

Cangliang Shen

Professor/Extension Specialist, Ph.D.
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Education

Ph.D. Food Microbiology (Meat Safety) 2006-2009
Department of Animal Sciences, Center for Meat Safety & Quality,
Colorado State University, Fort Collins, CO, U.S.

M.S. Veterinary Medicine
College of Veterinary Medicine, Nanjing Agricultural University, China 2004-2006

Bachelor Veterinary Medicine
College of Veterinary Medicine, Nanjing Agricultural University, China 2000-2004

Work and Research Experiences

08/2024 - current **Professor/Extension Specialist**
(12 m appointment, 40%-Teaching, 40%-Research, and 20%-Extension/Service)
School of Agriculture and Food System
Division of Land-Grant Engagement, West Virginia University

08/2019-07/2024 **Associate Professor/Extension Specialist**
(12 m appointment, 40%-Teaching, 40%-Research, and 20%-Extension/Service)
Division of Animal and Nutritional Sciences,
Davis College of Agriculture, Natural Resources & Design, West Virginia University

01/2015-07/2019 **Assistant Professor/Extension Specialist**
Division of Animal and Nutritional Sciences,
Davis College of Agriculture, Natural Resources & Design, West Virginia University

08/2012-12/2014

Assistant Professor (Food Microbiologist)

Department of Biology, Western Kentucky University, Bowling Green, KY

- Teach and develop externally funded research program in food microbiology
- Classes Teaching:

2012-2014 Biol226 Microbial Biology & Diversity (24 students/semester)

2012-2014 Biol227 Lab Microbial Biology & Diversity (24 students/semester)

2012-2014 Biol208 General Clinical Microbiology (24 students/semester, 2 sections/semester)

Bio 336 Food Microbiology (developed new course)

01/2011-07/2012

Postdoctoral Research Microbiologist

USDA-ARS Environmental Microbial and Food Safety Lab, Beltsville, MD

Department of Nutrition and Food Science, University of Maryland at College Park, MD

Research project: "Improving produce safety by stabilizing chlorine in washing solutions with high organic loads" and "Innovative technologies and process optimization for food safety risk reduction associated produce processing"

01/2010-01/2011

Research Associate

IEH Laboratories & Consulting Group, Seattle, WA

Job duties: Commercial food pathogen testing using multiplex PCR, validation studies of antimicrobials application on food processing, and research related to lactic acid bacteria

08/2006-12/2009

Graduate Research Assistant

Department of Animal Sciences, Center for Meat Safety & Quality, Colorado State University Advisor: Dr. John N. Sofos

Research projects: "Thermal inactivation of *Escherichia coli* O157:H7 on nonintact beef products" and "Antilisterial activities of natural antimicrobials on ready-to-eat meat products"

09/2003-06/2006

Graduate Research Assistant

Key Laboratory of Animal Physiology & Biochemistry, Ministry of Agriculture, Nanjing Agricultural University, China

Research project: "Antimicrobial activity and anti-infection effect of hydrolysates from soybean conglycinin against *E. coli* O138 in mice using PCR-DGGE"

Honors and Awards

- Outstanding Research Award Davis College of Agriculture, Natural Resources & Design, WVU, 2024
- Outstanding Research Award representing Division of Animal & Nutritional Sciences at Davis College of Agriculture, Natural Resources & Design, WVU, 2022
- Outstanding Teaching Award representing Division of Animal & Nutritional Sciences at

Davis College of Agriculture, Natural Resources & Design, WVU, 2021

- First Place 2020 FPT Most-Viewed Peer-Review Research Publication Award, 2020
- Outstanding Research Award, Division of Animal & Nutritional Sciences, Davis College, WVU, 2020
- Outstanding Volunteer Award of Food Microbiology Division-Institute of Food Technologists, 2018
- Third Place 2018 John N. Sofos Most-cited JFP Research Publication Award, 2018
- Nominee of Outstanding Teaching Award, Davis College, WVU, 2018
- Chair of Food Microbiology Division, Institute of Food Technologists 2018-2019
- Food Microbiology Division Leadership Travel Grant, Institute of Food Technologists 2014, 2016, 2017, 2018, 2019
- WKU Faculty and Staff Appreciation Award (sponsored by Alpha Omicron Pi) 2014
- Members-at-Large of Food Microbiology Division, Institute of Food Technologist 2013-2015
- 1st Place of John C. Ayres Poster Competition Food Microbiology Division, Institute of Food Technologists 2010
- 3rd place of Developing Scientist Award, International Association of Food Protection 2009
- Third Prize JBS Swift Company Seminar Student Oral Presentation Competition 2009
- Student Education Award, IFT-Rocky Mountain Branch 2009
- Student Travel Award, IFT-Rocky Mountain Branch 2008
- Graduate Fellowship Award Colorado State University 2006

Annual Course Teaching (13 credits/year):

My Youtube channel link: https://www.youtube.com/channel/UCq6_ZNp7r8g8Eovf63-eXeg/videos

Fall, **General Microbiology** (4 credits, with 4 lab sections, 136 students)

Spring, **Living in a Microbial World** (3 credits, 50 students)

Spring, **Food Microbiology Lab** (1 credit, developed new course, 15 students)

Spring, **Food Chemistry** (3 credits, developed new course, 15 students)

List of Graduate Students Advising (1 post-doctor, 10 Ph.D., 20 MS. students)

Name	Degree Role	Time
Yu-Chun Chiu	Post-doctor	Aug. 2019 to Dec. 2019
Corey Coe	Ph.D., Advisor	Fall 2022 to Spring 2025
Carly Long	Ph.D., Advisor	Fall 2024 to current
Gary Freshour	Ph.D., Advisor	Spring 2024 to current
Jesica Temple	Ph.D., Advisor	Spring 2024 to current
M. Shafiul I. Rion	Ph.D., Advisor	Spring 2024 to current
Rebecca Steams	Ph.D., Advisor	Summer 2022 to Fall 2023
KaWang Li	Ph.D., Advisor	Fall 2017 to Summer 2021

Wentao Jiang	Ph.D., Advisor	Spring 2018 to Summer 2021
Joseph Katz	Master, Advisor	Spring 2023 to Fall 2024
Peighton Foster	Master, Advisor	Fall 2022 to Spring 2024
Jesica Temple	Master, Advisor	Fall 2022 to Fall 2023
Connor Freed	Master, Advisor	Summer 2022 to Spring 2023
Alik Browning	Master, Advisor	Fall 2021 to Fall 2022
Corey Coe	Master, Advisor	Spring 2020 to Fall 2022
Rebecca Stearns	Master, Advisor	Spring 2021 to Summer 2022
Rachael Starr	Master (non-thesis), Advisor	Spring 2020 to Summer 2021
Lacey Lemonakis	Master, Advisor	Fall 2015 to Fall 2018
KaWang Li	Master, Advisor	Fall 2015 to Summer 2017
Ian Israelsen	Ph.D., Committee member	Fall 2024 to Summer 2025
Elizabeth Lynch	Ph.D., Committee member	Fall 2024 to current
Nariman Ktil	Ph.D., Committee member	Fall 2023 to current
Marziyeh Horeh	Ph.D., Committee member	Fall 2021 to Summer 2022
Timothy Boltz	Ph.D., Committee member	Fall 2019 to May 2022
Ian Israelsen	Master, Committee member	Spring 2023 to Spring 2024
Brennah Groves	Master, Committee member	Fall 2023 to current
Miah Gathman	Master, Committee member	Fall 2023 to current
Rachel Midkiff	Master, Committee member	Fall 2023 to current
Precious Aduloju	Master, Committee member	Fall 2023 to current
Sean Estep	Master, Committee member	Spring 2021 to Fall 2023
Jessica Lemley	Master, Committee member	Fall 2018 to July 2020
Shall Andrew	Master (non-thesis), Committee member	Spring 2018 to Spring 2019
Timothy Boltz	Master, Committee member	Fall 2017 to Spring 2019
Dereck Warren	Master, Defense committee member	Fall 2015 to Summer 2017

Research Interest: Developing postharvest sanitizing procedures for reducing food safety risks on poultry meat products and fresh produce at both the laboratory and pilot plant levels.

Research Grants (Career Total budget: **\$3,986,742** As PI or Co-PI)

USDA-NIFA HATCH GRANT (Non-Competitive Grant)

1. **Cangliang Shen (PI).** Inactivation of Foodborne Pathogens by Chemical and Physical Interventions in West Virginia Locally processed Chicken Products and Related Cost-effectiveness Analysis. FY2020-FY2025
2. **Cangliang Shen (PI).** Control of *Salmonella spp.* in poultry products by physical and chemical treatments. FY2015-FY2020

Funded External Grants:

At WVU (Awards amount to Shen: \$2,104,907)

1. Jacek Jaczynski, Kristen Matak, and **Cangliang Shen (Co-PI).** FY2024-2026. West

- Virginia University (WVU) Food and Feed Innovation and Analytics Facility. **USDA, NIFA- Research Facilities Act Program (Award # 2024-77046-43686). Budget: \$174,949.**
2. **Cangliang Shen (PI)**, Nettie Freshour, Kristen Matak. FY2024-2026. Young Farmer Food Safety Education Project: Developing and Implementing Food Safety Outreach Activities for WV High School Horticulture Instructors as Supplement to the Farm-to-School Program. **USDA, NIFA-Food Safety Outreach Program (Award # 2024-70020-42807). Budget: \$150,000.**
 3. **Cangliang Shen (PI)**, Lisa Jones. FY2023-2025. “Expand the Current Food Safety Modernization Act Training Program for West Virginia Very Small Local Produce Growers with the Content of Triple-Wash and Related Outreach Activities” **USDA, NIFA-Food Safety Outreach Program (Award # 2023-70020-40563). Budget: \$150,000.**
 4. **Cangliang Shen (PI)**, Xiaoli Etienne, Yangchao Luo, Lisa Jones. FY2023-2025. “Applying triple-wash and nanotechnology to mitigate microbial cross-contamination on locally grown produce through integrated research and extension activities” **USDA, NIFA-AFRI-Critical Agricultural Research and Extension (CARE) Program (Award # 2023-68008-39849). Budget: \$300,000.**
 5. Tim Bolts, **Cangliang Shen (Co-PI)**, Joe Moritz, with 4 other Co-PDs. FY2023-2025. Improving Microbial Safety of Pelleted Poultry Feed during Manufacturing Process Through Integrated Research and Extension Activities. **USDA, NIFA-AFRI-Critical Agricultural Research and Extension (CARE) Program (Award #2023-68008-39447). Budget: \$300,000. Sub-award of \$120,000 from MSU to WVU.**
 6. Hanna Khouryieh, **Cangliang Shen (Co-PI)**, Yifan Zhang. FY2022-2025. “A Multi-state Partnership for Improving the Microbial Safety of Locally Processed Poultry Meat at Farmers Markets through Integrated Teaching, Research, and Extension Activities” **USDA, NIFA Institute of Family, Youth and Community, Division of Community and Education, Non-Land Grant Colleges of Agriculture (NLGCA) Program (Award # 2022-70001-37312). Budget: \$749,724. Sub-award of \$187,060 from WKU to WVU.**
 7. **Cangliang Shen (PI)**, Xiaoli Etienne, Brett Kenney, Lisa Jones. FY2022-2025. “Improving Microbial Safety and Marketing of West Virginia Locally Pastured Broilers by Establishing a Mobile Poultry Processing Unit Through Research and Extension Activities” **USDA, NIFA-AFRI-Critical Agricultural Research and Extension (CARE) Program 2021-09878 (Award# 2022-68008-37104) Budget: \$299,192.**
 8. Candace DeLong, Brian Wickline, Tom Basden, Josh Peplowski, **Cangliang Shen (Co-PI, senior personnel)**, and Jody Carpenter. FY2022-2024. “Evaluation of WV Pelletized Poultry Litter to Improve Specialty Crop Production” **2021 Sustainable Agriculture Research and Education (SARE) Northeast Partnership Grant. PG21-020. Budget: \$29,944 (\$3,000 distributed to Shen for microbial analysis)**

9. **Cangliang Shen (PI)**, Xiaoli Etienne, Lisa Jones, Annette Freshour. FY2020-2024. "Establishing a Summer Internship Program to Enhance Undergraduate Knowledge and Skills on Food Microbial Safety through Research and Extension Activities" **USDA-NIFA-AFRI Education and Workforce Development** Program 2019-05064 (Award #2020-68018-30657) Budget: **\$398,997**.
10. **Cangliang Shen (PI)**, Xiaoli Etienne, Lisa Jones. FY2019-2023. "Improving the Microbial Safety and Quality of Locally Grown Produce in West Virginia by Adopting a Three-Step Wash Process with Antimicrobials Through Research and Extension" **USDA, NIFA-AFRI-Critical Agricultural Research and Extension (CARE)** Program 2018-09105 (Award #2019-68008-29828) Budget: **\$195,730**.
11. Yifan Zhang, **Cangliang Shen (Co-PI)**, Xiaoli Etienne, Lisa Jones. FY2018-2023. "Evaluating Antibiotic Resistance in Locally-Grown Fresh Produce with the Aim to Enhance Urban Food Sustainability" **USDA, NIFA Institute of Family, Youth and Community, Division of Community and Education, Non-Land Grant Colleges of Agriculture (NLGCA)** Program-2018-04995 (Award #2018-70001-28938). Budget: **\$640,631**. Sub-award of **\$138,794** from WSU to WVU. FY19-23.
12. Hanna Khouryieh, **Cangliang Shen (Co-PI)**, Martin Stone. FY2016-2018. "Building Capacity of Food Science Cluster at Western Kentucky University to Control Pathogens on Fresh Produce at Kentucky Farmers' Markets" **USDA, NIFA Institute of Family, Youth and Community, Division of Community and Education, Non-Land Grant Colleges of Agriculture (NLGCA)** Program-2016-06589 (Award # 2017-70001-25993). Budget: **\$297,278**. Sub-award of **\$89,184** from WKU to WVU. FY17-18.
13. **Cangliang Shen (PI)**, Cate Webb, Pauline Norris. FY2015-2017. "Building Teaching and Research Capacity at the Food Science Cluster of Western Kentucky University to Control Salmonella in Chicken Products" **USDA, NIFA Institute of Family, Youth and Community, Division of Community and Education, Non-Land Grant Colleges of Agriculture (NLGCA)** Program-2014-09844. Budget: **\$149,977**. Sub-award of **\$14,950** from WKU to WVU. FY15-16.
14. Hanna Khouryieh, **Cangliang Shen (Co-PI)**, Martin Stone, Amanda Gipe, and Todd Williams. FY2013-2016. "An integrated approach to enhance the safety of locally grown fresh produce through research and extension" **USDA, NIFA-AFRI Food Safety Program-2012-04320 (Grant #11281827)**. Budget: **\$209,920**. Sub-award of **\$8,000** from WKU to WVU FY15-16.

Funded Internal Competitive Grants and Support:

At WVU

1. **Cangliang Shen (PI)**. 2022-2023. Improve Microbial Safety of Locally Grown Fresh Squashes by Validating Three-step Wash Process at Preston County Workshop in Reedsville West Virginia. Budget: **\$5,700**. **WVU Davis College of Agriculture, Natural Resources and Design Davis-Michael, Daniel C. & Elizabeth D. Brown**

Faculty Development Fund.

2. **Cangliang Shen (PI)** and Lewis Jett. 2018-2019. Microbial profile of fresh produce and environmental samples from WVU organic produce farm. Budget: **\$10,000.**
WVU-Davis College and Extension Unit Faculty Development Seed Grant.
3. **Cangliang Shen (PI)** and Joseph Moritz. 2016-2017. Pre-harvest and Post-harvest Processing Controls to Reduce *Salmonella* & *Campylobacter* on Chicken products Produced by Mobile Poultry Processing Unit. Budget: **\$16,500.** **WVU-Senate Research and Scholarship Grant Award R-16-027.**
4. Kang Mo Ku and **Cangliang Shen (Co-PI)**. Survival and attachment mechanism of foodborne pathogens on various leafy green surfaces. Budget: **\$3,000.** **WVU-School of Agriculture and Food Research Grant.**

Before WVU

5. **Cangliang Shen** and Amanda Gipe McKeith. 2014-2015. Thermal inactivation of shiga toxin-producing *Escherichia coli* (STEC) in veal products moisture enhanced with essential oils. Budget: **\$8,200.** **WKU- Research and Creative Activities Program Funding.**
6. **Cangliang Shen** (Faculty Mentor) and Courtney Broyles. 2013. Cooking inactivation of Non-O157 Shiga Toxin-Producing *Escherichia coli* in moisture enhanced non-intact beef by double pan-broiling griller. Budget: **\$5,000.** **WKU, Faculty – Undergraduate Student Engagement (FUSE) Grant.**
7. Moon-Soo Kim, **Cangliang Shen**, Amanda Gipe McKeith, Jana Fattic, Aaron Celestian, and Pauline Norris. 2013. Evaluation of the efficacy of postharvest chlorine water washing procedures to control foodborne pathogens on fresh produce selling at local farmers' markets and development of a zinc finger protein array for on-site detection of foodborne pathogens. **WKU-Applied Research and Technology Program, Collaborative Research Proposal Grants.** Budget: **\$70,000.** **Co-PI for produce washing project, budget distributed to Shen: \$30,000.**
8. **Cangliang Shen** (faculty mentor) and Kelsey Carter. 2013. Control of unstressed or cold, acid or starvation stress-adapted *Listeria monocytogenes* on commercially cured ham by dipping in hops beta acids solutions. **WKU-Biology Department Undergraduate Summer Research Scholarship.** Budget: **\$1,000.**
9. **Cangliang Shen** (faculty mentor) and Alyssa Huff. 2013. Thermal inactivation of unstressed, acid, cold, and starvation stress adapted *Salmonella* typhimurium in raw carrot juice. **WKU-Biology Department Undergraduate Summer Research Scholarship.** Budget: **\$1,000.**

Publications:

Textbooks (3):

1. **Cangliang Shen** and Yifan Zhang. ***Food Microbiology Laboratory for the Food Science Student: A Practical Approach Second Edition.*** 2023. Springer. •ISBN 978-3-

031-26196-1

2. **Cangliang Shen** and Yifan Zhang. **Introductory Microbiology Lab Skill and Techniques in Food Science**. 2021. Elsevier Inc. ISBN 9780128216781.
3. **Cangliang Shen** and Yifan Zhang. **Food Microbiology Laboratory for the Food Science Student: A Practical Approach**. 2017. Springer. •ISBN 978-3-319-58371-6



Book Chapters (3):

1. **Cangliang Shen**, Wentao Jiang, Corey Coe, and Carly Long (2025). **Microbial Analysis**. In: Li, Y. (eds) **Plant-Based Proteins**. Methods and Protocols in Food Science. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-4272-6_8.
2. **Cangliang Shen** and Matt Taylor. Lauric Arginate Ethyl Ester. In: **Antimicrobials in Food, Fourth Edition**. Chapter 10, pp 357-371. Editors: Taylor, Davidson, David. Publisher. CRC Group Taylor & Francis Group. 2020. ISBN 9780367178789. <https://doi.org/10.1201/9780429058196>.
3. **Cangliang Shen**. Control of FoodBorne Pathogens by Hops Beta Acids in Food System. In: **Natural and Bio-Based Antimicrobials for Food Applications**. Chapter 7, pp 133-147. Editors: Xuetong Fan, Helen Ngo, and Changqing Wu. American Chemical Society (ACS) Publisher. Washington D.C. 2018. Volume 1287. ISBN13: 9780841233058.

Referred Journal Articles of Research (Total 66):

At WVU (*corresponding author)

1. Nariman Ktil, Ida Holaskova, Yong-Lak Park, **Cangliang Shen**, Kristen E. Matak, Jacek Jaczynski. 2025. Increasing food sustainability by utilization of biowaste to grow mealworms and their nutrient profile as human food. **Future Foods**. Article 100558.
2. Xinhao Wang, Yihang Feng, Yi Wang, Honglin Zhu, Dongjin Song, **Cangliang Shen**, Yangchao Luo. 2025. Enhancing optical nondestructive methods for food quality and safety assessments with machine learning techniques: A survey. **Journal of Agriculture and Food Research** 17, Article 101734.
3. Rebecca Stearns, Wentao Jiang, Janet Tou, Kristen Matak, Annette Freshour, Timothy Boltz, Jacek Jaczynski, Carly Long, and **Cangliang Shen***. 2025. A Preliminary Pilot West Virginia Farmers' Market Survey of Very Small Produce Growers' Knowledge of Microbial Contamination and Their Perception of the Triple-Wash Method. **Food Protection Trend**. 45, 42-57.
4. Adiam Tesfai, Ayesha Sarker, **Cangliang Shen**, Kristen E. Matak, Jacek Jaczynski. 2025. Innovative E-beam technology for validation of *Salmonella* inactivation kinetics in

- fresh shell eggs: A predictive modeling approach. ***Innovative Food Science & Emerging Technologies***. Article 103868.
5. Peighton Foster, Corey Coe, Carly Long, Md Shafiul Islam Rion, Gary Freshour, Annette Freshour, Jacek Jaczynski, Kristen Matak, and **Cangliang Shen***. 2024. Anti-Listeria efficacy of peroxyacetic acid in bacterial buffered solution and on bell peppers. ***Journal of Agriculture and Food Research*** 18, Article 101265.
 6. Casey Showman, Alleda Rose, **Cangliang Shen**, Jacek Jaczynski, and Kristen Matak 2024. Extraction of Lipids and Functional Properties of Defatted Egg Yolk Powder Obtained Using a One-Step Organic Solvent Lipid Extraction Process. ***Foods***, 13, Article 2113.
 7. Nida Demirtas Erol, Sukran Cakli, Mariusz Szymczak, **Cangliang Shen**, Kristen E. Matak, Jacek Jaczynski. 2024. Effect of pretreatment temperature and time on fat bonding and fat reduction in deep-fried surimi. ***Journal of Agriculture and Food Research*** 16, Article 101198.
 8. Rebecca Stearns, Kristina Bowen, Robert L. Taylor, Jr., Joe Moritz, Kristen Matak, Janet Tou, Annette Freshour, Jacek Jaczynski, Timothy Boltz, Xiang Li, Carly Long, and **Cangliang Shen***. 2024. Microbial Profile of Broiler Carcasses Processed at A University Scale Mobile Poultry Processing Unit. ***Poultry Science***, 103, Article 103576.
 9. Alleda Rose, Casey Showman, **Cangliang Shen**, Jacek Jaczynski, Kristen Matak. Effect of organic solvent on the extraction of lipids from krill powders using a one-step extraction process. ***Journal of Agriculture and Food Research***, 16, Article 101072.
 10. Nirosha Ruwani Amarasekara, Amrita Subramanya Swamy, Sumit Kumar Paudel, Wentao Jiang, KaWang Li, **Cangliang Shen**, and Yifan Zhang. 2024. Hypervirulent clonal complex (CC) of *Listeria monocytogenes* in fresh produce from urban communities. ***Frontiers in Microbiology***, 15:1307610
 11. Mariusz Szymczak, Patryk Kaminskia, Barbara Szymczakb, **Cangliang Shen**, Kristen E. Matak, and Jacek Jaczynski. 2024. Process scale-up for the application of fish protein isolate obtained from processing co-products by isoelectric solubilization/precipitation. ***Food and Bioprocess Technology***. 17: 3114–3129.
 12. Nida Demirtas Erola, Sukran Caklic, Mariusz Szymczak, **Cangliang Shen**, Kristen E. Matak, and Jacek Jaczynski. 2024. Nutrifaction and fat reduction of deep-fried protein isolates. ***Food Chemistry***, 437, Article 137822.
 13. Emily N. Brogan, Yong-Lak Park, **Cangliang Shen**, Kristen E. Matak, and Jacek Jaczynski. 2023. Characterization of lipids in insect powders. ***LWT-Food Science and Technology***, 184, Article 115040.
 14. Rebecca Stearns, Kristen Matak, Annette Freshour, and **Cangliang Shen***. 2023. Comparison of the Efficacy of Hydrogen Peroxide-Peroxyacetic Acid Delivered by Three Methods Against *Listeria monocytogenes* and the Surrogate *L. innocua* on Apples. ***LWT-Food Science and Technology***, 184, Article 114945.
 15. Rebecca Stearns, Corey Coe, Kristen Matak, Annette Freshour, Jacek Jaczynski, Yangchao Luo, and **Cangliang Shen***. 2023. Reduction of Microbial Populations and

- Cross-Contamination of *Salmonella* Typhimurium and the Surrogate *Enterococcus faecium* on Tomatoes during Triple-Wash using Off-Label Concentrations of a Combination of Peroxyacetic Acid and Hydrogen Peroxide. **Journal of Agriculture and Food Research**, 12, Article 100542.
16. Rebecca Stearns, Corey Coe, Ida Holásková, Kristen Matak, Annette Freshour, Jacek Jaczynski, Jingyi Xue, Yangchao Luo, Lisa Jones, Xinhao Wang, and **Cangliang Shen***. 2023. Efficacy of triple-wash using a peroxyacetic acid and hydrogen peroxide solution at reducing populations and cross-contamination of *Salmonella* Typhimurium and the surrogate *Enterococcus faecium* on tomatoes. **LWT - Food Science and Technology**, 175, Article 114499.
 17. Xiaoxue Yan, Yiwei Xu, **Cangliang Shen**, and Dong Chen. 2023. Inactivation of *Staphylococcus aureus* by levulinic acid plus sodium dodecyl sulfate and their antibacterial mechanisms on *S. aureus* biofilms by transcriptomic analysis. **Journal of Food Protection**. 86, Article 100050.
 18. Jesica Temple, Rebecca Stearns, Corey Coe, Heather Chaney, Janet Tou, Annette Freshour, Yangchao Luo, **Cangliang Shen***. 2023. Evaluation of the efficacy of a mixer of hydrogen peroxide and peroxyacetic acid to mitigate microbial cross-contamination of *Salmonella* Typhimurium and the surrogate *Enterococcus faecium* during triple-washing of butternut squash. **LWT - Food Science and Technology**, 173, Article 114313.
 19. Connor Freed, Rebecca Stearns, Nettie Freshour, Yangchao Luo, and **Cangliang Shen***. 2022. Survival of *Listeria monocytogenes* on organic *Honeycrisp* and *Fuji* apples during storage at 5, 12 and 22.5°C. **Journal of Agriculture and Food Research**, 10, Article 100455.
 20. Rebecca Stearns, Nettie Freshour, and **Cangliang Shen***. 2022. Literature review for applying peroxyacetic acid and/or hydrogen peroxide to control foodborne pathogens on food products. **Journal of Agriculture and Food Research**, 10, Article 100442.
 21. Zijun Liu, Haiqi Long, Yihan Wang, **Cangliang Shen**, and Dong Chen. 2022. Antimicrobial Nonwoven Fabrics Incorporated with Levulinic Acid and Sodium Dodecyl Sulfate for Use in the Food Industry. **Foods**, 11, 2369. (Featured Article)
 22. Corey Coe, Timothy Boltz, Rebecca Stearns, Peighton Foster, Robert L. Taylor, Jr., Joe Moritz, Jacek Jaczynski, Annette Freshour, and **Cangliang Shen***. 2022. Thermal Inactivation of *Salmonella* Typhimurium and the surrogate *Enterococcus faecium* in Mash Broiler Feed in A Laboratory Scale Circulated Thermal Bath. **Poultry Science**. Article 101976.
 23. **Cangliang Shen***, Hanna Khouryieh, KaWang Li, Wentao Jiang, Sumit K. Paudel, Nirosha Ruwani Amarasekara, Yifan Zhang, Rebecca Stearns, Corey Coe, Kristen Matak, and Lisa Jones. 2022. Survey of Consumers' Knowledge of Food Safety of Perishable Foods Purchased at Local Farmers Markets. **Food Protection Trends**. 42, 293-303.
 24. Rebecca Stearns, Jingyi Xue, Nettie Freshour, Kristen Matak, Yangchao Luo, and **Cangliang Shen***. 2022. The Efficacy of Conventional Spray, Electrostatic Spray, and

- Dip with a Combination of Hydrogen Peroxide and Peroxyacetic Acid to Inactivate *Listeria monocytogenes* on Apples. **Journal of Food Protection**. 85, 828-834.
25. Timothy Boltz, Joseph Moritz, Victoria Ayres, Casey Showman, Jacek Jaczynski, and **Cangliang Shen***. 2021. Modeling thermal inactivation of *Salmonella* Typhimurium in poultry feed. **Journal of Applied Poultry Research**, 20, Article 100208.
26. Wentao Jiang, Carly Waldman, KaWang Li, Jacek Jaczynski, and **Cangliang Shen***. 2021. Survival of *Salmonella* and the surrogate *Enterococcus faecium* in Cooking of Moisture Enhanced Reconstructed Comminuted Chicken Patties by Double Pan-broiling. **Poultry Science**, 100, Article 101171.
27. Wentao Jiang, Sumit K. Paudel, Nirosha Ruwani Amarasekara, Yifan Zhang, Xiaoli Etienne, Lisa Jones, KaWang Li, Fay Hansen, Jacek Jaczynski, and **Cangliang Shen***. 2021. Survey of Small Local Produce Growers' Perception of Antibiotic Resistance Issues at Farmers Markets. **Food Control**, 125, Article 107997.
28. KaWang Li, Lisa Jones, Wentao Jiang, and **Cangliang Shen***. 2021. Inactivation of Foodborne Pathogens (*Salmonella* and *Listeria monocytogenes*) on Locally Processed Spinaches by Three-Step Wash with Antimicrobials. **Journal of Agriculture and Food Research**, 3, Article 100106.
29. Chuanyan, Che, **Cangliang Shen***, Shenghe Li, Zhihua Cai, Ren Man, and Xuan Wang. 2020. Effect of *Echinacea purpurea* extract given in drinking water on performance, slaughter variables, and meat quality of Broilers. **ES Food & Agroforestry**, 2, 42-49.
30. Wentao Jiang, KaWang Li, Yu-Chun Chiu, Carly Waldman, and **Cangliang Shen*** 2020. Inactivation of *Campylobacter jejuni* in Moisture Enhanced Non-Intact Chicken Patties by Double Pan-broiling as Affected by Cooking Set-Up Temperature and Pump Rate. **LWT - Food Science and Technology**, 133, Article 109938.
31. Yu-Chun Chiu, **Cangliang Shen**, Mark Farnham, and Kang-Mo Ku. 2020. Three-Dimensional Epicuticular Wax on Plant Surface Reduces Attachment and Survival Rate of *Salmonella* during Storage. **Postharvest Biology and Technology**. 166, Article 111197. (co-first author)
32. KaWang Li, Yu-Chun Chiu, Lisa Jones, Wentao Jiang, Xiaoli Etienne, and **Cangliang Shen***. 2020. Comparing the Efficacy of Two Triple-Wash Procedures with Sodium Hypochlorite, Lactic-Citric Acid Blend, and Mix of Peroxyacetic Acid and Hydrogen Peroxide to Inactivate *Salmonella*, *Listeria monocytogenes*, and surrogate *Enterococcus faecium* on Cucumbers and Tomatoes. **Frontiers in Sustainable Food Systems**. 4, 19.
33. KaWang Li, Xiaoli Etienne, Yu-Chun Chiu, Lisa Jones, Hanna Khouryieh, and **Cangliang Shen***. 2020. Validation of triple-wash procedure with a H₂O₂-peroxyacetic acid mixer to improve microbial safety and quality of butternut squashes and economic feasibility analysis. **Food Control**. 112, Article 107146.
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- Salmonella* spp. at harvest and after postharvest storage. **LWT - Food Science and Technology**. 117, Article 108657.
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 38. Wentao Jiang, Xiaoli Etienne, KaWang Li, **Cangliang Shen***. 2018. Comparison of the efficacy of electrostatic versus conventional sprayer with commercial antimicrobials to inactivate *Salmonella*, *Listeria monocytogenes* and *Campylobacter jejuni* for eggs and economic feasibility analysis. **Journal of Food Protection**. 81:1864-1870.
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 41. KaWang Li, Amanda Gipe McKeith, **Cangliang Shen***, Russell McKeith. 2018. A Comparison Study of Quality Attributes of Ground Beef and Veal Patties and Thermal Inactivation of *Escherichia Coli* O157:H7 after Double Pan-Broiling Under Dynamic Conditions. **Foods**. 7(1): 1-13.
 42. Lacey Lemonakis, KaWang Li, Jeremy Adler, and **Cangliang Shen***. 2017. Microbiological quality assessment and validation of antimicrobials against unstressed or cold-stress adapted *Salmonella* and surrogate *Enterococcus faecium* on broiler carcasses and wings. **Poultry Science**. 86: 4038-4045.
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 44. KaWang Li, Jennifer Weidhaas, Lacey Lemonakis, Hanna Khouryieh, Martin Stone, Lisa Jones, and **Cangliang Shen***. 2017. Microbiological Quality and Safety of Fresh Produce in West Virginia and Kentucky Farmers' Markets and Validation of a Post-harvest Washing Practice with Antimicrobials to Inactivate *Salmonella* and *Listeria*

monocytogenes. **Food Control**. 79:101-108.

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47. Li Wang, Amanda McKeith, **Cangliang Shen***, Kelsey Carter, Alyssa Huff, Russell McKeith, Xinxia Zhang, and Zhengxing Chen. 2016. Effect of hops beta acids on survival of unstressed-, acid-stress adapted *Listeria monocytogenes*, quality and sensory attributes of commercially cured ham. **Journal of Food Science**. 81:M445-M453. (co-first author)
48. **Cangliang Shen**, Pauline Norris, Olivia Williams, Stephanie Hagan, and KaWang Li. 2016. Generation of chlorine by-products in simulated wash water. **Food Chemistry**. 190: 97-102.
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Before WVU

50. **Cangliang Shen**. 2014. Cooking inactivation of shiga toxin producing *Escherichia coli* (STEC) in non-intact beefs-a mini-review. **Journal of Food Processing & Beverages**. 2:1-5.
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52. **Cangliang Shen**, Yaguang Luo, Xiangwu Nou, Qin Wang, and Patricia Millner. 2013. Dynamic effects of free chlorine concentration, organic load, and exposure time on the inactivation of *Salmonella*, *Escherichia coli* O157:H7 and Non-O157 Shiga Toxin-Producing *E. coli*. **Journal of Food Protection**. 76:386-393.
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- Salmonella and Pseudomonas biofilms on stainless steel coupons in chlorinated wash solutions. **Applied and Environmental Microbiology**. 78:6789-6798.
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56. **Cangliang Shen**, Ifigenia Geornaras, Patricia A. Kendall and John N. Sofos. 2011. Evaluation of microwave oven heating and salad dressings to control *Listeria monocytogenes* on diced ham and turkey breast. **Food Protection Trends**. March: 16-23
57. **Cangliang Shen**, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos. 2010. Inactivation of *Escherichia coli* O157:H7 in moisture-enhanced nonintact beef by pan-broiling or roasting with various cooking appliances set at different temperatures. **Journal of Food Science**.76: 64-71.
58. **Cangliang Shen**, Jeremy M. Adler, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos. 2010. Inactivation of *Escherichia coli* O157:H7 in nonintact beef steaks of different thicknesses by pan-broiling, double pan-broiling or roasting by using five types of cooking equipment. **Journal of Food Protection**.73: 461-469.
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61. **Cangliang Shen**, and John N. Sofos. 2008. Antilisterial activity of hops beta acids in broth with or without other antimicrobials. **Journal of Food Science**.73: 438-442.
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64. Xiaodong Zhu, and **Cangliang Shen**. 2006. The research progress of soybean protein. **China feed additives**. 9: 10-12.
65. Xiaodong Zhu, and **Cangliang Shen**. 2006. The research progress of bioactive peptide. **China feed additives**. 11: 9-12.
66. **Cangliang Shen**, Weihua Chen, and Sixiang Zou. 2005. Anti-infection of hydrolysates from conglycinin on *E. coli* of mice. **World Chinese Journal of Digestology**.13: 1299-1304.

Research reports:

1. **Cangliang Shen** and John N. Sofos. 2007. Activity of hops beta acids. Animal Sciences Research Report, Department of Animal Sciences, Colorado State University, Fort Collins, CO.
2. Ifigenia Geornaras, Nikos Chorianopoulos, Kyung Yuk Ko, Jeremy M. Adler, Oleksandr A. Byelashov, Shivani Gupta, **Cangliang Shen**, Keith E. Belk, Gary C. Smith, John N. Sofos. 2009. Effect of traditional and modified enhancement solution ingredients on survival of *Escherichia coli* O157:H7 during storage and cooking of moisture-enhanced beef. Final report submitted to American Meat Institution Foundation, Washington, DC.
3. Yaguang Luo, Daniel Shelton, Patricia Millner, Xiangwu Nou. 2011. Improving produce safety by stabilizing chlorine in washing solutions with high organic loads. Final report submitted to CPS, prepared and written by **Cangliang Shen**.

Invited Presentations (7):

1. **Cangliang Shen**. "Control of Foodborne Pathogen on Poultry Products". **Colorado State University, Department of Animal Sciences**, Feb 10th, 2025. (Invited by Dr. Peipei Zhang)
2. **Cangliang Shen**. "Microbial Growth, Food Safety in the U.S. and Microbial Safety of Poultry Meat Processing" 3 lectures with 45-60 min each. **ZheJiang University Global Summer School on Food Safety and Human Health**, July 27th, 2024. (Invited by Dr. Jinsong Feng)
3. **Cangliang Shen**. "Control of Foodborne Pathogen and Surrogate Bacteria on Poultry Products Through Integrated Research and Extension Activities". **Nanjing Agricultural University, China**, June 18th, 2024. (Invited by Dr. Yuanshu Zhang)
4. **Cangliang Shen**. "Control of Foodborne Pathogen and Surrogate Bacteria on Fresh Produce Through Integrated Research and Extension Activities". **Jiangnan University, China**, May 31st, 2024. (Invited by Dr. Xue Tang)
5. **Cangliang Shen**. "Bacterial Genetics-DNA replication, transcription, translation, and *lac* operon" Animal Biochemistry Class, **Nanjing Agricultural University, China**, Nov-Dec, 2021 (Virtual Video) (Invited by Dr. Yuanshu Zhang)
6. **Cangliang Shen**. "Overview of Bacterial Food Safety in U.S. and Research/Extension Activities", FDSC 624 Current Food Safety Issues Class, **University of McGill, Canada**, Nov 5th, 2020 (Virtual Video) (Invited by Dr. Xiaonan Lu)
7. **Cangliang Shen**. "Improving Microbial Safety of West Virginia Locally Grown Foods by Physical and Chemical Interventions-Research Updates", **USDA-ARS, Wyndmoor, PA**, March 20th, 2018. (Invited by Dr. Joshua Gurtler)

National and International Conference Abstracts (83):

At WVU (63)

1. **Cangliang Shen**. A Challenge Study Comparing the Efficacy of Hydrogen Peroxide-Peroxyacetic Acid Delivered by Conventional Garden Sprayer, Electrostatic Sprayer, and Dip Methods on the Reduction and Cross-Contamination of *Listeria monocytogenes* and the Surrogate *L. innocua* on Apples. **2024 Singapore International Food Forum, August 1st, National University of Singapore, Singapore, 2024.**
2. Marlain Khouryieh, Hanna (John) Khouryieh, Dominique Gumirakiza, Luiz Silva, **Cangliang Shen**, and Yifan Zhang. Consumer Perceptions of Meat and Poultry Safety at Kentucky Farmers' Markets. **2024 Annual Meeting of International Association of Food Protection. July 14th to July 17th, Long Beach, California, 2024.**
3. Carly Long, **Cangliang Shen**, Rebecca Stearns. Microbial profile of broiler carcasses processed at a University Scale Mobile Poultry Processing Unit. **2024 Poultry Science Association Annual Meeting, July 15-18th, Louisville, Kentucky, 2024.** (Under Graduate's work in my lab)
4. Xiang Li, Adelumola Oladeinde, Michael J. Rothrock, Satoshi Ishii, and **Cangliang Shen**. Deciphering selective pressures: comparative genomics and phylogenetic analyses of four virulence factors in *Listeria monocytogenes* isolates linked to chicken consumption in the United States. **2024 Poultry Science Association Annual Meeting, July 15-18th, Louisville, Kentucky, 2024**
5. Michael Carroll, Cassidy Morris, Charis Waters, Pratima Adhikari, Kelley Wamsley, **Cangliang Shen**, Timothy Boltz. Modeling of thermal inactivation of avian pathogenic *Escherichia coli*, *E. coli* O157:H7 and non-pathogenic *E. coli* in poultry feeds using a lab-based circulating water bath. **2024 INTERNATIONAL POULTRY SCIENTIFIC FORUM Concurrent Meeting of The Southern Poultry Science Society 45th Annual Meeting The Southern Conference on Avian Diseases 65th Annual Meeting January 29-30, Atlanta, GA, 2024.**
6. Connor Freed, Rebecca Stearns, Corey Coe, and **Cangliang Shen**. Evaluate the Survival of *Listeria monocytogenes* on Organic Honey Crisp and Fuji Apples Stored at 5, 12 and 22.5°C. **2023 Annual Meeting of International Association of Food Protection. July 16th to July 19th, Toronto, Canada.** (Graduate's work in my lab)
7. **Cangliang Shen**, and Thomas Alter. Novel Approaches to Reduce *Campylobacter* at Poultry Slaughter and Processing in Europe and North America- 2nd section title "Research Updates for controlling of *Campylobacter* on Poultry Products" For **S33-Symposium Campylobacter-Associated Food Safety, 2023 Annual Meeting of International Association of Food Protection. July 16th to July 19th, Toronto, Canada.**
8. Jesica Temple, Rebecca Stearns, Corey Coe, Annette Freshour, and **Cangliang Shen**. Evaluate a Mixer of Hydrogen Peroxide and Peroxyacetic Acid to Mitigate Microbial Cross-Contamination of *Salmonella* Typhimurium and the Surrogate *Enterococcus faecium* during Triple Washing of Butternut Squash. **2023 Annual Meeting of International Association of Food Protection. July 16th to July 19th, Toronto,**

Canada. (Graduate's work in my lab)

9. Peighton Foster, Rebecca Stearns, Corey Coe, Carly Long, and **Cangliang Shen**. Anti-*Listeria* Efficacy of a Peroxyacetic Acid-H₂O₂ Mixer in Bacterial Buffered Solution and on Peppers. **2023 Annual Meeting of International Association of Food Protection. July 16th to July 19th, Toronto, Canada.** (Graduate's work in my lab)
10. Rebecca Stearns, Carly Long, Corey Coe, Lisa Jones, and **Cangliang Shen**. Survey of Small Local Produce Growers' Knowledge of Microbial Contamination and Perception of the Triple-Wash Method at Farmers Markets. **2023 Annual Meeting of International Association of Food Protection. July 16th to July 19th, Toronto, Canada.** (*Graduate's work in my lab).
11. **Cangliang Shen**, Rebecca Stearns, Nettie Freshour, and Kristen Matak. Compare the Efficacy of Hydrogen Peroxide-Peroxyacetic Acid Delivered by Conventional Garden Sprayer, Electrostatic Sprayer, and Dip Methods on the Reduction and Mitigation of Cross-Contamination of *Listeria monocytogenes* and the Surrogate *L. innocua* on Apples. **2023 International Association of Food Protection European Symposium. May 3rd to May 5th, Aberdeen, Scotland.**
12. **Cangliang Shen**, Rebecca Stearns, Corey Coe, Nettie Freshour, and Kristen Matak. Efficacy of a Triple-Wash with a Combination of Peroxyacetic Acid and Hydrogen Peroxide to Reduce Populations and Mitigate Cross-Contamination of *Salmonella* Typhimurium and the Surrogate *Enterococcus faecium* on Tomatoes. **2023 International Association of Food Protection European Symposium. May 3rd to May 5th, Aberdeen, Scotland.**
13. Rebecca Stearns, and **Cangliang Shen**. The Efficacy of Conventional Garden Spray, Electrostatic Spray, and Dip with a Peroxyacetic Acid and Hydrogen Peroxide Mixer to Inactivate *Listeria monocytogenes* on Apples. **2022 Annual Meeting of the International Association of Food Protection. July 31 to August 3rd, Pittsburgh, PA** (*Graduate's work in my lab).
14. Rebecca Stearns, Corey Coe, Lisa Jones and **Cangliang Shen**. Comparison of Two Triple-Wash Processes with a Combination of Peroxyacetic Acid and H₂O₂ to Reduce Populations and Mitigate Cross-Contamination of *Salmonella* Typhimurium and *Enterococcus faecium* on Tomatoes. **2022 Annual Meeting of the International Association of Food Protection. July 31 to August 3rd, Pittsburgh, PA** (*Graduate's work in my lab).
15. Alik Browning, Rebecca Stearns, Corey Coe, Tim Boltz, Peighton Foster, Jesica Temple and **Cangliang Shen**. Impact of Temperature and Salt Concentrations for Thermal Inactivation of *Salmonella* in Moisture Enhanced Reconstructed Chicken Patties. **2022 Annual Meeting of the International Association of Food Protection. July 31 to August 3rd, Pittsburgh, PA** (*Graduate's work in my lab).
16. Tim Boltz, Corey Coe, Rebecca Stearns, and **Cangliang Shen**. Modeling the Thermal Inactivation of *Salmonella* Typhimurium and the surrogate *Enterococcus faecium* in Mash Broiler Feed in A Laboratory Scale Circulated Thermal Bath. **2022 Poultry**

Science Association Annual Meeting. July 11-14th, San Antonio, TX. (*Graduate's work in my lab)

17. **Cangliang Shen.** Improving the Microbial Safety and Quality of Locally Grown Produce in West Virginia by Adopting a Three-Step Wash Process with Antimicrobials Through Research and Extension. **2022 Annual Meeting of the Institute of Food Technologists. July 10-13, Chicago, IL.** (Virtual Recording + In person Q&A)
18. **Cangliang Shen.** Research updates of *Salmonella* and the surrogate *Enterococcus faecium* during thermal and non-thermal processing of chicken meat and fresh produce. **2022 Annual Meeting of the Institute of Food Technologists. July 10-13, Chicago, IL.** (Virtual Recording + In person Q&A)
19. Rebecca Stearns, Jingyi Xue, Yangchao Luo, and **Cangliang Shen.** Survival of *Listeria monocytogenes* and Compare Conventional or Electrostatic Spray, and Dip with a Mixer of Peroxyacetic Acid and Hydrogen Peroxide to against the pathogen on Organic Apples. **2022 Annual Meeting of the Institute of Food Technologists. July 10-13, Chicago, IL.** (Virtual Recording + In person Poster) (*Graduate's work in my lab)
20. Corey Coe, Rebecca Stearns, Lisa Jones, and **Cangliang Shen.** Compare the efficacy of a peroxyacetic acid and H₂O₂ mix to mitigate cross-contamination of *Salmonella* Typhimurium and *Enterococcus faecium* on tomatoes during triple-wash. **2022 Annual Meeting of the Institute of Food Technologists. July 10-13, Chicago, IL.** (Virtual Recording + In person Poster) (*Graduate's work in my lab)
21. Tim Boltz, Victoria Ayres, **Cangliang Shen**, and Joe Moritz. Modeling the thermal inactivation of *Salmonella* reduction in poultry feed in a lab-based water bath. **2021 Poultry Science Association Annual Meeting, July 19-22nd (Virtual).** (*Graduate's work in my lab)
22. Wentao Jiang, Carly Waldman, and **Cangliang Shen.** Impact of Set-up Temperatures and Pump Rates for survivals of *Salmonella* and the surrogate *Enterococcus faecium* in Moisture Enhanced Reconstructed Chicken Patties after Double Pan-broiling. **2021 Annual Meeting of the International Association of Food Protection. July 18-21, Phoenix, Arizona** (*Graduate's work in my lab).
23. Corey Coe, Rebecca Stearns, Lisa Jones, and **Cangliang Shen.** Evaluate the efficacy of a mixture of peroxyacetic acid and H₂O₂ against the survival and cross-contamination of the *Salmonella* surrogate *Enterococcus faecium* on tomatoes during triple-wash. **2021 Annual Meeting of the International Association of Food Protection. July 18-21, Phoenix, Arizona** (*Graduate's work in my lab).
24. Sumit K. Paudel, Nirosha Ruwani Amarasekara, Amrita Subramanya Swamy, Mohamad Alasadi, Ka Wang Li, Wentao Jiang, **Cangliang Shen** and Yifan Zhang. Isolation of *Salmonella* Spp. from Fresh Produce Sold at Farmers' Market and Urban Gardens. **2021 Annual Meeting of the International Association of Food Protection. July 18-21, Phoenix, Arizona**
25. Nirosha Ruwani Amarasekara, Sumit K. Paudel, Amrita Subramanya Swamy, Mohamad Alasadi, Ka Wang Li, Wentao Jiang, **Cangliang Shen** and Yifan Zhang. Microbial

- Prevalence of *Listeria* in Fresh Produce and Virulence Gene Distribution in *L. monocytogenes*. **2021 Annual Meeting of the International Association of Food Protection. July 18-21, Phoenix, Arizona**
26. **Cangliang Shen**, KaWang Li, Wentao Jiang, Lisa Jones, and Yifan Zhang. Survey of Consumers' knowledge of Microbial Food Safety of Fresh Produce Purchased at Local Farmers Market. **2021 Annual Meeting of the Institute of Food Technologists. July 19-21, Chicago, IL. (Virtual)**
27. KaWang Li, Wentao Jiang, Lisa Jones, and **Cangliang Shen**. Validation of Triple-Wash Procedures with Sodium Hypochlorite, Lactic-Citric Acid Blend, and Mixer of Peroxyacetic Acid-Hydrogen Peroxide to Inactivate *Salmonella*, *Listeria monocytogenes*, and surrogate *Enterococcus faecium* on Cucumbers and Tomatoes. **2020 Annual Meeting of the International Association of Food Protection. Oct. 26-28, Cleveland, Ohio (*Graduate's work in my lab).**
28. Wentao Jiang, KaWang Li, and **Cangliang Shen**. Thermal Inactivation of *Campylobacter jejuni* in Moisture Enhanced Non-intact Chicken Patties by Double Pan-broiling as Affected by Pump Rates and Cooking Temperatures. **2020 Annual Meeting of the International Association of Food Protection. Oct. 26-28, Cleveland, Ohio (*Graduate's work in my lab).**
29. Wentao Jiang, Ka Wang Li, Sumit K. Paudel, Nirosha Ruwani Amarasekara, Lisa Jones, Yifan Zhang, and **Cangliang Shen**. Survey of Locally Small Produce Growers' Perception of Antibiotic Resistance Issues at Farmers Markets. **2020 Annual Meeting of the International Association of Food Protection. Oct. 26-28, Cleveland, Ohio (*Graduate's work in my lab).**
30. Jeanna LaBarbara, Anna Loyd, KaWang Li, Wentao Jiang, and **Cangliang Shen**. Survival of *Listeria Monocytogenes* on McIntosh, Fuji, and Honeycrisp Apples Stored at 22°C. **2020 Annual Meeting of the International Association of Food Protection. Oct. 26-28, Cleveland, Ohio (*Undergraduate's work in my lab).**
31. Amrita Subramanya Swamy, Nirosha Ruwani Amarasekara, Sumit K. Paudel, **Cangliang Shen**, and Yifan Zhang. Isolation of *Salmonella* spp. and *Listeria monocytogenes* from Fresh Produce Sold at Farmers' Markets and Urban Gardens **2020 Annual Meeting of the International Association of Food Protection. Oct. 26-28, Cleveland, Ohio.**
32. **Cangliang Shen**. Establish a sustainable food system to improve microbial safety of locally grown fresh produce-research and extension activities updates. **2020 Annual Meeting of the Institute of Food Technologists. July 12-15, Chicago, IL. (Symposium Organizer and Presenter)**
33. Yu-Chun Chiu, and **Cangliang Shen**. Impact of epicuticular wax on the attachment of *Salmonella* on leafy green surfaces during aerobic storage. **2020 Annual Meeting of the Institute of Food Technologists. July 12-15, Chicago, IL.**
34. Jessica Lemley, Jacek Jaczynski, Michael Gutensohn, Kristen Matak, **Cangliang Shen**, De'Anthony Morris, Avery Fleehty. Bio-marker Volatile Organic Compounds (VOCs)

for ultra-sensitive real-time pathogen detection in food using gas chromatography mass spectrometry (GC-MS). **2020 Annual Meeting of the Institute of Food Technologists**. July 12-15, Chicago, IL.

35. **Cangliang Shen**. Research Updates of Applying Non-thermal Technology to Improve Microbial Safety and Quality of Food Products. **2019 Annual Meeting of the Institute of Food Technologists**. June 2-5, New Orleans, LA. (**Symposium Organizer and Presenter**)
36. KaWang Li, Lisa Jones, Xiaoli Etienne, Hanna Khouryieh, and **Cangliang Shen**. Compare the Efficacy of Two Triple-Wash Procedures with Commercial Antimicrobials to Inactivate *Salmonella* and *Listeria monocytogenes* on Tomatoes, Cucumbers and Spinach and Related Economic Feasibility Analysis. **2019 Annual Meeting of the Institute of Food Technologists**. June 2-5, New Orleans, LA. (*Graduate's work in my lab)
37. KaWang Li, Lisa Jones, Wentao Jiang, Hanna Khouryieh, and **Cangliang Shen**. Validation of the Efficacy of Triple-Wash Procedures with Commercial Antimicrobials to Inactivate *Salmonella* and *Listeria Monocytogenes* and Improve Microbial Quality of Squashes-Laboratory and Plant Onsite Studies. **2019 Annual Meeting of the International Association of Food Protection**. July 21-24, Louisville, Kentucky (*Graduate's work in my lab)
38. Wentao Jiang, Lacey Lemonakis, KaWang Li, and **Cangliang Shen**. Thermal Inactivation of *Salmonella*, *Campylobacter Jejuni* and *Listeria Monocytogenes* in Moisture Enhanced Non-Intact Chicken Patties By Double Pan-Broiling Under Dynamic Conditions. **2019 Annual Meeting of the International Association of Food Protection**. July 21-24, Louisville, Kentucky (*Graduate's work in my lab)
39. **Cangliang Shen**, KaWang Li, Lacey Lemonakis, Wentao Jiang, Jeremy Adler, Xiaoli Etienne. Validation of Applying Immersion Versus Electrostatic- Sprayer with Commercial Antimicrobials Against Unstressed, Acid, Starvation, or Cold Stress Adapted *Campylobacter Jejuni* on Broiler Wings and Related Cost Effectiveness Analysis. **2019 Annual Meeting of the International Association of Food Protection**. July 21-24, Louisville, Kentucky (*Graduate's work in my lab)
40. Lacey Lemonakis*, Wentao Jiang, KaWang Li, and **Cangliang Shen**. Evaluate the efficacy of applying a portable electrostatic sprayer with commercial antimicrobials against unstressed and starvation-stress-adapted *Campylobacter jejuni* on broiler wings. **2018 Poultry Science Association Annual Meeting**, July 23-26th, San Antonio, Texas (*Graduate's work in my lab)
41. Wentao Jiang*, KaWang Li, Lacey Lemonakis, and **Cangliang Shen**. Validation of applying electrostatic versus conventional sprayer with commercial antimicrobials to inactivate *Salmonella*, *Listeria monocytogenes* and *Campylobacter* on eggs. **2018 Poultry Science Association Annual Meeting**, July 23-26th, San Antonio, Texas (*Graduate's work in my lab)
42. KaWang Li*, Lisa Jones, Hanna Khouryieh, and **Cangliang Shen**. Validation of Three-

- Step Wash Process with Commercial Antimicrobials to Control of *Salmonella* and *Listeria monocytogenes* on West Virginia Locally Grown Tomatoes, Cucumbers and Squashes. **2018 Annual Meeting of the International Association of Food Protection**. July 8-11 in Salt Lake City, Utah. (*Graduate's work in my lab)
43. KaWang Li*, Hanna Khouryieh, Lacey Lemonakis, Lisa Jones and **Cangliang Shen**. Consumers' Perception of Food Safety of Perishable Foods Sold at Northern West Virginia and Western Pennsylvania Farmers Markets. **2018 Annual Meeting of the International Association of Food Protection**. July 8-11 in Salt Lake City, Utah. (*Graduate's work in my lab)
44. Lacey Lemonakis*, KaWang Li, and **Cangliang Shen**. Evaluate the efficacy of commercial antimicrobials against unstressed, acid, starvation, or cold-stress-adapted-*Campylobacter jejuni* on broiler wings. **2018 Annual Meeting of the International Association of Food Protection**. July 8-11 in Salt Lake City, Utah. (*Graduate's work in my lab)
45. KaWang Li*, and **Cangliang Shen**. Evaluate the Survival of *Salmonella* spp. and *Listeria monocytogenes* on pressed-card, plastic polyethethylene, and wood container surfaces during refrigerated and room temperature storage. **2018 Annual Meeting of the Institute of Food Technologists**. July 15-18, Chicago, IL. (*Graduate's work in my lab, Finalist of Food Microbiology Division Competition)
46. **Cangliang Shen**. Improving microbial safety of fresh produce - pilot plant and commercial scaled studies and related agricultural economic analysis. **2018 Annual Meeting of the Institute of Food Technologists**. July 15-18, Chicago, IL. (Symposium Organizer and Presenter)
47. Yu-Chun Chiu, Ka-Wang Li, Moo Jung Kim, **Cangliang Shen** and Kang-Mo Ku. Difference in Attachment of *Salmonella enterica* to Waxy or Glossy Collard Leaves. **2017 American Society for Horticulture Science (ASHS) Annual Conference**. Sep 21st. Waikoloa, Hawaii.
48. KaWang Li, Lacey Lemonakis, Brian Glover, and **Cangliang Shen**. *Salmonella* and *Campylobacter* prevalence in broiler ceca and on ready-to-cook carcasses processed at a pilot mobile poultry processing unit. **2017 Annual Meeting of the International Association of Food Protection**. July 9th-12th, Tampa, Florida. (*Graduate's work in my lab, **Finalist of Developing Scientist Competition, Top 10 among >100 graduate students around the world**)
49. KaWang Li, Lacey Lemonakis, and **Cangliang Shen**. Survival of *Salmonella* and *Listeria monocytogenes* on pressed-card and plastic polyethethylene board from farmers' market and validate commercial sanitizers to decontaminate *Salmonella* and *Listeria monocytogenes*. **2017 Annual Meeting of the International Association of Food Protection**. July 9th-12th, Tampa, Florida. (*Graduate's work in my lab)
50. Lacey Lemonakis, KaWang Li, and **Cangliang Shen**. Prevalence of *Salmonella* and *Campylobacter* spp. on broiler carcasses from a small USDA-inspected slaughter facility and validation of commercial antimicrobials against unstressed or cold-stress adapted

Salmonella and *Enterococcus faecium* on broiler carcasses and wings. **2017 Annual Meeting of the Institute of Food Technologists**. June 25-28, Las Vegas, NV.
(*Graduate's work in my lab)

51. Lacey Lemonakis, KaWang Li, and **Cangliang Shen**. Validation of commercial antimicrobials against unstressed and cold-stressed *Campylobacter jejuni* cells on broiler carcasses and wings processed at a small USDA-inspected slaughter facility. **2017 Poultry Science Association Annual Meeting**, July 17-20th, Orlando, FL
(*Graduate's work in my lab)
52. **Cangliang Shen**. Developing Solutions for Poultry Safety Amidst Antibiotic Regulations Food Microbiology Symposium. **2017 Annual Meeting of the Institute of Food Technologists**. June 25-28, Las Vegas, NV. (*Organizer and Presenter) **Presentation title** "Microbial Quality and Control Strategies of *Salmonella* and *Campylobacter* on Chicken carcasses and parts processed in Northwest West Virginia"
53. **Cangliang Shen**. Anti-listerial activity of hops beta acids on ready-to-eat meat products. **252nd American Chemical Society National Meeting**. August 21-25, 2016, Philadelphia, PA.
54. KaWang Li*, Lacey Lemonakis, Brian Glover, Jordan Garry, Payton Southall, Joseph Moritz, **Cangliang Shen**. Microbiological quality assessment, *Salmonella* and *Campylobacter* prevalence in broiler ceca and ready-to-cook carcasses. **2016 Poultry Science Association Annual Meeting**, July 11th-14th, New Orleans, LA. (*Graduate's work in my lab)
55. Lacey Lemonakis*, KaWang Li, Jordan Garry, Payton Southall, **Cangliang Shen**. Validation of peroxyacetic acid, lactic acid, lactic and citric acid blend, and sodium hypochlorite against unstressed- and cold-stress-adapted salmonella on broiler carcasses and wings processed at a small USDA-inspected slaughter facility in West Virginia. **2016 Poultry Science Association Annual Meeting**, July 11th-14th, New Orleans, LA. (*Graduate's work in my lab)
56. KaWang Li*, Lacey Lemonakis, Jordan Garry, Jennifer Weidhaas, Hanna Khouryieh, Martin Stone, and **Cangliang Shen**. Microbiological Quality and Safety of Fresh Produce and an Assessment of Post-Harvest Practice of Venders at West Virginia and Kentucky Farmers' Markets. **2016 Annual Meeting of the International Association of Food Protection**, July 31st-August 3rd, St. Louis, Missouri. (*Graduate's work in my lab)
57. Lacey Lemonakis*, KaWang Li, Jordan Garry, Payton Southall, Jennifer Weidhaas, Jeremy Adler, and **Cangliang Shen**. Microbiological Quality Assessment and Validation of Peroxyacetic acid, Lactic Acid, Lactic and Citric Acid Blend, and Sodium Hypochlorite against *Salmonella* on Broiler Carcasses and Wings Processed at A Small USDA-Inspected Slaughter Facility in West Virginia. **2016 Annual Meeting of the International Association of Food Protection**, July 31st-August 3rd, St. Louis, Missouri. (*Graduate's work in my lab)
58. **Cangliang Shen**. Improving Microbial Safety of Locally Grown Fresh Produce at Multi-States in U.S. through Research and Extension Approaches. **Food Microbiology**

Symposium 2016 Annual Meeting of the Institute of Food Technologists. July 11-14, Chicago, IL. (***Organizer and Presenter**)

59. **Cangliang Shen**, and Li Wang. Modeling the survival of unstressed, acid, cold, and starvation stress adapted *Listeria monocytogenes* in ham extract with hops beta acids (HBA) and sensory evaluation of HBA on ready-to-eat meat products. **2015 Annual Meeting of the International Association of Food Protection**, July 25-28th, Portland, Oregon
60. KaWang Li*, **Cangliang Shen**, and Pauline Norris. Generation of Chlorine By-products Haloacetic acid and Trihalomethanes in Simulated Produce Wash Water with High Organic Loads. **2015 Annual Meeting of the International Association of Food Protection**, July 25-28th, Portland, Oregon (*Undergraduate and graduate's work in my lab)
61. Jeremy Adler, Erin Cain-Helfrich, and **Cangliang Shen**. A Pilot Scale Evaluation of a Spray Cabinet with Commercial Antimicrobials against *Escherichia coli* O157:H7 Surrogate Survival on Jalapeno Peppers. **2015 Annual Meeting of the International Association of Food Protection**, July 25-28th, Portland, Oregon (Extension work)
62. **Cangliang Shen***. Decontamination and inactivation strategies to reduce pathogens in foods. **Food microbiology Symposium 2015 Annual Meeting of the Institute of Food Technologists**. July 11-14, Chicago, IL. (***Organizer**)
63. KaWang Li*, **Cangliang Shen**, and Amanda McKeith. Quality attributes and thermal inactivation of *Escherichia coli* O157:H7 in non-intact veal and beef patties by double pan-broiling. **2015 Annual Meeting of the Institute of Food Technologists**. July 11-14, Chicago, IL. (*Undergraduate and graduate's work in my lab)

Before WVU

64. Zach Vincent, Hanna Khouryieh, Martin Stone, **Cangliang Shen**, Todd William, and Jerry Daday. An Assessment of Food Safety Practices at Farmers Market in Kentucky. **2015 Annual Meeting of the Institute of Food Technologists**. July 11-14, Chicago, IL.
65. Courtney Broyles*, Ellen Vice*, Russell McKeith, Amanda McKeith, and **Cangliang Shen**. Thermal inactivation of *Escherichia coli* O157:H7 and Non-O157 Shiga toxin producing *E. coli* in moisture enhanced non-intact beefs as affected by internal temperature, moisture enhancing Rate, and resting time by double pan-broiling. **2014 Annual Meeting of the International Association of Food Protection**, August 3-6th, Indianapolis, Indiana. (*Undergraduate's work in my lab, **First place of Undergraduate Poster Competition**)
66. Amanda McKeith, **Cangliang Shen**, Courtney Broyles*, Ellen Vice*, and Russell McKeith. Color of moisture enhanced non-intact beef steaks as affected by internal temperature and moisture enhancing rate by double pan-broiling. **2014 AMSA 67th Reciprocal Meat Conference (RMC)**, June 15-18, Madison, Wisconsin. (*Undergraduate's work in my lab)

67. **Cangliang Shen**, Alyssa Huff*, and Kelsey Carter*. Survival of unstressed and acid stress adapted *Listeria monocytogenes* exposed to hops beta acids in ham extract stored at 7.2°C. **2014 Annual Meeting of the Institute of Food Technologists**. June 21-24, New Orleans, LA. (*Undergraduate's work in my lab)
68. **Cangliang Shen**, Amanda McKeith, Kelsey Carter*, Alyssa Huff*, Courtney Broyles, and Russell McKeith. Investigate the efficacy of hops beta acids to inactivate unstressed or acid stress adapted *Listeria monocytogenes* on commercial cured ham during storage at 7.2°C. **2014 Annual Meeting of the Institute of Food Technologists**. June 21-24, New Orleans, LA. (*Undergraduate' work in my lab)
69. **Cangliang Shen**. Evaluation of chlorine efficacy against *Escherichia coli* O157:H7 survival and cross-contamination during produces washing in consideration of wash-water quality. **2013 Annual Meeting of the Institute of Food Technologists**. July 13-16, Chicago, IL.
70. **Cangliang Shen**, Yaguang Luo, Xiangwu Nou, Gary Bauchan, Bin Zhou, Qin Wang, and Patricia Millner. Fresh produce washing aid, T-128, enhances inactivation of *Salmonella* and *Pseudomonas* biofilms on stainless steel coupons in chlorinated wash solutions. **2012 Annual Meeting of the International Association of Food Protection**, July 22-25, Providence, Rhode Island.
71. **Cangliang Shen**, Yaguang Luo, Xiangwu Nou, Qin Wang, and Patricia Millner. Enhanced inactivation of *Salmonella*, *Escherichia coli* O157:H7 and *Pseudomonas* biofilms using fresh produce washing aid, T-128, on cantaloupe rinds with chlorinated wash solutions. **2012 Annual Meeting of the International Association of Food Protection**, July 22-25, Providence, Rhode Island.
72. **Cangliang Shen**, Yaguang Luo, Xiangwu Nou, Qin Wang, and Patricia Millner. 2012. Inactivation of *Salmonella*, *Escherichia coli* O157:H7 and Non-O157 STEC by hypochlorite solutions with high organic loads. **2012 Annual Meeting of the International Association of Food Protection**, July 22-25, Providence, Rhode Island.
73. **Cangliang Shen**, Yaguang Luo, Xiangwu Nou, Gary Bauchan, Bin Zhou, Qin Wang, and Patricia Millner. 2012. Fresh produce washing aid, T-128, enhances inactivation of *Salmonella* and *Pseudomonas* biofilms on stainless steel and cantaloupe rinds in chlorinated wash solutions. **2012 American Phytopathological Society Human Pathogen on Plants Workshop**, February 13-15, Hyattsville, Maryland.
74. David Ingram, Bin Zhou, **Cangliang Shen**, Yang Yang, Manan Sharma, Xiangwu Nou, Patricia Millner, Yaguang Luo. 2012. Pre-Harvest to Post-harvest strategies for the reduction of human pathogens in tomatoes and leafy greens: a farm to fork systems approach. **2012 American Phytopathological Society Human Pathogen on Plants Workshop**, February 13-15, Hyattsville, Maryland.
75. **Cangliang Shen**, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos, 2010. Thermal inactivation of acid, cold, heat, starvation and desiccation stress-adapted *Escherichia coli* O157:H7 in nonintact beef moisture-enhanced with various brine ingredients. **97th Annual Meeting of the International Association of Food**

Protection, August 1-4, Anaheim, CA.

76. **Cangliang Shen**, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos, 2010. Thermal inactivation of *Escherichia coli* O157:H7 in moisture-enhanced nonintact beef by pan-broiling or roasting using different cooking appliances with different starting temperatures. **70th Annual Meeting of the Institute of Food Technologists**. July 17-21, Chicago, IL.
77. **Cangliang Shen**, Keith E. Belk, Jeremy M. Adler, Ifigenia Geornaras, Dale R. Woerner, J. Daryl Tatum, Gary C. Smith and John N. Sofos, 2009. Enhancing beef tenderness: pre- and post-harvest practices and microbiological considerations. **American Animal Science Association and China Animal Science and Veterinary Medicine Association Pacific Rim Conference**, November 8-10, Beijing, China
78. **Cangliang Shen**, Jeremy M. Adler, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos, 2009. Thermal inactivation of *Escherichia coli* O157:H7 in nonintact beef steaks of different thickness by different cooking methods and equipment. **96th Annual Meeting of the International Association of Food Protection**, July 12-15, Grapevine, TX.
79. **Cangliang Shen**, Ifigenia Geornaras, Patricia A. Kendall and John N. Sofos, 2009. Survival of *Listeria monocytogenes* on diced ham and turkey breast treated with salad dressings without or with prior microwave oven heating. **69th Annual Meeting of the Institute of Food Technologists**. June 6-10, Anaheim, CA.
80. **Cangliang Shen**, Ifigenia Geornaras, Patricia A. Kendall and John N. Sofos, 2008. Control of *listeria monocytogenes* on frankfurters by dipping in hops beta acids solutions. **95th Annual Meeting of the International Association of Food Protection**, August 3-6, Columbus, Ohio. Abstract No. P5-31.
81. **Cangliang Shen**, Ifigenia Geornaras, Patricia A. Kendall and John N. Sofos, 2008. Antilisterial activities of salad dressings, without or with prior microwave oven heating, on frankfurters during simulated home storage. **95th Annual Meeting of the International Association of Food Protection**, August 3-6, Columbus, Ohio. Abstract No. P2-50.
82. **Cangliang Shen**, Ifigenia Geornaras, Patricia A. Kendall and John N. Sofos, 2008. Antilisterial activity of hops beta acids in broth with or without other antimicrobials. **68th Annual Meeting of the Institute of Food Technologists**. June 28 – July 2, New Orleans, LA. Abstract No. 052-20.
83. **Cangliang Shen**, Wen Yao, Weihua Chen, Weiyun Zhu, Sixiang Zou, 2005. Effect of conglycinin pepsin hydrolysates on intestinal bacterial community and health in mice after feeding *E. coli*. **2005 The International Symposium on Molecular Microbiology of the Gut**, July 10-12, Nanjing, China

Local and Regional Conference Abstracts:

1. Carly Long, and **Cangliang Shen**. Effect of Vinegar Water on Chicken Carcasses Contaminated with *Salmonella* Typhimurium. 2023 6th Annual Undergraduate Research

Symposium, West Virginia University, December 2nd, 2023, Morgantown, WV.
(*Undergraduate's work in my lab)

2. Jesica Temple, Rebecca Stearns, Peighton Foster, Corey Coe, Tim Boltz, and **Cangliang Shen**. Evaluate Triple-Wash with SaniDate-5.0 to Reduce Salmonella Typhimurium on Squashes. **2022 Undergraduate Spring Symposium, West Virginia University**, April 9th, 2022, Morgantown, WV. (*Undergraduate's work in my lab)
3. Peighton Foster, and Cangliang Shen. Modeling the Anti-listeria Efficacy of SaniDate-5.0 in Bacterial Buffered Solutions. **2022 Undergraduate Spring Symposium, West Virginia University**, April 9th, 2022, Morgantown, WV. (*Undergraduate's work in my lab)
4. KaWang Li*, Amanda McKeith, and **Cangliang Shen**. Quality change and thermal inactivation of *Escherichia coli* O157:H7 in Non-intact beef or veal patties by double pan-broiling. **2014. Kentucky Honors Roundtable. September 28th, Bowling Green, KY.** (*Undergraduate' work in my lab)
5. Courtney Broyles* and **Cangliang Shen**. Thermal inactivation of *Escherichia coli* O157:H7 in moisture enhanced non-intact beefs as affected by internal temperature, moisture enhancing rate, and resting time by double pan-broiling. **2014. Western Kentucky University, 44th Student Research Conference (First place of honors' students' oral section)**
6. **Cangliang Shen**. Dynamic effects of free chlorine on the inactivation of *Escherichia coli* O157:H7 on leafy greens-laboratory and pilot plant study. **2013. American Society of Microbiology, KY-TN Branch Meeting. October 25-26, Bowling Green, KY.**
7. Kelsey Carter*, Alyssa Huff, and **Cangliang Shen**. Control of unstressed and acid-stress adapted *Listeria monocytogenes* on commercial hams by hops beta acids during aerobic storage at 7°C. **2013. Kentucky Academy of Science, Microbiology Section.** November 8-9th, Morehead, KY. (*Undergraduate' work in my lab, **third place** of oral competition)
8. Alyssa Huff*, Kelsey Carter, and **Cangliang Shen**. Inactivation of unstressed or acid-stress adapted *Listeria monocytogenes* in ham extract by hops beta acids. 2013. **Kentucky Academy of Science, Microbiology Section.** November 8-9th, Morehead, KY. (*Undergraduate's work in my lab, **2nd place** poster competition)
9. **Cangliang Shen**. Comparison studies of a neutral anolyte solution from electrolyzed water to sodium hypochlorite on the inactivation of *Escherichia coli* O157:H7 during leafy green washing process. **2012 Kentucky Academic of Science Annual Conference.** October 19th-20th, Richmond, Eastern Kentucky University, KY.

Extension Training Certifications:

1. FSMA-Food Safety Prevent Control Alliance-University Extension Specialist representing West Virginia, Oct. 2024.
<https://www.fspca.net/university-specialist-directory>
2. WV Food Safety Training Team member since Spring 2024.

3. FSMA-Preventive Control for Human Food Training Certification, organized by Pennsylvania State University, April. 2019
4. HACCP training certification (HACCP workshop) at Pennsylvania State University, Feb. 2015

Extension Publications/Short Videos:

1. **Cangliang Shen.** 2024. Applying vinegar water for chilling process of broilers for WV small chicken growers. (virtual Demo).
<https://www.youtube.com/watch?v=CDChatnRy3w>. Adopted by the WV Small Farm Conference Center.
2. **Cangliang Shen.** 2023. Introduction of Triple-wash. (virtual Demo).
<https://www.youtube.com/watch?v=YI9Nlv7fATY>. Adopted by the WV Small Farm Conference Center.
3. **Cangliang Shen.** 2023. Introduction of SaniDate-5.0. (virtual Demo).
https://www.youtube.com/watch?v=3M2RQ_vUudQ. Adopted by the WV Small Farm Conference Center.
4. **Cangliang Shen** and Lisa Jones. 2023. Microbial Safety Handbook of Mobile Poultry Processing of Broiler Carcasses. Adopted by the WV Extension Services-Small Farm Conference Center and WV Farmers Market Association.
5. **Cangliang Shen.** 2023. Mobile Poultry Processing Microbial Safety Concern. (virtual Demo). <https://www.youtube.com/watch?v=aWobhBluBoE&t=80s>. Whole program website: <https://www.wvfarmers.org/poultry-trailer/>.
6. **Cangliang Shen.** 2022. Cleaning and Sanitizing of Mobile Poultry Processing Unit. (virtual Demo). <https://www.youtube.com/watch?v=ks9h0bTDr1c>. Whole program website: <https://www.wvfarmers.org/poultry-trailer/>.
7. **Cangliang Shen.** 2021. Impact of spinach washing on the free chlorine concentration (virtual Demo). <https://www.youtube.com/watch?v=6S4QeIR6xHY>
8. **Cangliang Shen.** 2021. Triple-Wash with SaniDate-5.0 (virtual Demo).
<https://youtu.be/fENy5OO1ry0>.
9. **Cangliang Shen,** and Lisa Jone. 2021. Triple-Wash with SaniDate-5.0 to Kill Foodborne Pathogens on Spinaches. WVU Small Farm Conference Newspaper, February 2021 and WVU Extension Service Research Note
<https://mailchi.mp/mail.wvu.edu/anr-research-notes-4760192?e=ce29cc14f7>.
10. **Cangliang Shen,** Xiaoli Etienne, and Lisa Jones. 2020. Triple-Wash with SaniDate to Improve Shelf-life of Butternut Squashes. WVU Small Farm Conference Newspaper, February 2020
11. **Cangliang Shen** and Lisa Jones. 2020. Applying Three-step Wash during Produce Processing (Version 2, WVU Extension Fact Sheet).
12. **Cangliang Shen** and Lisa Jones. 2019. Applying Three-step Wash during Produce Processing (Version 1, WVU Extension Research Notes). <https://us9.campaign-archive.com/?u=c8ef548894e23803ce5576625&id=bb9df44b85>.

13. Vincent Zach, Hanna Khouryieh, Martin Stone, **Cangliang Shen**, and Todd William. 2015. Good Agricultural Practices for Small Fresh Produce Farmers and Vendors. Extension Publication. Western Kentucky University, Bowling Green, KY. (updated in fall 2018)

Extension Short Courses, Presentations, and Interview:

1. Poultry Processing Using a Mobile Unit. Joe Moritz and **Cangliang Shen**. **WV AgriMeats Excellence Webinar Series. 2025**. February 6, 2025 1 hour zoom meeting.
2. Expand the Current Food Safety Modernization Act Training Program for West Virginia Very Small Local Produce Growers with the Content of Triple-Wash and Related Outreach Activities (NECAFS). **Cangliang Shen**. 2024. **USDA-NIFA Food Safety Outreach Project Directors' Meetings**, September 19th, 2024 (Webinar). <https://www.youtube.com/watch?v=SY3Uk8XPS8U>.
3. Challenges in Poultry Processing. **Cangliang Shen**. 2024. Poultry Podcasts. May 20th, 2024. <https://www.youtube.com/watch?v=iUN0tg2k0ck&t=707s>.
4. FSMA training-Chapter 9 Process Preventive Control. **Cangliang Shen**. 2023. **Food Safety Extension Workshop, organized by McGill University and the U.S. Institute of the Advancement of Food and Nutrition Sciences**, Nov 28th, 2023, Go-to-Meeting.
5. Process Control for Human Food Products. **Cangliang Shen**. 2022. **Food Safety Extension Workshop, McGill University**, August 31st, 2022 Zoom meeting.
6. Introduction of HACCP and Triple Wash. **Cangliang Shen**. 2020. **West Virginia Small Farm Conference**. Feb 21st, Charleston Civic Center, West Virginia.
7. Apply Three-Step Wash to Improve Microbial Safety of Squash. **Cangliang Shen**. 2019. **West Virginia Small Farm Conference**. Feb 14th, Charleston Civic Center, West Virginia.
8. Microbial profile of fresh produce and environmental samples from WVU organic produce farm. **Cangliang Shen** and Lewis Jett. 2018. **WVU Davis College of Agriculture, Natural Resources and Design and Extension Service Joint Research Symposium**, September 7, Bruceton Mills, West Virginia.
9. Apply Three-Step Wash to Improve Microbial Safety of Produce. **Cangliang Shen**. 2018. **West Virginia Small Farm Conference**. Feb 24th, Morgantown, West Virginia.
10. Food safety of WV locally grown food. **Cangliang Shen**. 2017. **West Virginia University Extension Annual Meeting**. Sep. 19th to 21st. Jackson Mills, West Virginia.
11. Post Harvest Handling. **Cangliang Shen**. 2016. **West Virginia Farmers Market Manager Training**. Mar 21st and 22nd, West Virginia State University, Charleston, West Virginia.
12. Foodborne Pathogen Controls during Mobile Poultry Processing. **Cangliang Shen**.

- 2016. West Virginia Small Farm Conference.** Feb 25 to 27th, Charleston Civic Center, West Virginia.
13. Introduction of postharvest control strategies to control foodborne pathogens on fresh produce. **Cangliang Shen.** 2015. **West Virginia Southern Coalfield Foodshed Gathering.** Oct 19th, Welch, West Virginia.
14. Introduction of Good Agriculture Practices (GAP) for West Virginia Farmers Market Fresh Produce Vendors. **Cangliang Shen.** 2015. **West Virginia Urban Agriculture Conference.** Sep 18 to 20, Institute, West Virginia.
15. Participate “Poultry Production Workshop” at Marshall County Extension Office, Moundsville, WV, May 4th, 2015.
16. Post-harvest Sanitize and Water Quality. **Cangliang Shen.** 2015. **West Virginia Small Farm Conference.** Feb 26 to 28th, Charleston Civic Center, West Virginia.
17. **Phone interview** with Bain Rodney from **USDA Radio News** regarding **food safety after potential hurricane and flooding**, 1:30-1:45 pm, October 2nd, 2015
<http://audioarchives.oc.usda.gov/node/248>.

Professional Services:

1. Grant Review Panel

- 2024 USDA-NIFA-Specialty Crop Research Initiative (SCRI) Program. (14 submitted proposals).
- 2023 USDA-NIFA-Specialty Crop Research Initiative (SCRI) Program. (7 submitted proposals).
- 2022 Technically review a proposal entitled “Rapid detection and surveillance of antimicrobial resistance of *Salmonella* using microfluidic device and internet of things” assigned by the MITACS Program, Canada.
- 2021 Technically review an LOI (three pages) for a project entitled “Bacteriophage Therapy to Reduce Colibacillosis in Chickens” assigned by the Canadian Poultry Research Council (CPRC).
- 2017 USDA-NIFA Division of Community & Education Institute of Youth, Family, & Community, Pre- and Post- Graduate Fellowships. (15 submitted proposals)
- 2016 USDA-NIFA Division of Community & Education Institute of Youth, Family, & Community, Pre- and Post- Graduate Fellowships. (15 submitted proposals)
- 2015 USDA-NIFA Division of Community & Education Institute of Youth, Family, & Community, National Needs Fellowships. (10 submitted proposals)
- 2015 USDA-NIFA Division of Community & Education Institute of Youth, Family, & Community, Non-Land Grant Colleges of Agriculture (NLGCA) (12 submitted proposals)

2. Davis College, West Virginia University, 2015.1-

- Davis College Curriculum committee, Fall 2024 to current
- Davis College Student Research and Creative Scholarship Committee, Fall 2024 to current
- Davis College P&T committee, 2021.8-2022.8
- Davis College grants office director search committee, 2021,11.
- Review panel of Davis College Enrichment Grants (13 proposals), 2021.5.10-17.
- WVAFES and Research Office Advisory Board Member, 2021.2-
- Davis College Student Research and Creative Scholarship Committee, 2019.2-2021.5

Assist to organize 2021 Davis College Research Day Graduate Student Research Competition as virtual conference organizer and section moderators.

3. Division of Animal & Nutritional Sciences, West Virginia University, 2015.1-

- External Reviewer for Dr. S. Xu promotion to Association Professor of Teaching at in Nutrition and Food Science program, Wayne State University, 2024.9
- Division faculty P&T committee member (alternative), 2021.1-2021.8
- Division Graduate Seminar *ad hoc* committee, Spring, 2020
- Division Director Search Committee, 2018.10-2019.5
- Division faculty P&T committee member, 2018.9-2019.8
- Division faculty P&T committee member, 2016.9-2017.8

4. Department of Biology, Western Kentucky University, 2012.8-2014.12

- Member of undergraduate class curriculum committee
- Search committee for recruiting Bio 113 instructor

5. Journal Editorial Board Members

- *Food Control* 2023-
- *Journal of Food Protection* 2019-
- *Food Protection Trends* 2014-
- *Frontiers in Sustainable Food System* 2017-
- *Frontiers in Microbiology* 2022-
- **Guest editor** of special issue "Rapid Analysis Technology for Food Quality and Safety" in *Foods* journal
- **Guest editor** of special issue "Sustainable agriculture and food systems" for *Journal of Agriculture and Food Research*

6. Membership in Professional Organizations

- International Association of Food Protection (IAFP)-Food Protection Trends Management Committee, 2022-2025

- International Association of Food Protection (IAFP)-Sanitarian Award Selection Committee, 2022-2025
- International Association of Food Protection (IAFP)-Frozen Food Foundation's Freezing Research Award Selection Committee, 2022-2025
- Institute of Food Technologists (IFT)-Biotechnology Division, Leadership Team member, Chair-Elect, Chair, Past-Chair, 2022-2024
- Institute of Food Technologists (IFT)-Food Microbiology Division, **Secretary, Chair-Elect, Chair, Past-Chair**, 2016-2021
- Institute of Food Technologists (IFT) (2008-), professional member (2013-) 2013-2017 IFT-Food Microbiology Division, **Members-at-Large (MAL), Student Competition Co-Chair, Professional Awards Chair, Secretary.**
- American Meat Science Association (2014-2015)
- IFT Food Microbiology Division (2008-)
- IFT Muscle Foods Division (2008-)
- IFT Rocky Mountain Section (2008-2011)
- International Association for Food Protection (IAFP) (2008-)
- Poultry Science Association (2015-)

7. Secretary (2012.11-2013.11) and Chair (2013.11-2014.11) of Microbiology Division of Kentucky Academy of Science, Chair of Microbiology Division of Kentucky Academy of Science

8. External Reviewer for following journals and conference abstracts:

Journals: International Journal of Food Microbiology, Journal of Food Science, Letters in Applied Microbiology, Journal of Agricultural and Food Chemistry, Journal of the American Oil Chemists' Society, African Journal of Biotechnology, LWT-Food Science and Technology, African Journal of Microbiology Research, Journal of Kentucky Academy of Science, Food Protection Trends, Journal of Dairy Science, Food Control, Food Microbiology, Journal of Food Protection

Conference abstracts:

1. 2012-2023 Annual Meeting of the Institute of Food Technologists Food microbiology Division submitted abstracts (20-50).
2. 2013-2016 Annual Meeting of the Institute of Food Technologists Food microbiology Division Graduate Student Research Poster and Oral Competition abstracts (20).
3. 2013 Annual Meeting of International Association of Food Protection Developing Scientist Competition Poster abstracts (80).
4. 2014 Annual Meeting of the Institute of Food Technologists Food microbiology Division Section Proposals (10).

9. Judge for students' oral or poster competitions:

1. On-site judge, 2019-2024 WVU Davis College Research and Creative Scholarship Conference, Master Poster Presentation (9).

2. On-site judge, 2015-16 WVU Davis College Research and Creative Scholarship Conference, PhD oral presentation (9).
3. On-site judge, 2013 Annual Meeting of International Association of Food Protection Developing Scientist Competition Oral Presentation (6).
4. On-site judge, 2013-2016 Annual Meeting of the Institute of Food Technologists, Food microbiology Division Graduate Student Research: Poster (6) and Oral (6) Presentation.
5. Judge, undergraduate and graduate student poster (5) and oral (2) presentation competition, 2012-2013 98th -99th Kentucky Academy of Science Annual Meeting, Eastern Kentucky University, Richmond, KY.
6. 2011 and 2012, Research Day, Department of Nutrition and Food Science, University of Maryland, College Park. At National Agricultural Library, USDA.