Gazis R, Crane J, Garrett KA. 2023. Global surveillance and mitigation strategies for laurel wilt: protecting avocado production and forests. *Plant Health 2023*, Denver CO.

- Choudhary M*, **Plex Sulá A,** Penca C, Lagos LC, Mouafo-Tchinda RA, Etherton BA, Garrett KA. 2023. Cut flower trade risk analysis to protect global agriculture from invasive pests and pathogens. *Plant Health 2023*, Denver CO. DOI: 10.1094/PHYTO-113-11-S3.1
- Etherton BA*, Asfaw F, Kakuhenzire R, Kassaye HA, Kosmakos VS, McCoy RW, **Plex Sulá A**, Xing Y, Yao J, Garrett KA. 2023. Systems analysis for pathogen management, with examples for Ethiopian potato seed networks. *Plant Health 2023*, Denver CO. DOI: 10.1094/PHYTO-113-11-S3.1
- **Plex Sulá A***, et al (17 co-authors). 2022. Translating cropland and trade connectivity for mitigation of emerging pathogens: Priority locations globally and focusing on the Americas. *Plant Health* 2022, Pittsburgh PA. DOI: 10.1094/PHYTO-112-11-S3.1
- Mouafo-Tchinda RA*, **Plex Sulá A**, Etherton B, Xing Y, Choudhury R, Grogan K, Garrett KA. 2022. Avocado laurel wilt: Scenario analysis to support mitigation strategies before laurel wilt spreads to new regions. *Plant Health* 2022, Pittsburgh PA. Phytopathology 112: S3.12. DOI: 10.1094/PHYTO-112-11-S3.1
- **Plex Sulá A***, Alcalá-Briseño RI, Xing Y, Etherton B, Andrade-Piedra JL, Vallad GE, Garrett KA. 2022. Geographic disease risk analysis in the Caribbean and globally, with examples including potato and tomato. *Entomological Society of America and APS Caribbean Division*, Puerto Rico, March 27th.
- Garrett KA*, Etherton B*, **Plex Sulá AI***. 2021. Scaling up management of epidemics. University of Florida, Plant Pathology seminar. September 7.
- **Plex Sulá A***, et al (12 co-authors). 2021. Geographic disease risk analysis for major crops of Central America and Mexico: Regional analyses and global structures. Plant Health 2021, online. *Phytopathology* 111 (10s): S2.157. DOI: 10.1094/PHYTO-111-10-S2.1
- Xing Y, **Plex Sulá A***, Alcalá-Briseño RI, Choudhury R, Andersen KF, Garrett KA. 2021. Cropland connectivity: Best practices for incorporation in geographic risk analyses. Plant Health 2021, online. *Phytopathology* 111 (10s): S2.48. DOI: 10.1094/PHYTO-111-10-S2.1

Oral keynote presentations (4) where I participated as presenter

- Garrett KA, **Plex Sulá A**. 2022. Network analysis in agricultural systems to address grand challenges to food security. International symposium, Faisalabad, Pakistan.
- Garrett KA, Etherton B, **Plex Sulá A**. 2022. Identifying effective locations for mitigation of emerging pests and diseases. Entomological Society of America and APS Caribbean Division, Puerto Rico, March 29th.
- Garrett KA, **Plex Sulá A.** 2021. Global change: Adapting coffee pest and disease management. Global change: Adapting coffee pest and disease management. Plenary session – keynote lecture. 28th Conference ASIC (Association for Science and Information on Coffee) 2021.
- Garrett KA, Etherton BA, **Plex Sulá AI**. 2021. Key global networks for protecting plant health and food security: The connected networks of social, ecological, economical, cultural, and disease components of plant health. Oral lecture. Global Plant Health Assessment (GPHA).

Contributed posters (17): 10 as presenter* and 7 as a contributor.

- **Plex Sulá A***, Adhikari A, Wang Y, Goss EM, Garrett KA. 2024. The global population genetic structure of Potato spindle tuber viroid in major agroecosystems. *Plant Health 2024*, Memphis TN.
- **Plex Sulá A***, Adhikari A, Etherton BA, Mouafo-Tchinda RA, Robledo Buritica J, Garrett KA. 2024. The multi-centennial accumulation of new infectious diseases in major agroecosystems (1500-2020). *Plant Health 2024*, Memphis TN.
- **Plex Sulá A***, Choudhary M, Etherton BA, Mouafo-Tchinda RA, Garrett KA. 2023. Surveillance and mitigation strategies for wheat based on crop landscapes, trade networks, and the ecological niches of 100 pathogens. *International Congress of Plant Pathology*, Lyon, France.
- **Plex Sulá A***, Choudhary M, Etherton BA, Mouafo-Tchinda RA, Garrett KA. 2023. Global surveillance and mitigation based on wheat landscapes, trade networks, and the biogeography of 100 pathogens. *Plant Health 2023*, Denver CO.

- Mouafo-Tchinda RA*, Etherton BA, **Plex Sulá A**, Choudhary M, Tene-Tayo PM, Adhikari A, Harahagazwe D, Andrade-Piedra J, McEwan M, Garrett KA. 2023. Pathogen and pest risk assessment in banana, cassava, potato, and sweet potato production in Cameroon. *Plant Health 2023*, Denver CO.
- Mouafo-Tchinda RA*, **Plex Sulá A**, Okonya J, Nakato V, Xing Y, Choudhary M, Alcalá-Briseño R, Blomme G, Kantungeko D, Kreuze J, Nduwayezu A, Legg J, Garrett KA. 2023. Crop pathogen severity and pests in banana, cassava, potato, and sweetpotato production in the Lake Kivu region of Rwanda and Burundi. *International Congress of Plant Pathology*, Lyon, France.
- **Plex Sulá A***, Etherton BA, Garrett KA. 2022. Prioritizing phytosanitary efforts based on global cropland and trade connectivity risks of emerging pathogens and pests. International Plant Health Conference, London.
- Mouafo-Tchinda RA*, **Plex Sulá A**, Etherton BA, Kraisitudomsook N, Xing Y, Choudhury RA, Grogan K, Garrett KA. 2022. Global analysis of the invasion risk of *Harringtonia lauricola*, causal agent of laurel wilt. *International Plant Health Conference*, London, United Kingdom.
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- McCoy RW*, Qin C, Stilian E, Suder P, Andersen Onofre K, Etherton BA, **Plex Sulá A**, Xing Y, Garrett KA. 2022. Decision support for regional disease and pest management interventions: New features in the INA R package. *Entomological Society of America and APS Caribbean Division*, Puerto Rico.
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- **Plex Sulá A***, Xing Y, Alcalá-Briseño RI, Etherton B, Andersen K, Andrade-Piedra J, Hodson D, Jarvis A, Kreuze JF, Sonder K, Suresh LM, Garrett KA. 2021. Geographic disease risk analysis for major crops of Central America and Mexico: regional analyses and global structures including cacao and tomato. *17th Biennal Florida Phytopathology Society Meeting*
- Xing Y*, **Plex Sulá A,** Alcalá-Briseño RI, Garrett KA. 2021. Incorporating cropland connectivity as a new standard feature of geographic risk assessment and surveillance strategies. Research On-Demand Poster. *APS Southern Division Virtual Meeting*. Phytopathology 111 (9s): S1.7.

YouTube video (1)

- Emerging Pathogens Institute (UF EPI). 2024. Predicting plant pathogen outbreaks to protect agriculture. Available at https://www.youtube.com/watch?v=WyZNBAJ9NAY

Professional service

1. **Journal Peer Reviews**
   - European Journal of Plant Pathology: 2025.
   - Scientific Reports: 2025.
   - Phytopathology: 2025.
   - Pest Management Science: 2024.
   - Plants, People, Planet: 2023.
   - The evolutionary ecology of plant disease (book): 2023.
2. **Conference Moderator**
   - Moderated Oral Technical Session VI in the *2025 Joint Meeting of the Caribbean and Southern Division*, Gainesville, FL.
   - Moderated Session 3: Pathogen Dynamics and Dissemination in *Plant Pathology Research and Professional Development Symposium 2024*, Gainesville, FL.
   - Moderated the Technical Session: Regulatory Plant Pathology in *Plant Health 2023*, Denver, CO. Contact – Megan Boatman (mboatman@scisoc.org)
3. **Outreach Workshop Lecturer**
   - Provided a lecture to high-school teachers in The Plant Pathology Professional Development for Teachers: 2024. Contact – Stephanie Killingsworth (skillingsworth@floridamuseum.ufl.edu)
4. **Undergraduate Tutoring**
   - Served as an extracurricular tutor, supporting learning enhancement for over 100 international undergraduate students at Zamorano University, Honduras (2016-2019). Contact – Dr. Josue Molina (jmolina@zamorano.edu)
5. **Elected Treasurer of the Plant Pathology General Student Organization**
   - Helped organize budget requests and student events for the University of Florida Plant Pathology Department (Fall 2024 – Spring 2025)
6. **National Insect Collection**
   - Started a self-funded project to build the first insect collection of flesh flies (Sarcophagidae) in Guatemala. Director – Dr. Enio Cano

Awards (9)

2025	Nominee from the United States for the 2025 GBIF Graduate Researchers Award
2024	Corteva New Frontiers Scholars Award
2019	Bachelor's Thesis Award of Distinction, Zamorano University
2019	1st Place, Oral Presentation Winner in Zamorano Investiga, Zamorano University
2016 – 2019	Merit Recognition for Academic Excellence, Zamorano University
2016 – 2019	Full Bachelor Scholarship Award by FONAGRO-ENCA 2015
2015	1st Place, Painting Competition, ENCA
2013 – 2015	Honor Recognition for Discipline Excellence, ENCA
2013 – 2015	Full High-School Scholarship Award by ENCA

Memberships (6)

- ❖ Member of the American Phytopathological Society (APS): 2020-2025.
- ❖ Member of the American Association for the Advancement of Science (AAAS): 2024-2025.
- ❖ Member of the APS Epidemiology Committee: 2024-2025.
- ❖ Member of the APS Emerging Diseases and Pathogens: 2024-2025.
- ❖ Member of the National Society of Leadership and Success (2025).
- ❖ Member of the Universal Circle of Philosophy Kurt Gödel (Honduras): 2020-2025.

- Member of the Club for Physics and Mathematics (Zamorano University): 2016-1019.

Technical skills

- Programming languages and allies: R (developer), GitHub (frequent user), University of Florida HiPerGator (frequent user), Python (basics), JavaScript (basics).
- Bioinformatics tools: MEGA 11, SplitsTree, RDP4.
- Languages: English (fluent) and Spanish (native speaker).

Contact references (9)

- Major advisor – Dr. Karen A. Garrett, Preeminent Professor, Plant Pathology Department, University of Florida (karengarrett@ufl.edu)
- Committee advisor – Dr. Luke Flory, Professor of Invasion Ecology and Associate Chair, Agronomy Department, University of Florida (flory@ufl.edu)
- Committee advisor – Dr. Robert D. Holt, Eminent Scholar and Chair in Ecological Studies, Department of Biology, University of Florida (rdholt@ufl.edu)
- Committee advisor – Dr. Ian Small, Associate Professor in the Plant Pathology Department, University of Florida (ismall@ufl.edu)
- Dr. Tiffany M. Lowe-Power, Assistant Professor, University of California, Davis (tlowepower@ucdavis.edu)
- Dr. Robert P. Guralnick, Curator of Biodiversity Informatics, University of Florida (rguralnick@flmnh.ufl.edu)
- Dr. Brantlee Spakes-Richter, Associate Professor in the Plant Pathology Department, University of Florida (bsr@ufl.edu)
- Dr. Jesus Orozco, Associate Professor and Curator of Zamorano's Entomology Collection, Zamorano University (jorozco@zamorano.edu)
- Dr. Josue Danilo Molina Rodriguez, Professor of Mathematics and Physics, Zamorano University (jmolina@zamorano.edu)