Leonardo D. Salgado

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Applied insect ecologist with over 5 years of experience conducting field, greenhouse, and laboratory experiments on projects focused on biology, ecology, and integrated pest management of economically important pest species of agricultural systems. Duties have included developing protocols for research activities, collecting, summarizing, and analyzing biological data, communicating complex information to various audiences, and preparing reports for pesticide evaluations.

EDUCATION

Cornell University, Ithaca, NY, USA **August 2021 – Present**
Doctor of Philosophy in Entomology
Advisor: Dr. Brian A. Nault

Louisiana State University (LSU), Baton Rouge, LA, USA **July 2021**
Master's Degree in Entomology
Minor: Applied Statistics
Thesis title: "Characterization of Resistance to Two Crambid Stem Borers Among Louisiana Sugarcane Cultivars"
Advisor: Dr. Blake E. Wilson – https://bit.ly/LeoMSThesis

Universidad Nacional de Agricultura (UNAG), Catacamas, Olancho, Honduras **May 2019**
Ingeniero Agrónomo (BS in Agricultural Sciences)

PROFESSIONAL EXPERIENCE

Graduate Research Assistant **July 2021 – Present**
Cornell AgriTech, Geneva, New York, United States of America

- Responsible for rearing and maintaining Dipteran colonies for experimental assays.
- Conducted laboratory bioassays to evaluate sensitivity of different active ingredients to insect pests.
- Collected, analyzed data using statistical software (SAS and R), interpreted results, and prepared reports for future research activities and pesticide evaluations.
- Collaborated on research trials with university and extension cooperators at grower's farms
- Quantified and identified via taxonomical keys and DNA barcoding onion maggot (*Delia antiqua*) and seedcorn maggot (*D. platura)* for species composition studies through field-based sampling throughout NY and specific locations on CA, WA, OR and IN.
- Performed DNA extractions, quantification, and PCRs for amplification of different genes from maggot samples to identify single nucleotides polymorphisms for population genetics studies.

Graduate Research Assistant **June 2019 – July 2021**
LSU AgCenter, Baton Rouge, Louisiana, United States of America

- Conducted and coordinated 6 field research trials, 2 diet incorporation assays in the laboratory, and 4 greenhouse experiments to evaluate larval establishment, oviposition preference, and insect development with research team for a native (*Diatraea saccharalis*) and invasive (*Eoreuma loftini*) species.
- Conducted and coordinated 4 field research trials to evaluate the effect of volume, timing, and efficacy of insecticide applications.
- Participated in research site preparation and maintenance: planting, weeding, pesticide mixing and application, and harvesting.
- Responsible for rearing and maintaining Lepidopteran colonies for experimental assays.
- Presented research at scientific and commodity group conferences, publish extension and scientific articles
- Partnered with USDA scientists to conduct trials evaluating insects' effect on yield reduction, nutrient influence, and varietal resistance.
- Supervised five student workers both on campus and at the Sugarcane Research Station.

Visiting Scholar Internship **September 2018– December 2018**

LSU AgCenter, Baton Rouge, Louisiana, United States of America

- Conducted field, greenhouse, and laboratory research in integrated pest management, plant-insect interactions, and pesticide efficacy in sugarcane and rice agroecosystems.
- Examined potential chemical controls for invasive apple snails in rice and crawfish systems.
- Collected biological data: insect counts, insect identification, insect damage, yield, insect mortality, insect egg-laying behaviors, behavioral choice.
- Assisted in rearing and maintaining laboratory insect (Lepidoptera and Hemiptera) colonies in the Department of Entomology LSU.

Undergraduate Student **January 2015 – May 2019**

Universidad Nacional de Agricultura, Catacamas, Olancho, Honduras

- Worked in a bioassay for estimation of median lethal doses (LD_{50}) of different strains of the entomopathogenic fungi *Beauveria bassiana* and *Metarhizium anisopliae* via probit analysis, against the banana root borer (*Cosmopolites sordidus*).
- Supervised and realized all steps of crop production (plantain, tomatoes, bell pepper, cabbage, coffee, and sugarcane), including planting, pest control, fertilizing, harvesting, design of drip irrigation systems, and commercialization.
- Co-organizer of the First International Congress of Plant Physiology, Mineral Nutrition, and Plant Protection. Catacamas, Honduras.
- Organized extension talks to Honduran Farmers on Good Agricultural Practices (GAP).

PUBLICATIONS

Peer-Review Publications (3 Total: 2 Senior Author, 1 Co-Author)

1. **Salgado, L. D.**, B. E. Wilson, R. T. Richard, H. J. Penn, and M.O. Way. 2022. Characterization of resistance to the Mexican rice borer (Lepidoptera: Crambidae) among Louisiana sugarcane cultivars. *Insects*.13(10):890. https://doi.org/10.3390/insects13100890.
2. Wilson, B. E., **L. D. Salgado**, and J. M. Villegas. 2022. Optimizing chemical control for *Diatraea saccharalis* (Lepidoptera: Crambidae) in sugarcane. *Crop Protection*. 152: 105843. DOI: https://doi.org/10.1016/j.cropro.2021.105843. Contribution: Methodology, Investigation, Review, and Editing.
3. **Salgado, L. D.**, B. E. Wilson, J. M. Villegas, R. T. Richard, and H. J. Penn. 2022. Resistance to the sugarcane borer (Lepidoptera: Crambidae) in Louisiana sugarcane cultivars. *Environmental Entomology* 51 (1): 196–203. DOI: https://doi.org/10.1093/ee/nvab118.

Extension Publications (13 Total; 6 Senior Author, 7 Co-Author)

1. Wilson B. E., and **L. D. Salgado**. 2021. Influence of sugarcane variety on Mexican rice borer survival and development. Sugarcane Annual Progress Reports 2021, 140-141. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: co-wrote the manuscript, designed experiments, carried out data collection, and analyzed data. https://bit.ly/LSU_SugarcaneAnnualReport2021.
2. **Salgado, L. D.,** K. D. Rodriguez, F. Huval, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: *Bemisia tabaci* Middle East Asia Minor 1 (MEAM1) species, Silverleaf whitefly (Hemiptera: Aleyrodidae). LSU AgCenter. Publication ID 3806. https://bit.ly/LSUBugBizBemisia.
3. **Salgado, L. D.,** D. Galo, F. Huval, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: *Frankliniella occidentalis*, Western Flower Thrips (Thysanoptera: Thripidae). LSU AgCenter. Publication ID 3814. https://bit.ly/LSUBugBizFlowerThrips.
4. **Salgado, L. D.,** K. Deynzer, F. Huval, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: *Spodoptera frugiperda*, Fall armyworm (Lepidoptera: Noctuidae). LSU AgCenter. Publication ID 3786. https://bit.ly/LSUBugBizFAW.
5. **Salgado, L. D.,** F. Huval, T.E. Reagan, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: *Plutella xylostella*, Diamondback moth (Lepidoptera: Plutellidae). LSU AgCenter. Publication ID 3785. https://bit.ly/LSUBugBizDBM.

6. **Salgado, L. D.,** F. Huval, T.E. Reagan, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: Citrus leafminer, *Phyllocnistis citrella* (Lepidoptera: Gracillariidae). LSU AgCenter. Publication ID 3784. https://bit.ly/LSUBugBizCLM.
7. **Salgado, L. D.**, F. Huval, T.E. Reagan, and C. E. Carlton. 2021. Bug Biz Pest Management and Identification Series: *Diaphania nitidalis* and *Diaphania hyalinata*, Pickleworm and Melonworm Moths (Lepidoptera: Crambidae). LSU AgCenter. Publication ID 3781. https://bit.ly/LSUBugBizDiaphania.
8. Wilson B. E., **L. D. Salgado**, and J. M. Villegas. 2020. Large plot evaluation of insecticidal control of the Mexican Rice Borer in Louisiana. Sugarcane Annual Progress Reports 2020. 139. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: Methodology, Data collection, Review, and Editing. https://bit.ly/LSU_SugarcaneAnnualReport2020.
9. Wilson B. E., **L. D. Salgado**, and J. M. Villegas. 2020. Varietal resistance to the Mexican rice borer in plant cane. Sugarcane Annual Progress Reports 2020, 137-138. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: Methodology, Investigation, Review, and Editing. https://bit.ly/LSU_SugarcaneAnnualReport2020.
10. Wilson B. E., **L. D. Salgado**, and J. M. Villegas. 2020. Varietal resistance to the sugarcane borer in plant cane. Sugarcane Annual Progress Reports 2020, 133-134. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: Methodology and Investigation. https://bit.ly/LSU_SugarcaneAnnualReport2020.
11. Wilson B. E., J. M. Villegas. M. M. Mulcahy, and **L. D. Salgado.** 2019. Evaluation of insecticides, application timing, and water volume for control of sugarcane borer. Sugarcane Annual Reports 2019, 141-142. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: Methodology and Investigation. https://bit.ly/LSU_SugarcaneAnnualReport2019.
12. Wilson B. E., **L. D. Salgado**, and J. M. Villegas. 2019. Varietal resistance to the sugarcane borer in first ratoon cane. Sugarcane Annual Progress Reports 2019, 137-138. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: co-wrote the manuscript, carried out data collection, and analyzed data. https://bit.ly/LSU_SugarcaneAnnualReport2019.
13. Wilson B. E., **L. D. Salgado**, and J. M. Villegas. 2018. Assessment of varietal resistance to the sugarcane borer. Sugarcane Annual Progress Reports 2018, 142-143. Louisiana State University Agricultural Center, Baton Rouge, LA. Contribution: co-wrote the manuscript, carried out data collection, and analyzed data. https://bit.ly/LSU_SugarcaneAnnualReport2018.

Peer-Review Abstracts (1)

1. **Salgado, L. D.** and B. E. Wilson. 2019. Resistance of Sugarcane Cultivars to the Sugarcane Borer: *Diatraea saccharalis*. Journal American Society of Sugarcane Technologists. 39: 23–24.

Pesticide Evaluation Research (5 Total; 4 Senior Author, 1 Co-author**)**

1. **Salgado, L. D.,** C. A. Hoepting, and B. A. Nault. 2023. Evaluation of insecticides and application strategies for cabbage maggot control in cabbage in New York, 2022. Arthropod Management Tests 48(1); https://doi.org/10.1093/amt/tsad015. in press.
2. **Salgado, L. D.** and B. A. Nault. 2023. Evaluating foliar insecticide applications and seed treatments for onion maggot control in onion, 2022. Arthropod Management Tests 48(1); https://doi.org/10.1093/amt/tsad009. *In press.*
3. **Salgado, L. D**. and B. A. Nault. 2023. Seedcorn maggot control using seed treatments in dry bean, 2022. Arthropod Management Tests 48(1); https://doi.org/10.1093/amt/tsad012. *In press*.
4. **Salgado, L. D.** and B. A. Nault. 2023. Seedcorn maggot control using seed treatments in snap bean, 2022. Arthropod Management Tests 48(1); https://doi.org/10.1093/amt/tsad011. *In press.*
5. Villegas, J.M., B.E. Wilson, and **L. D. Salgado**. 2020. Evaluation of Intrepid Edge® for Control of the Sugarcane Borer in Louisiana Sugarcane, 2019. Arthropod Management Tests 45(1); https://doi.org/10.1093/amt/tsaa056. Contribution: co-designed experiment with co-authors, carried out data collection, and analyzed data.

Manuscripts In Review/Preparation

1. **Salgado, L. D.** and B. A. Nault. 2023. Onion maggot control using seed treatments in New York onion fields, 2022. Arthropod Management Tests 48(1); *In review*.
2. **Salgado, L. D.** and B. A. Nault. 2023. Onion maggot control using novel seed treatments in onion, 2022. Arthropod Management Tests 48(1); *In review*.

PRESENTATIONS

Professional Meetings (8 Total; 7 Senior Author, 1 Co-author**)**

1. **Salgado, L. D** and B. A. Nault. 2022. Species composition and insecticide sensitivity of the maggot complex (Diptera: Anthomyiidae) in onion cropping systems. Entomological Society of America Joint Annual Meeting. Vancouver, British Columbia, Canada. November 13–16.
2. **Salgado, L. D.** and B. E. Wilson. 2021. Characterization of resistance to the Mexican rice borer (Lepidoptera: Crambidae) among Louisiana sugarcane cultivars. Entomological Society of America Annual Meeting. Virtual Presentation On-Demand.
3. **Salgado, L. D.** and B. E. Wilson. 2020. Measuring oviposition preference and larval establishment of the sugarcane borer *Diatraea saccharalis* (F.) on commercial and experimental sugarcane cultivars in Louisiana. Entomological Society of America Annual Meeting. Virtual Presentation. November 11-25.
4. **Salgado, L. D.** and B. E. Wilson. 2020. Mechanisms of resistance to the sugarcane borer, *Diatraea saccharalis* (F.), among sugarcane cultivars. 94th Annual Joint Meeting of the Eastern and Southeastern Branch Meeting of the Entomological Society of America, Atlanta, Georgia, USA. March 29th-April 1st. Canceled due to COVID-19.
5. Wilson B.E., J. M. Villegas, M. Mulcahy, **L. D. Salgado**, and K. Landry. Optimizing insecticidal seed treatments for Louisiana rice. 94th Annual Joint Meeting of the Eastern and Southeastern Branch Meeting of the Entomological Society of America, Atlanta, Georgia, USA. March 29th-April 1st, 2020. Canceled due to COVID-19. Contribution: carried out data collection and analysis.
6. **Salgado, L. D.** and B. E. Wilson. 2019. Resistance of Sugarcane Cultivars to the Sugarcane Borer: *Diatraea saccharalis*. Entomological Society of America Annual Meeting, St. Louis, Missouri, USA. November 17-20.
7. **Salgado, L. D.** and B. E. Wilson. 2019. Resistance of Sugarcane Cultivars to the Sugarcane Borer: *Diatraea saccharalis*. 49th Annual Joint Meeting of the American Society of Sugarcane Technologists, Point Clear, Alabama, USA. June 26 – 28.
8. **Salgado, L. D.,** R. Muñoz, and B. E. Wilson. 2019. Resistencia de cultivares de caña de azúcar al barrenador *Diatraea saccharalis*. 1st Meeting of Research at Universidad Nacional de Agricultura, Catacamas, Olancho, Honduras. April 25 - 26. *In Spanish.

Poster Presentations (3 Total; 2 Senior Author, 1 Co-author**)**

1. Rodriguez-Herrera K. D., and **L. D Salgado**. 2022. What is the UNAG Alumni Association in the US?. First Symposium of Agricultural Research UNAG Alumni Association in the US. Poster. March 18-20.
2. **Salgado, L. D**., B.E. Wilson, and J.M. Villegas. 2021. Mechanisms of resistance of sugarcane to the sugarcane borer (Lepidoptera: Crambidae) in Louisiana. Entomological Society of America Southeastern Branch Meeting. ePoster. March 29-31.
3. **Salgado, L. D.,** J.M. Villegas, and B.E. Wilson. 2018. Resistance of Sugarcane Cultivars to the Sugarcane Borer (*Diatraea saccharalis*). 5th Annual LSU International Research Fair, Baton Rouge, Louisiana, USA. November 16. *First Place Poster Visiting Undergraduate Student Category.

Other Presentations (8)

1. **Salgado, L. D** and B. A. Nault. 2022. Population genetics, insecticide sensitivity and management of *Delia antiqua* in onion cropping systems. 11th Annual Cornell Entomology Symposium. Ithaca, New York, USA. January 21, 2022.
2. **Salgado, L. D.** 2021. Manejo Integrado de Plagas en Caña de Azúcar. (Sugarcane Integrated Pest Management). Guest Online Lecture. Universidad Nacional de Agricultura. Catacamas, Olancho, Honduras. December 6. *In Spanish. Attended by 50 people.
3. **Salgado, L. D.** 2021. Cultivar Resistance to the Stem Borer Complex (Lepidoptera: Crambidae) in Louisiana. Louisiana State University Entomology Department. Exit Seminar. Baton Rouge, Louisiana, USA. April 23.
4. **Salgado, L. D.** 2020. Manejo Integrado de Barrenadores en Caña de Azúcar. (Sugarcane Stem Borers Integrated Pest Management). Guest Online Lecture. Universidad Nacional de Agricultura. Catacamas, Olancho, Honduras. August 12. *In Spanish. Attended by 76 people.
5. **Salgado, L. D.** 2020. Resistencia de las Plantas a los Insectos. (Plant Resistance to Insects). Online Symposium UNAs at LSU. Baton Rouge, Louisiana, USA. July 31, 2020. *In Spanish.

6. **Salgado, L. D.** and K. D. Rodríguez. 2020. Proceso de Aplicación a la Escuela de Posgrado. (Application Process to Graduate School). Online Symposium UNAs at LSU. Baton Rouge, Louisiana, USA. July 30, 2020. *Both authors presented.
7. **Salgado, L. D.** and B. E. Wilson. 2019. Mechanisms of resistance to the sugarcane borer: *Diatraea saccharalis* (Fab., 1794). 10th Annual LSU Entomology Department Graduate Student Symposium, Baton Rouge, Louisiana, USA. October 25.
8. **Salgado, L. D.,** A. Andino, H. Gómez, E. Fuentes, and N. Larios. 2019. Case Study of Universidad Nacional de Agricultura (UNA), How does UNAG impact Honduran communities? At Southern Institute of Appropriate Technology (SIFAT) Training "World Hunger and Malnutrition: Practical Skills to Make a Difference." Lineville, Alabama, USA. August 12-16, 2019. Speaker.

Workshops (1)

1. **Salgado, L. D.,** and P.-C. Lai. 2022. My data is not normal. What do I do now? An entomologist perspective. Entomological Society of America Joint Annual Meeting. Vancouver, British Columbia, Canada. November 13–16. 200+ Attended.

PROFESSIONAL ASSOCIATIONS

- Entomological Society of America (2019–Present)

HONORS, AWARDS, AND SCHOLARSHIPS

- The Larry Larson Graduate Student Award for Leadership in Applied Entomology - Entomological Society of America 2022. https://entsoc.org/news/press-releases/2022-awards.
- Kirby L. Hays Memorial Award Winner, Outstanding M.S. Student, Southeastern Branch, Entomological Society of America, 2022. https://www.entsoc.org/southeastern/kirby-hays-award-winners.
- Selected to be a member of Cornell Graduate School Dean's Scholars Program 2021.
- Cornell University College of Agriculture & Life Sciences Field of Entomology Recruitment Fellowship Fall 2021 ($28,836).
- L.D. Newsom Graduate Student Award in Entomology, Outstanding MS Student ($1,500). Department of Entomology, Louisiana State University, 2021.
- David J. Boethel Scholarship Graduate Student Award, Outstanding MS Student working in Integrated Pest Management ($1,000). Department of Entomology, Louisiana State University, 2020.
- American Society of Sugarcane Technologists Fellowship Award 2019–2021 – 2 academic years awarded ($3600).

MENTORING EXPERIENCE

- UNAs at LSU Mentoring Program
    - Mentored three undergraduate student and two alumni from UNAG in the process of how to apply to LSU's graduate school programs.
- EntoMentos of the Entomological Society of America.
    - Mentored one undergraduate student from University of Central Florida in the process of how to apply to entomology graduate school programs. https://www.entsoc.org/entomentos

COMMITTEE SERVICE

- Department of Entomology Recruitment Committee, Cornell University, Ithaca, NY
    - Graduate student representative 2022
- Student Association of Geneva Experimental Station (2021–Present)
    - Social Chair (2022–2023)
    - Student Advocacy Committee Member (2021–Present)
    - Scholarship Committee (2021–2022)
- UNAG Alumni Association in the US
    - Vice-President (2020–2022): My responsibilities included being a member of all committees (Professional Development, Internships, Finances, and Education). I also served as president for 6 months in the president's absence.
- UNAs at LSU, (2019–Present)
    - President (2020–2021), Vice President (2019–2020)

    - Founding member of "UNAs at LSU," which is a student association that helps to connect an LSU AgCenter faculty member to UNA students and graduates to allow them to gain international experience in agricultural research and to pursue post-graduate education at LSU. During my period as president, we connected 10 people from Honduras to LSU AgCenter Faculty, and 6 of them have become graduate students at LSU.
- Entomology Club at LSU (2019–2021)
    - Treasurer (2020–2021).

COMMUNITY OUTREACH

- High School Student Panel: students from Bishop Kearney High School visited Cornell AgriTech to learn about the research performed at the agricultural station. We gave them a tour of the station and had lunch with them to discuss their career interests. May 19, 2022.
- "Insects' Camouflage and Mimicry" a presentation to kids from ages 5-7 at the Baton Rouge Zoo, Louisiana, USA. LSU Entomology Club Outreach. June 29, 2021.
- Organized presentation and activities for kids to learn about what is an insect and insect's life cycle to kids ages 3-13 at St. Alphonsus School Summer Camp. LSU Entomology Club Outreach. June 8, 2021.
- "Insect development" a series of presentations to kids from 5th to 6th grade at Copper Mill Elementary School of Zachary, Louisiana, USA. LSU Entomology Club Outreach. May 20, 2021.
- "Importance of Pollinators" an online presentation to kids from 4th to 5th grade at Copper Mill Elementary School of Zachary, Louisiana, USA. LSU Entomology Club Outreach.
- Organized the first online symposium via Zoom and Facebook Live of UNAs at LSU Association titled: "*Discusión de Oportunidades en el Extranjero para Estudiantes Hondureños: retos para esta década*" (Discussing opportunities abroad for Honduran students: challenges for this decade). We had speakers from industry and academia who presented their perspective on how to apply to graduate studies, and their current research.
- "Sixth Grade Days" at LSU, Annual Event, Baton Rouge, LA, US (Entomology Booth – Live Insect Display: January 16, 2020.)
- Importance of Insects as pollinators: A presentation given to kids ages 3-13 at Independence Park Facility Baton Rouge, Louisiana. September 13, 2019.
- Volunteer translator in training "World Hunger and Malnutrition: Practical Skills to Make a Difference" Lineville, AL, USA. August 12-16, 2019.
- Co-organizer of the First International Congress of Plant Physiology, Mineral Nutrition, and Plant Protection 2019. Catacamas, Honduras.