

## Carlos Roberto Quesada

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### EDUCATION

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- 2014 - 2017 **Ph.D. in Entomology**  
Purdue University, West Lafayette, Indiana.  
Dissertation title: Integrating chemical and biological approaches toward managing armored and soft scale insects, Advisor Clifford Sadof.
- 2011-2013 **M.Sc. in Entomology**  
Purdue University, West Lafayette, Indiana.  
Thesis title: Effects of selected pesticides on calico scale populations and its natural enemies, Advisor Clifford Sadof.
- 2003-2006 **B.S. in Agronomy**  
Agriculture National University, Catacamas, Olancho, Honduras  
(Thesis title translated to English: The use of banana rhizosphere endophytic bacteria to control the burrowing nematode *Radopopholus similis*, Advisor Mario Talavera).

### WORK EXPERIENCE

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- Extension Assistant Professor** **West Virginia University**, Agriculture and Natural Resources program, Morgantown, WV.  
**June 2020 - present**
- Conduct teaching, research, and public service programs in identified priority areas.
  - Provide leadership for developing, implementing, and evaluating statewide educational/informational programs in entomology to include pest diagnostics, integrated pest management, pesticide safety and education, and arthropod management and control programs for all agricultural commodities.
  - Teach one on-campus course every other year: Pest Management (Ento 412)
- Pesticide Education Specialist** **The Pennsylvania State University**, College of Agriculture, University Park, PA.  
**2017- 2020**
- Update existing and completely rewrite pesticide applicator training manuals and exams required by Pennsylvania Department of Agriculture. This includes a new 80-page manual on Public Health Invertebrates (Jan 2020), and Wood Destroying Pests (in development).
  - Design and develop and test new educational materials (in English and Spanish) for the extension educator and other clients such as pesticide

applicators, workers and related groups. Themes of new material are focused on pest management and pesticide safety to increase water quality and food safety and decrease human exposure by providing education.

- Volunteer for the radio media tour for spotted lanternfly public awareness. It is a collaboration of USDA-APHIS and PSU. I gave interviews to radio stations. I also volunteered to answer Spotted Lanternfly hotline.
- Provide presentations (in English and Spanish) on pest management and pesticide safety in workshops, seminars and conference meetings. I give approximately 25 presentations for pesticides certification and recertification per year. The following are examples of presentation titles:
  - Diagnosing and solving problems in the landscape.
  - Managing ornamentals in the landscape.
  - Traditional application methods in ornamentals.
  - Specialized application methods in ornamentals.
  - Insect and mite management in ornamentals.
  - Weed management in ornamentals.
  - Disease management in ornamentals.
  - Pesticide applicator record keeping.
  - Pesticides spill management.
  - Respirator fit test.
  - Pesticides risks of exposure.

**Research  
Assistant  
2011-2017**

**Purdue University**, Entomology Department, West Lafayette, Indiana.

- Identified research objectives as well as developed and coordinated methods for projects to identify effects of pesticides on selected landscape pests (calico scale, pine needle scale, striped pine scale, oleander scale, leafhoppers, bagworms, elm flea weevil, emerald ash borer and spider mites) and their natural enemies by observing insect biology and behavior. Objectives for projects were completed in laboratory, greenhouse and field.
- Responsibilities included preparing proposals, aiding with experimental design, data collection, statistical analysis and preparing reports and papers.
- Initiated and maintained insect colonies of oleander scales and lindorus beetles. Also, I collaborated and maintained colonies of aphids and aphid's parasitic wasps.
- Management of a USDA APHIS database monitoring Coleopteran insect populations for the APHIS Identifier (Bobby Brown).
- Collaborated with Professor Clifford Sadof's Extension continuing education program for training individuals in Integrated Pest Management (IPM) competencies to maintain licensing. Programs are given in both English and Spanish.
- Applied Research:

Monitored excretion of systemic insecticides by soft scale insects in honeydew  
Studied the effect of insecticide on plant green leaf volatiles.

**Summer  
internship  
2016**

**Bayer CropScience**, White Heath, Illinois.

Projects led:

- Evaluated effectiveness of biological, registered and experimental compounds applied in furrow and with seed treatment on black cutworm on corn.
- Determined efficacy of seed treated with experimental and registered pesticides on soybean cyst nematodes.
- Assisted Bayer research scientists:  
Worked with regulated field trials (ensuring Stewardship and Regulatory Compliance SOPs, Work Instructions and Directives were effectively followed). Including planting, field maintenance, tissue sampling for PCR and coring soybean cyst nematode populations on roots.
- Observed the effect of experimental compounds on selected insect pests of soybean, corn, cabbage, potatoes and tomatoes (western corn rootworm, black cutworm, seed corn maggot, potato leafhopper, aphids, imported cabbageworm, diamondback moth, cabbage looper and soybean cyst nematodes).
- Evaluated phytotoxicity of selected fungicides on fruit crops (grapes, apple and cherries).

**Visiting  
Scholar  
2008 - 2010**

**Purdue University**, Entomology Department, West Lafayette, Indiana.

- Collaborated with graduate student of the Professor Clifford Sadof's laboratory to set up experiments and collect data.
- Released, recorded, and monitored parasitoids released to control emerald ash borer.

**Research  
and  
Extension  
Educator  
2006 - 2008**

**Honduran Government**, La Ceiba, Honduras.

- Conducted extension educational programs in field crops focusing on pesticide safety to reduce human exposure and water pollution.
- Compared production of native and BT corn exposed to *Phyllophaga sp.* and *Spodoptera frugiperda*.

**Research  
2006**

**CATIE (Tropical Agricultural Research and Higher Education Center)**, Pathology department, Turrialba, Costa Rica.

- Determined how endophytic bacteria in the rhizosphere of the banana plant could contribute to the biological control of the Digger Nematode (*Radopholus similis*).

## PEER REVIEWED PUBLICATIONS

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- In preparation** Witte A, **Quesada C R** and C S Sadof. Impacts of insecticide treatments on *Platytetranychus multidigituli* (Acari: Tetranychidae) and predatory mites on *Gleditsia triacanthos*. *Arboriculture and Urban Forestry*.
- 2020** **Quesada C R** and C S Sadof. Residual Toxicity of Plants and Prey Treated with Soil and Foliar Applications of Selected Systemic Insecticides. *Crop Protection*.
- 2020** **Quesada C R**, M Scharf and C S Sadof, 2020. Excretion of non-metabolized insecticides through honeydew of striped pine scale. *Chemosphere* 126167.
- 2020** **Quesada C R** and C S Sadof, 2020. Residual toxicity of insecticides to *Chrysoperla rufilabris* and *Rhyzobius lophanthae* predators as biocontrol agents of pine needle scale. *Crop Protection* 130: 105044.
- 2019** **Quesada C R** and C S Sadof, 2019. Field evaluation of insecticides and application timing on natural enemies of selected armored and soft scales. *Biological Control* 133:81-90
- 2018** **Quesada C R**, A Witte and C S Sadof, 2018. Factors influencing insecticide efficacy against armored and soft scales. *HortTechnology* 28:267-275.
- 2017** **Quesada C R**, and C S Sadof, 2017. Efficacy of horticultural oil and insecticidal soap against selected armored and soft scales. *HortTechnology* 27:619-624.
- 2015** Prado J, **C Quesada**, M V Mickelbart and C S Sadof, 2015. Effects of nitrogen fertilization on potato leafhopper (Hemiptera: Cicadellidae) and maple spider mite (Acari: Tetranychidae) on nursery-grown maples. *Journal of Economic Entomology* 108:1221-1227.
- 2014** Prado J, **C Quesada**, and C S Sadof, 2014. Effects of pesticide application on arthropod pests of nursery-grown maples. *Journal of Economic Entomology*; 107(2):708-17.
- 2011** Sadof C S, L Purcell, F J Bishop, **C Quesada** and Z W Zhang, 2011. Evaluating restoration capacity and costs of managing the emerald ash borer with a web-based cost calculator in urban forests. *Arboriculture and Urban Forestry* 37:74-83.
- 2010** Rhains M, C Sadof, and **C Quesada**, 2010. Dispersal and development of bagworm larvae (Lepidoptera: Psychidae) on three host plants. *Journal of Applied Entomology* 134: 81–90.
- Kaplan I, G Angelella, C Blubaugh, J Braasch, V Caceres, J Prado, **C Quesada**, C Sadof, M Spigler, S Thompson. Book Review - Relationships of natural enemies and non-prey foods progress in biological control, Volume 7. *American Entomologist* 57: 116-117.

**Quesada C**, 2010. Title translated to English: Banana rhizosphere endophytic bacteria to control the burrowing nematode (*Radopopholus similis*). Produccion Vegetal. 3:264.

#### **EXTENSION PUBLICATIONS**

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- In preparation** **Quesada C R** and R Selking. Wood Destroying Pests. Pesticide Education Program. The Pennsylvania State University
- Quesada C** and L Jett. Whitefly biology and control video. WVU Extension Service Website
- 2020** **Quesada C**, Oak Shothole Leafminer. IPM Chronicle, WVU Extension Service, West Virginia University.
- Quesada C**, M Rahman and D McGill, Ag Alert! Oak Shothole Leafminer Outbreak. WVU Extension Service, West Virginia University.
- Quesada C**, Pesticide certification video. WVU Extension Service Website <https://www.youtube.com/watch?v=ES4jSuimkEg&feature=youtu.be>
- Quesada C R**, 2020. Public health - invertebrate pest management. Pesticide Education Program. The Pennsylvania State University. AGRS-151 2C01/20mpc (85 p.)
- Quesada C R**. What you need to know about bed bug control. Pesticide Education Program. The Pennsylvania State University.

#### **OTHER PUBLICATIONS - dissertations**

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- 2017** **Quesada-Machigua C R**, 2017. Integrating chemical and biological Approaches toward managing armored and soft scale insects. Doctoral Dissertation Purdue University, West Lafayette, IN. 146 p.
- 2013** **Quesada C**, 2013. Effects of selected pesticides on calico scale and its natural enemies. Master's thesis Purdue University, West Lafayette, IN. 63 p.
- 2006** **Quesada C**, 2006. Title translated to English: The use of banana rhizosphere endophytic bacteria to control the burrowing nematode *Radopopholus similis*. Tesis Ing. Agr. Universidad Nacional de Agricultura. Catacamas, Honduras. 44 p.

#### **RESEARCH TALKS AND POSTERS PRESENTATIONS TO PEER SCIENTISTS**

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- 2020** **Quesada C**. Why soft scales are more tolerant to insecticides than armored scales. Division of Plant and Soil Seminar (Entomology), West Virginia University. Morgantown. October 30, 2020
- Quesada C**. The WVU Extension Entomologist - characteristics and challenges. WVU Seminar, West Virginia University. Morgantown. March 10, 2020.

- Quesada C.** Why soft scales are more tolerant to insecticides than armored scales. Plant and Environmental Sciences Seminar, Clemson University. Clemson, SC, March 7, 2020.
- 2019** **Quesada C,** C S Sadof and M Scharf. Excretion of non-metabolized insecticides through honeydew of striped pine scale. Entomological Society of America, 67<sup>th</sup> Annual Meeting, St. Louis, MO. November 17-20.
- 2018** **Quesada C** and C Sadof. Family and duration of crawler emergence periods influence efficacy of insecticides against scale insects. Entomological Society of America, 66<sup>th</sup> Annual Meeting, Vancouver, BC. November 11-14.
- 2017** **Quesada C** and C Sadof. Predicting impacts of insecticides on natural enemies of selected armored and soft scales. Entomological Society of America, 65<sup>th</sup> Annual Meeting, Denver, CO. November 4-9.
- 2016** **Quesada C.** Oil and soap for armored and soft Scales. Ohio Valley Entomological Association (OVEA). West Lafayette, IN. November 4.
- Quesada C.** Oil and soap for armored and soft scales: pathway to success or slippery slope toward failure? 20th Ornamental Workshop on Diseases and Insects. Hendersonville, NC. October 24 – 27.
- Quesada C** and C Sadof. Oil and soap for armored and soft scales: pathway to success or slippery slope toward failure? Entomological Society of America, 64<sup>th</sup> Annual Meeting, Orlando, FL. September 25-30.
- 2014** **Quesada C** and C Sadof. Effect of select insecticides on control of pine needle scale (*Chionaspis pinifoliae*) and on integration of *Chrysoperla rufilabris* and *Lindorus loplanthae*. Entomological Society of America, 62<sup>th</sup> Annual Meeting, Portland, OR. November 10-15.
- 2013** **Quesada C,** A Witte and C Sadof. Multi-season effects of foliar and systemic insecticides on calico scale and their natural enemies. Entomological Society of America, 61<sup>th</sup> Annual Meeting, Austin, TX. November 10-14.
- Witte A, **C Quesada** and C Sadof. Timing of pesticide application can be the difference between spider mite outbreaks or suppression on honeylocust. Entomological Society of America, 61<sup>th</sup> Annual Meeting, Austin, TX. November 10-14.
- 2012** **Quesada C,** A Witte and C Sadof. Effects of selected pesticides on calico scale populations. Entomological Society of America, 60<sup>th</sup> Annual Meeting, Knoxville, TN. November 11-14.
- Witte A, **C Quesada** and C Sadof. Effects of calico scale management programs on spider mite outbreaks on urban honeylocust trees. Entomological Society of America, 60<sup>th</sup> Annual Meeting, Knoxville, TN. November 11-14.
- 2010** Rhains M, C Sadof, and **C Quesada.** Dispersal and development of bagworm larvae (Lepidoptera: Psychidae) on three host plants. Entomological

Society of America, 58th Annual Meeting, San Diego, CA. December 12-15.

## **VOLUNTEER OUTREACH**

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- PestEd program at Pennsylvania State University.  
Ag. Progress Day (2017 to 2019 Rocksprings, PA), Farm City Day (2017 and 2018 Harrisburg, PA), The Great Insect Fair (2017 and 2018 State College, PA), PA Farm Show (2018 and 2019 Harrisburg, PA).
- EAB Outreach Program at Purdue University (2013 to 2016).  
I helped Professor Sadof develop an outreach program that introduces integrated pest management concepts to English and Spanish speakers, statewide in Indiana.
- Bug Bowl Purdue University.  
I assisted with booth at Spring Fest, (from 2009 to 2016, West Lafayette, IN).

## **SPECIAL SKILLS**

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- Fluent in English and Spanish.
- Familiarity with regulated field trials ensuring Stewardship and Regulatory Compliance SOPs, Work Instructions and Directives.
- Pennsylvania pesticide applicator license.
- Pennsylvania driver license.
- Experience with farm equipment.
- Proficiency with software packages including Statistica, Sigma Plot, SAS, Word, Excel, and PowerPoint and social media such as Facebook and Twitter.

## GRANT EXPERIENCE

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- IR-4 Evaluation of pesticides against pine needle scale (w/ Sadof). \$14,000
- IR-4 Evaluation of pesticides against calico scale (w/ Sadof). \$12,000
- OHP chemical (w/ Sadof). \$10,000
- OHP chemical (w/ Sadof). \$10,000

Developed research questions, collected and analyzed data, assisted with writing the proposal and the final reports.

## AWARDS

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- Norn Ehmann/Univar USA Scholarship, Purdue University \$500
- 2<sup>st</sup> Place, Goal achieved. Agriculture department, Honduran government. Atlantic zone (2007).
- 1<sup>rd</sup> Place, Work field class. Agriculture National University, Catacamas, Olancho (2006).
- 2<sup>rd</sup> Place, Work field class. Agriculture National University, Catacamas, Olancho (2005).

## PRESENTATIONS FOR RE/CERTIFICATION OF PESTICIDE APLICATORS AND MASTER GARDENERS

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- 2020** **Quesada C.** Invasive insects in West Virginia. The Marion County Master Gardeners. October 20, 2020. 22 participants
- Quesada C.** Oak shothole leafminer. WV Forest Health Forum. October 5, 2020. 156 participants
- Quesada C.** Integrated pest management (IPM). 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 24, 2020. 100 participants
- Quesada C.** Pesticide labels. 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 24, 2020. 100 participants
- Quesada C.** Pesticide formulation. 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 24, 2020. 100 participants
- Quesada C.** Biology and control of scale insects on trees and shrubs. WV Woodland Stewards Seminar. September 14, 2020. 158 participants
- Quesada C.** Use what you know to control insect pests. 2020 (Online) Lunch & Learn Gardening Series. September 10, 2020. 20 participants
- Quesada C.** Basics of Entomology. 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 3, 2020. 116 participants
- Quesada C.** Insect metamorphosis and common families. 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 3, 2020. 116 participants



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- Quesada C.** Insect damage and control on plants. 2020 Online WVU Extension Master Gardener Program Fall Training Sessions. September 3, 2020. 116 participants
- Quesada C.** Excretion of non-metabolized insecticides through honeydew of striped pine scale. 2020 AgBeats series. August 26, 2020. 25 participants
- Quesada C.** Minimizing Pesticide Exposure to Pollinators. 2020 AgBeats series. July 22, 2020. 19 participants.
- 2019 Quesada C.** Transportation, storage, and security of pesticides. Short CORE. Biglerville, PA. December 5. 33 participants.
- Quesada C.** Planning the pesticide application. Short CORE course. Biglerville, PA. December 5. 33 participants.
- Quesada C.** Pesticide application procedures. Short CORE course. Biglerville, PA. December 5. 33 participants.
- Quesada C.** Pest management. Short CORE course. Biglerville, PA. December 4. 33 participants.
- Quesada C.** Federal pesticide laws and regulations. Short CORE course. Biglerville, PA. December 4. 33 participants.
- Quesada C.** Pesticide formulations. Short CORE course. Biglerville, PA. December 4. 33 participants.
- Quesada C.** Pesticide label review. Pesticide Meeting. Temple, PA. October 24. 26 participants.
- Quesada C.** Pesticide label review (in Spanish). Pesticide Meeting. Avondale, PA. October 23. 23 participants.
- Quesada C.** Pesticide label review. Pesticide Meeting. Avondale, PA. October 23. 43 participants.
- Quesada C.** Pesticide resistance. Commercial Applicator's School. Rocksprings, PA. August 27. 62 participants.
- Quesada C.** Pollinators and pesticide stewardship. Turf and Ornamental Update. State College, PA. August 7. 122 participants.
- Quesada C.** Pollinators and pesticide stewardship. 2019 Blair Turf and Ornamental Update. Altoona, PA. March 5. 64 participants.
- Quesada C.** Pesticide resistance. 2019 Blair Turf and Ornamental Update. Altoona, PA. March 5. 64 participants.
- Quesada C.** Pesticide applicator record keeping (Spanish). Spring 2019 Mushroom Pesticide Meeting. Avondale, PA. February 28. 16 participants.
- Quesada C.** Specialized application methods in ornamentals. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Traditional application methods in ornamentals. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Nuisance wildlife. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.

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- Quesada C.** Disease management in ornamentals. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Insect and mite management in ornamentals. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Weed management in ornamentals. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Diagnosing and solving problems in the landscape. Short CORE and category 6 course. Landenberg, PA. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Managing ornamentals in the landscape. Short CORE and category 6 course. Doylestown, PA, February 28. 6 participants.
- Quesada C.** Transportation, storage, and security of pesticides. Short CORE and category 6 course. Doylestown, PA, February 27. 6 participants.
- Quesada C.** Planning the Pesticide Application. Short CORE and category 6 course. Doylestown, PA, February 27. 6 participants.
- Quesada C.** Pesticide application procedures. Short CORE and category 6 course. Doylestown, PA, February 27. 6 participants.
- Quesada C.** Pest management. Short CORE and category 6 course. Doylestown, PA, February 26. 6 participants.
- Quesada C.** Federal pesticide laws and regulations. Short CORE and category 6 course. Doylestown, PA, February 26. 6 participants.
- Quesada C.** Pesticide formulations. Short CORE and category 6 course. Doylestown, PA, February 26. 6 participants.
- Quesada C.** Respirator fit test (in Spanish). Commercial Tree Fruit School. Biglerville, PA. February 18. 46 participants.
- Quesada C.** Pesticide resistance. 2019 Mid-atlantic fruit and vegetable convention. Hershey, PA. January 30. 35 participants.
- 2018 Quesada C.** Specialized application methods in ornamentals. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Traditional application methods in ornamentals. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Nuisance wildlife. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Disease management in ornamentals. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Insect and mite management in ornamentals. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Weed management in ornamentals. Short CORE and category 6 course. Landenberg, PA. October 17. 22 participants.
- Quesada C.** Diagnosing and solving problems in the landscape. Short CORE and category 6 course. Landenberg, PA. October 16. 22 participants.

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- Quesada C.** Managing ornamentals in the landscape. Short CORE and category 6 course. Landenberg, PA. October 16. 22 participants.
- Quesada C.** Pest management. Short CORE and category 6 course. Landenberg, PA. October 16. 22 participants.
- Quesada C.** Federal pesticide laws and regulations. Short CORE and category 6 course. Landenberg, PA. October 16. 22 participants.
- Quesada C.** Pesticide formulations. Short CORE and category 6 course. Landenberg, PA. October 15. 22 participants.
- Quesada C.** Transportation, storage, and security of pesticides. Short CORE and category 6 course. Landenberg, PA. October 15. 22 participants.
- Quesada C.** Planning the Pesticide Application. Short CORE and category 6 course. Landenberg, PA. October 15. 22 participants.
- Quesada C.** Pesticide Application Procedures. Short CORE and category 6 course. Landenberg, PA. October 15. 22 participants.
- Quesada C.** Pollinators and pesticide stewardship. Landscape Update 2018. Lehigh, PA. September 11. 22 participants.
- Quesada C.** Pesticide resistance. Turf and Ornamental School. Annville, PA. July 12. 81 participants.
- Quesada C.** Pollinators and pesticide stewardship. Professional Pest Managers School. Lancaster, PA. March 12. 62 participants.
- Quesada C.** Pesticides spill management (in Spanish). 2018 Spring Mushroom Pesticide Meetings. Avondale, PA. February 23. 18 participants.
- Quesada C.** Pesticides spill management. 2018 Spring Mushroom Pesticide Meetings. Avondale, PA. February 23. 35 participants.
- Quesada C.** Respirator fit test (in Spanish). Commercial Tree Fruit School. Biglerville, PA. February 19. 37 participants.
- Quesada C.** How to minimize the negative effect of pesticides on pollinators? (in Spanish). 2018 Mid-atlantic fruit and vegetable convention. Hershey, PA. January 31. 41 participants.
- 2017 Quesada C.** Pollinators and pesticide stewardship. Professional Pest Managers School to Green Industry & Infrastructure. Grantville, PA. December 4. 60 participants.
- Quesada C.** Integrated pest management: common sense pest control. Master Gardener Program. University Park, PA. October 10. 23 participants.
- Quesada C.** Pesticides risks of exposure (in Spanish). 2017 Fall Mushroom Pesticide Meetings. Avondale, PA. October 8. 20 participants.
- Quesada C.** Sprayer calibration and personal protective equipment demonstration. Commercial Applicator's School. Rocksprings, PA. August 30. 70 participants.
- Quesada C.** Pesticide transportation. Commercial Applicator's School. Rocksprings, PA. September 21. 63 participants.

