

Mindy Brashears
Texas Tech University
Department of Animal and Food Sciences
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EDUCATION:

Oklahoma State University

- Doctor of Philosophy in Food Science, Food Microbiology – August 1997
- Master of Science in Food Science, Food Microbiology – May 1994

Texas Tech University

- Bachelor of Science in Food Technology, Magna Cum Laude – May 1992

CURRENT POSITION:

- Texas Tech University, Department of Animal and Food Sciences
 - Professor (September 2009 – Present)
 - Associate Professor (September 2004 – September 2009)
 - Assistant Professor (May 2001 – September 2004)
- Director, International Center for Food Industry Excellence
- Faculty Member, Center for Biodefense, Law and Public Policy, Texas Tech University School of Law
- Adjunct Faculty Member, West Texas A&M University

Responsibilities:

Administrative: Secure and Manage Funding for Center. Coordinate promotional activities. Supervise Center Staff.

Research: Conducting research to address current food safety issues in both pre-harvest and post-harvest environments. Specific projects include an evaluation of direct-fed microbials and other interventions to reduce *E. coli* O157:H7 in cattle, beef and spinach determination of the correlation of shedding *E. coli* O157:H7 in the feedlot and contamination of the carcasses with pathogens, risk factors associated with the emergence of antimicrobial drug resistance, and validation of critical control points (CCPs) in beef, pork, poultry, and leafy green processing environments.

Teaching: Teach undergraduate and graduate courses in food microbiology, food safety, HACCP and grant writing.

Outreach: Assisting food processors with HACCP training and HACCP validation and verification. Conduct workshops on HACCP, Advanced HACCP, Sanitation, and Recalls.

PREVIOUS EXPERIENCE

University of Nebraska, Department of Food Science and Technology

Assistant Professor, Extension Food Safety Specialist

August 1997 – May 2001

Responsibilities:

Extension: Assisted the food industry with the implementation of HACCP programs, sanitation, preservation, and various other food safety issues.

Research: Conducted research related to applied food safety needs of the food industry including microbial interventions and HACCP validation in both pre- and post-harvest environments.

Oklahoma State University, Department of Animal Science

Graduate Research Assistant

August 1992 – August 1997

CURRENT EDUCATIONAL ACTIVITIES:

- Undergraduate Courses
 - Food Microbiology
 - Food Safety
- Graduate Courses
 - Advanced Food Microbiology
 - Current Topics in Food Microbiology
 - Advances in Food Safety
 - Grant Writing
 - Seminar
- Director of State FFA Food Science Contest for High School Students
- Conduct and Direct Bob Albin Graduate Student Paper Competition
- National Media Spokesperson for “Best Food Nation”

EXTENSION and OUTREACH ACTIVITIES:

- Designated as a Lead Instructor for the International HACCP Alliance
- HACCP Training for Food Processors:
 - HACCP Plan Development
 - HACCP Plan Verification
 - HACCP Plan Re-Assessment
 - Introductory HACCP Courses
 - Advanced HACCP Courses
 - Individualized HACCP Training for Processors
 - HACCP Plan Validation through Research in Pathogen Processing Area
 - On-Line HACCP

- Spanish On-Line HACCP
- In-Depth Verification Review Assistance
- Recall Workshops and Recall Plan Development
 - Sampling Plan Development
 - Sanitation Workshops
 - Crisis Management During Recalls
 - Food Security

Specialized Training Courses Completed:

- International HACCP Alliance's Train the Trainer Course
- Food Processors Institute's Advanced HACCP Workshop: Verification and Validation
- National Association of Meat Processors In-Dept Verification Workshop
- National HACCP Education Conference
- American Meat Association Sampling for Control of *Listeria monocytogenes* workshop

Food Safety Website (www.foodsafety.ttu.edu):

- Designed, created and maintaining a food safety website to educate consumers and food industry professionals about safe food handling.
- Developed downloadable forms to use when developing HACCP plan
- Answer consumer and processor questions about food safety and HACCP
- Member of the USDA Food Safety Website Coordinators Group

HONORS:

- Laboratorian Award – International Association for Food Protection, 2014
- Hill Seminar Distinguished Scientist – Penn State University, 2012
- Farm Foundation – Exemplary Teamwork and Collaboration Award, 2011
- Texas Tech University, CASNR Advising Award, 2010
- American Meat Science Association – Distinguished Achievement Award, 2009
- Young Professionals of Greater Lubbock, “20 Under 40” Award, 2008
- Oklahoma State University, Advanced Degree Graduate of Distinction, 2008
- Big 12 Rising Star Award for Innovation In Research and Technology Transfer, 2006
- Research Award - College of Agricultural Sciences and Natural Resources, Texas Tech University, 2005
- Selected as one of the top 6 experts in the United States on *E. coli* O157 to participate in the FSIS *E. coli* O157 Expert Solicitation Panel, 2005
- Invited as one of the top 30 scientists in the world to participate in a scientific panel, “Probiotic Microbes: The Scientific Basis” by the American Academy of Microbiology, the honorific leadership group of the American Society for Microbiology. November, 2005
- USDA NRI Panel Manager – Food Safety, 2001 and 2002
- USDA NRI Panel Member – Food Safety, 2000
- National Cattleman's Beef Association, *E. coli* O157 Task Force

- American Society for Microbiology-Burroughs Wellcome Fund Visiting Professorship in Microbiological Sciences –Served as a visiting professor in Food Safety and HACCP at the University of Puerto Rico, Humacao
- Appointed to scientific review team for the USDA Risk Assessment for *E. coli* O157:H7, 2004
- Invited Member of the Excel Food Safety Team to Give Presentations on Food Safety in North America, 2002
- Appointed to Editorial Board, Journal of Food Protection
- Appointed to the Editorial Board of the Journal of Food Science
- Appointed to the Editorial Board of the Journal of Animal Science, Meat Science Section
- National Ag Communicators of Tomorrow – Silver Award for HACCP Video
- Epsilon Sigma Phi Team Award – Urban Pest Management Team, 1999
- Outstanding Ph.D. Student in the Department of Animal Science, Oklahoma State University, 1997
- E.M. Ahmed Graduate Student Scientist Award, 1997
- Joe V. Whiteman Award for Outstanding Graduate Student Research Paper, 1994 and 1997
- Sigma Xi
- Phi Kappa Phi
- Gamma Sigma Delta
- Golden Key
- Alpha Zeta
- Cardinal Key
- Alpha Lambda Delta
- Phi Tau Sigma

ORGANIZATIONAL CITIZENSHIP:

National

Member

- American Society for Microbiology
- International Association for Food Protection
- Institute of Food Technologists
- American Meat Science Association
- Conference for Research Workers and Animal Diseases (Elected Membership)
- National Alliance for Food Safety
 - Board of Directors
 - Operations Committee

Chair

- S-295 USDA Multi-State Research Project. Food Safety
 - Other Offices Held: Secretary and Chair-Elect
- National Alliance for Food Safety and Security

Board of Directors

- National Alliance for Food Safety and Security

Steering Committee

- IAFP, Journal of Food Protection Steering Committee

Editorial Boards

- Ommega Publishers
- Journal of Food Protection
- Journal of Animal Science, Meat Science Section
- Journal of Food Science
- Ad Hoc Reviewer for JAVMA, International Journal of Food Microbiology, Journal of Food Safety, Applied and Environmental Microbiology

State

- Agro Medicine Consortium – Organizational Committee
- Nebraska’s Farm to Table Food Safety Group
- Nebraska Poultry Industry – Former Board Member
- Nebraska Association of Milk, Food and Environmental Sanitarians Former Treasurer and President
- Phi Tau Sigma – Former President
- Nebraska Animal Production – Food Safety Coalition
- Aksarben section of IFT – Former President

University

- Provost Search Committee
- CASNR Dean Search Committee
- Task force for Review of University Centers
- Tenure Grievance Committee
- Misconduct in Research Committee
- Review Committee for Engineering Centers

College

- Research Committee, Chair
- Dean Search Committee

Department

- Graduate Committee
- Curriculum Committee
- Recruitment Committee
- Advisor, Food Tech Club
- Bob Albin Graduate Student Research Competition Chair
- Committee for Student Recruitment

INTERNATIONAL EXPERIENCES:

- Currently Conducting Research and Teaching Programs in the Following Countries: Mexico, Honduras, Costa Rica, Bahamas, Barbados, Panama, Nicaragua, Belize, and Colombia.

SOWER SCHOLARS PROGRAM

- Founder of the SOWER program for student mentoring
- Sustaining Our World Through Education and Research

RESEARCH SUMMARY

Grants Received (National, Commodity and Industry Funding)

Total	\$20.1 million
Texas Tech	\$18.1 Million
University of Nebraska	\$2 Million

GRANTS RECEIVED:

Brooks, J.C., M.M. Brashears, and A. Echeverry. 2013. The Risk and thermal Susceptibility of Non-O157:H7 Shiga-toxin Producing Escherichia coli in Non-Intact Beef Products Intended for Food Service or Retail. National Cattlemen's Beef Association. \$149,952 (\$49,484.16).

Mindy Brashears, Chance Brooks, and Alejandro Echeverry. Impact of Needle Tenderization on the Safety of Beef. National Cattleman's Beef Association. \$150,000.

Mindy Brashears, Marie Bugarel, Guy Loneragan, and Kendra Nightingale. Characterization and Discrimination of Salmonella using Molecular and Novel Challenge model Approaches. United States Department of Agriculture. \$200,000.

Mindy Brashears, Mark Miller, Todd Brashears. 2013. Reduction of E. coli O157:H7 in Small-Scale cow/calf operations using Best Management Practices. United States Department of Agriculture. Primary Institution – Oklahoma State University (Divya Jaroni). \$125,523

Mindy Brashears, J. Chance Brooks, Alejandro Echeverry, Guy Loneragan, Mark Miller, and Kendra Nightingale. Mitigation of Salmonella in Lymph Nodes using a Pre-harvest Intervention. American Meat Institute Foundation. \$89,914.

Mindy Brashears, J Chance Brooks, and Guy Loneragan. Determining the Incidence and Antimicrobial Susceptibility of Salmonella Serovars Isolated from U.S. Retail Ground Pork, National Pork Board, \$56,657.

M. Todd Brashears, Mindy Brashears, Guy Loneragan, Markus Miller, and Kendra Nightingale. Building Laboratory and Intellectual Capacity in Order to Effectively Detect Salmonella in Food Supply, USDA, \$749,930.

Mindy Brashears, J. Chance Brooks, Alejandro Echeverry, Lacey Guillen, and Guy Loneragan. E. coli O157:H7 as an Indicator for the "Big 6" STECs, National Cattlemen's Beef Association, \$50,000.

Mindy Brashears and Guy Loneragan, Determine Whether a Commercially Available Vaccine is able to Clear Challenged induced Salmonella Lymph Node Colonization, National Cattlemen's Beef Association, Total \$40,100, TTU Total \$20,050.

Mindy Brashears, Alejandro Echeverry, Guy Loneragan, and Markus Miller, Establishment of a Non-O157 Shiga-toxin Producing E.coli (STEC) Baseline, National Cattlemen's Beef Association, TTU Total \$40,000.

Mindy Brashears and Guy Loneragan, Evaluation of E.coli O157 Extract Vaccine on Prevalence of non-O157 Shiga-toxin Producing E.coli (STEC), National Cattlemen's Beef Association, Total \$90,524, TTU \$40,262.

Michel Brashears, Mindy Brashears, and Alejandro Echeverry, FAS Capacity Building and Assessment of Capabilities and Deficiencies of the Asia-Pacific Economic Cooperation (APEC) Laboratory Network, USDA, TTU total \$14,332.

Mindy Brashears, Host, Genetic, Microbial, and Environmental Factors Associated with Shiga Toxinproducing Escherichia coli (STEC) Shedding, USDA, TTU \$48,703.

Mindy Brashears and Guy Loneragan, Pilot Testing Project for Animal NARMS Sampling, USDA, TTU Total \$48,000.

Mindy Brashears and Guy Loneragan Quantification of the Relationship between Distiller's Grain Co-products and Escherichia coli O157:H7: Load in Real-world, Commercial Feedlot Settings, , USDA, Total \$399,437, TTU \$199,718.50.

Mindy Brashears, and Chance Brooks,SUPPLEMENT: Methods for Effectively Controlling E. coli O157:H7 and Salmonella during the Production of Non-intact Beef Products, National Cattlemen's Beef Association, Total \$15,000, TTU \$7,500.

Mike Ballou, Michel Brashears, Mindy Brashears, Chance Brooks, Guy Loneragan, Markus Miller, Solutions for the Food Safety Threat Posed by Salmonella in the Lymph Nodes of Cattle Presented for Harvest, USDA, TTU \$597,045.

Mike Ballou, Michel Brashears, Mindy Brashears, Chance Brooks, Guy Loneragan, Markus Miller, Solutions for the Food Safety Threat Posed by Salmonella in the Lymph Nodes of Cattle Presented for Harvest, National Cattlemen's Beef Association matching funds to USDA grant, TTU \$150,000.

Mindy Brashears and Guy Loneragan. Host, genetic, microbial, and environmental factors associated with Shiga toxin-producing Escherichia coli (STEC) shedding – United States Department of Agriculture. Subaward from Michigan State University. PI – Shannon Manning. Total Grant amount \$1.2 Million. TTU Amount - \$284,662

Mindy Brashears, Mark Miller, Chance Brooks, Christine Alvarado, Pawan Takhar, Leslie Thompson, Todd Brashears, Shelly Harp, Deb Reed, Janice Boyce, Center for Food Industry Excellence, Texas – 2010, United States Department of Agriculture, \$843,000.

Mindy Brashears, Guy Loneragan, Tony Bryant, John Ruby. Evaluation of E. coli O157 Bacterial Extract Vaccine, National Cattlemen’s Beef Association, \$130,811

Mindy Brashears, Guy Loneragan, Dayna Harhay, Tom Edirington. Identification and Characterization of Population(s) at Greatest Risk for Presence of Salmonella within Lymph nodes, National Cattlemen’s Beef Association, \$144,835.

J. Chance Brooks, Mindy Brashears, Mark Miller, The Effect of Acidified Sodium Chlorite, Lactic Acid, and Cooking on the Survivability of E. coli in Needle Tenderized Beef Steaks, National Cattlemen’s Beef Association, \$65,057.

Mindy Brashears, Mark Miller, Chance Brooks, Christine Alvarado, Pawan Takhar, Leslie Thompson, Todd Brashears, Shelly Harp, Deb Reed, Janice Boyce, Center for Food Industry Excellence, Texas – 2009, United States Department of Agriculture, \$845,000.

Mindy Brashears, Mark Miller, Todd Brashears. 2009. Reduction of E. coli O157:H7 in Small-Scale cow/calf operations using Best Management Practices. United States Department of Agriculture. Primary Institution – Southern University (Divya Jaroni). Awarded Amount: \$1.0 million TTU Amount: \$400,000

Mindy Brashears, Mark Miller, Todd Brashears, Chance Brooks, Brad Johnson. 2009. Quantification of the Relationship between Distiller’s Grains Co-Products and Escherichia coli O157:H7 Load in Real-World, Commercial Feedlot Settings. United States Department of Agriculture. Primary Institution – West Texas A&M University (Guy Loneragan). Awarded Amount: \$800,000 TTU Amount: \$285,000

Brooks, J.C., M.M. Brashears and M.F. Miller. 2009. The Effect of Acidified Sodium Chlorite, Lactic Acid, and Cooking on the Survivability of E. coli in Needle Tenderized Beef Steaks. National Cattleman’s Beef Association. \$53,057

Mindy Brashears, Mark Miller, Chance Brooks, Christine Alvarado, Pawan Takhar, Leslie Thompson, Todd Brashears, Shelly Harp, Deb Reed, Janice Boyce, Center for Food Industry Excellence, Texas – 2008, United States Department of Agriculture, \$943,353.00, \$179,237.07.

Mindy Brashears, Mark Miller, Todd Brashears, Minimizing Microbial Food Safety Hazards of Fresh and Fresh-Cut Fruits and Vegetables Through a Farm to Table Approach, United States Department of Agriculture, \$199,675.00, \$65,892.75.

Mindy Brashears, Guy Loneragan (WTAMU), Morgan Scott, Bo Norby (TAMU)

Novel Pre-Harvest Intervention to protect Antimicrobials of Critical Importance in Human and Veterinary Medicine. United States Department of Agriculture. Total Award:\$900,000 (TAMU) Texas Tech Amount: \$88,000.

Mark Miller, Chance Brooks, Mindy Brashears_Evaluation of Shelf Life of Australian Beef. Meat Livestock Australia. \$122,000

Mindy Brashears, Enusha Karunasena_The Consequences of Feed Withdrawal from Cattle and Its Effect on Pathogenic *Escherichia coli* O157:H7 Distribution, Proliferation and Virulence: A Model of Transportation Stress on Cattle & Pathogen. South Plains Foundation. Total amount- \$15,000.00

Mindy Brashears, Mark Miller, Chance Brooks, Carcass Mapping to Determine *E. coli* O157 Distribution on Beef Carcasses, National Cattleman's Beef Association, \$103,773.00, \$41,509.20.

Christine Alvarado, Pawan Takhar, Mindy Brashears, Control of *Listeria monocytogenes* on Contact and Non-Contact Surfaces by Electrostatic Spraying of Sanitizers, United States Poultry and Egg Association, \$40,890.00, \$12,267.09.

Chance Brooks, Mark Miller, Mindy Brashears, Impact of Ground Beef Packaging Systems and Temperature Abuse on the Quality of Ground Beef, National Cattleman's Beef Association, \$31,623.00, \$12,649.20.

Chance Brooks, Mark Miller, Mindy Brashears, Impact of Ground Beef Packaging Systems and Temperature Abuse on the Safety and Quality of Ground Beef, American Meat Institute Foundation, \$63,245.00, \$25,298.00.

Chance Brooks, Mark Miller, Mindy Brashears, Impact of Ground Beef Packaging Systems and Temperature Abuse on the Safety of Ground Beef, National Cattleman's Beef Association, \$31,623.00, \$12,649.20.

Mindy Brashears, Mark Miller, Chance Brooks, Todd Brashears, Pre-Harvest Critical Control Points in Feed Yards to Prevent Cross-Contamination of Pathogens onto Cattle and Other Environmental Areas, United States Department of Agriculture, \$597,652.00, \$179,295.00.

Chance Brooks, Mark Miller, Mindy Brashears, The Survivability, Growth and Heat Susceptibility of *E. coli* O157:H7 in Enhanced Beef Brine Solutions Containing Salt, Potassium Lactate, National Cattleman's Beef Association, \$125,500.00, \$50,200.00.

Mindy Brashears, Margaret Brinkley, Improving Hand Hygiene Compliance in Restaurants, United States Department of Agriculture/Regents of the University of California, \$195,262.00, \$48,815.50.

Shelley Harp, Brent Shriver, Janice Boyce, Mark Miller, Leslie Thompson, Chance Brooks, John Blanton, Kevin Pond, Pawan Takhar, Christine Alvarado, Mindy Brashears, Todd Brashears, Center for Food Industry Excellence, United States Department of Agriculture, \$1,266,717.00, \$291,344.91.

Chance Brooks, John Blanton, Mark Miller, Mindy Brashears, Development and Validation of Intervention Strategies to Control Escherichia coli 0157:H7 and Salmonella spp in Needle Tenderized and Injected Beef, National Cattleman's Beef Association, \$134,073.00, \$60,332.85.

Mindy Brashears, Inter-Lab Comparison Study, National Cattleman's Beef Association/Washington State, \$7,200.00, \$7,200.00.

Mindy Brashears, Mark Miller, Chance Brooks, Phase 1: Food - The Effect of Meat Packaging Technologies on the Safety and Spoilage- Indicating Characteristics of Ground Beef, National Cattleman's Beef Association, \$40,732.00 , \$13,848.88.

Chance Brooks, Mark Miller, Mindy Brashears, Phase 2: Spoilage - The Effect of Meat Packaging Technologies on the Safety and Spoilage-Indicating Characteristics of Ground Beef, National Cattleman's Beef Association, \$87,752.00, \$28,958.16.

Mark Miller, Chance Brooks, John Blanton, Mindy Brashears, Reduction of Food-Borne Pathogens on Cattle During Loading Through Control of Dust Generation, National Cattleman's Beef Association, \$66,550.00, \$19,965.00.

Mark Miller, Chance Brooks, Mindy Brashears, Reduction of the Food-Borne Pathogens Salmonella on Cattle During Loading Through Control of Dust Generation at the Feedlot, National Cattleman's Beef Association, \$66,824.00, \$22,051.92.

Mindy Brashears, Christine Alvarado, John Blanton, Chance Brooks, Mark Miller, Risk Factors and Consequences Associated With Condensation in Fresh and Ready-to-Eat Processing Facilities, American Meat Institution Foundation, \$95,445.00 , \$19,089.00.

Mindy Brashears, Enusha Karunasena, Chance Brooks, Mark Miller, The Consequences of Stress and Diet on the Immune and Endocrine Systems of Cattle and Their Effects on the Seasonal Shedding of Escherichia coli 0157:H7, National Cattleman's Beef Association,\$90,089.00 , \$36,035.60.

Mindy Brashears, Michael Galyean, Reduction of E. coli 0157 in Beef Feedlot Cattle Using Varying Doses of a Direct-Fed Microbial, Nutrition Physiology Corporation, \$172,770.00, \$43,192.50.

Mindy Brashears, Comparison of Rapid and Immunomagnetic Separation Methods for Detection and Quantification of E. coli 0157 in Fecal, Hide and Carcass, National Cattleman's Beef Association, \$84,132.00, \$84, 132.00.

Christine Alvarado, Mindy Brashears, Controlling *Listeria Monocytogenes* in Further Processed Meat, National Alliance for Food Safety and Security, \$107,847.00, \$26,961.75.

Todd Brashears, Mark Miller, Mindy Brashears, Development of a Pre-Harvest Educational Program for Cattle Producers- Food Safety Inspection Service, United States Department of Agriculture, \$50,190.00, \$16,562.70.

Christine Alvarado, Todd Brashears, Mindy Brashears, Development of an Online HACCP Certification and Hazard Analysis Resource List for Shell and Further Processed Eggs - Food Safety Inspection Service, United States Department of Agriculture, \$35,293.00, \$11,646.69.

Mark Miller, John Blanton, Chance Brooks, Mindy Brashears, Effects of Dust Cloud Cross-Contamination on *E. coli* 0157 and *Salmonella* During Cattle Transport, National Cattleman's Beef Association, \$68,125.00, \$17,181.25.

Mindy Brashears, John Blanton, Feedlot Production Practices and Their Impact on Pre- and Post-Harvest Antimicrobial Susceptibility Patterns of Enteric Bacteria, National Cattleman's Beef Association/West Texas A&M University, \$428,841.00, \$428,841.00.

Christine Alvarado, John Blanton, Mindy Brashears, Inhibition of *Campylobacter* in Whole Chicken Carcasses Using Intervention Technologies, Supachill USA Inc., \$43,285.00, \$21,642.50.

Mindy Brashears, Michael Galyean, Reduction of *E. coli* 0157 in Beef Feedlot Cattle Using Varying Doses of a Direct-Fed Microbial, Nutrition Physiology Corporation, \$172,770.00, \$43,192.50.

Chance Brooks, Mark Miller, Todd Brashears, Mindy Brashears, Reduction of *E. coli* and *Salmonella* in Ground Beef Using Rosemary Oleoresin and Oregano Essential Oils - Food Safety Inspection Service, United States Department of Agriculture, \$50,350.00, \$12,587.50.

Mark Miller, Chance Brooks, Todd Brashears, Mindy Brashears, Reduction of *Escherichia coli* 0157:H7 and *Salmonella* ssp Using Dry Chilling in Small Processing Plant Environments - Food Safety Inspection Service, United States Department of Agriculture, \$50,000.00, \$12,500.00.

John Blanton, Chance Brooks, Mark Miller, Mindy Brashears, Validation of Trichloromelamine as an Effective Hide Wash Technology, National Cattleman's Beef Association, \$61,262.00, \$15,315.50.

Mindy Brashears, Christine Alvarado, Chance Brooks, Todd Brashears, Verification of Microwave Technology for the Elimination of Food-Borne Pathogens in Whole Shell

Eggs and the Development of New Applications in the USA Food Industry, ITACA, \$55,711.00, \$13,927.75.

Mindy Brashears, Mark Miller, Application of Antimicrobial Treatments in a Commercial Stimulation to Reduce *E. coli* 0157:H7 and *Salmonella* spp. in Beef Trim and in Ground Beef, National Cattleman's Beef Association, \$80,285.00, \$40,342.50.

Shelley Harp, Brent Shriver, Janice Boyce, Mark Miller, Leslie Thompson, Chance Brooks, John Blanton, Kevin Pond, Pawan Takhar, Christine Alvarado, Mindy Brashears, Todd Brashears, Center for Food Industry Excellence- CSREES, U.S. Department of Agriculture, \$2,518,213.00, \$306,628.50.

Christine Alvarado, Mindy Brashears, Leslie Thompson, Comparison of Wire and Plastic Belts on Microbial Load and Biofilm Formation, Wirebelt Company, \$34,100.00, \$8,525.00.

Mindy Brashears, Impact of Feeding Neomycin on the Emergence of Antimicrobial Drug Resistance in *E. coli* 0157, *Salmonella* spp. and Commensal Organisms in Cattle, National Cattleman's Beef Association, \$67,450.00, \$67,450.00

John Blanton, Mindy Brashears, Brett Barham, Chance Brooks, Mark Miller, Impact of Transportation of Feedlot Cattle to the Harvest Facility on the Prevalence of *E. coli* 0157:H7 and *Salmonella* spp, National Cattleman's Beef Association, \$79,640.00, \$15,928.00.

Mindy Brashears, Microbial Testing to Determine Effects of Live Cultures of *Lactobacillus acidophilus* on Shedding of *E. coli* 0157:H7 in Finishing Beef Steers, Nutrition Physiology Corporation, \$157,424.00, \$91,400.

Mindy Brashears, Chance Brooks, Todd Brashears, Mark Miller, Guy Loneragan, Pre-Harvest Critical Control Points in Feed Yards to Prevent Cross-Contamination of Pathogens into Cattle and other Environmental Areas, USDA – Integrated Research, Extension and Education Program, \$597,652.

Mark Miller and Mindy Brashears, Impact of dust "A pathogen Cloud" during loading of feedlot cattle during transportation to the harvest facility on the Prevalence of *E. coli* 0157:H7 and *Salmonella* spp. Phase II, National Cattleman's Beef Association \$130,000.

Mindy Brashears and Todd Brashears, Foundation Account Food Safety Research, Nutrition Physiology Corporation, \$180,000.

Guy Loneragan and Mindy Brashears, Improvements in microbial quality of retention-pond water in response to copper sulfate treatment, Five Rivers, \$26,000.

Mindy Brashears, Chance Brooks, Christine Alvarado, Leslie Thompson, Shelf-Life Validation Study, Chili's, \$55,000.

Mindy Brashears and Guy Loneragan, Identification of the at-risk population(s) for shedding *Salmonella* in harvest-ready cattle-Phase I, National Cattleman's Beef Association, \$66,000.

Mindy Brashears and Guy Loneragan, Identification of the at-risk population(s) for shedding *Salmonella* in harvest-ready cattle-Phase II, National Cattleman's Beef Association, \$100,000.

Mindy Brashears, Guy H. Loneragan, Randall S. Singer, Daniel U. Thomson, Michael J. Engler, Feedlot production practices and their impact on pre- and post-harvest antimicrobial susceptibility patterns of enteric bacteria, USDA Cooperative Research, Education and Extension Service, \$1,465,767.

Mindy Brashears, Mark Miller, Chance Brooks, John Blanton, Todd Brashears, Reduction of *E. coli* O157:H7 and *Salmonella* spp in ground beef using a novel intervention system combining pathogen reduction methods and replacement of natural flora with lactic acid bacteria, USDA-FSIS, \$50,000.

Christine Alvarado and Mindy Brashears, Controlling *Listeria monocytogenes* in further processed meat, National Alliance for Food Safety and Security, \$250,000.

Mike Galyean, Guy Loneragan, Mindy Brashears, Reduction of *E. coli* O157 in Beef Feedlot Cattle using Varying Doses of a Direct-Fed Microbials, Nutrition Physiology Corporation, \$140,000.

Mindy Brashears, Guy Loneragan, Comparison of Rapid and Immunomagnetic Separation Methods for Detection and Quantification of *E. coli* O157 in Fecal, Hide, Carcass and Ground Beef Samples, National Cattleman's Beef Association, \$79,182.

Mindy Brashears, Guy Loneragan, Mike Engler, David Smith, Rodney Moxley Bioniche. Effect of administration of a novel, pre-licensure vaccine on prevalence and bacterial concentration in harvest-ready feedlot cattle, \$127,330.

Mindy Brashears, Michael S. Brown, Guy H. Loneragan, Influence of direct-fed microbials on *E. coli* O157 by yearling beef steers, Nutrition Physiology Corp., \$90,000.

Mindy Brashears, Guy H. Loneragan, Validation of Sampling Methods to Determine the Prevalence of *E. coli* O157:H7 in Beef Feedlot Cattle, National Cattlemen's Beef Association, \$21,875.

Mindy Brashears, Guy H. Loneragan, , Impact of feeding neomycin on the emergence of antimicrobial drug resistance in *E. coli* O157, *Salmonella* spp. and commensal organisms in cattle. National Cattlemen's Beef Association, \$67,450.

Mindy Brashears, Reduction of *E. coli* O157:H7 in Beef Feedlot Cattle using Varying Doses of a Direct-Fed Microbials, American Meat Institute/National Cattleman's Beef Association, \$154,000.

Mindy Brashears, Validation of Multi-Hurdle Antimicrobial Treatments to Reduce *E. coli* O157 and *Salmonella* spp. in Beef Trim and Ground Beef in Small and Very Small Processing Facilities, USDA/FSIS, \$25,000.

Mindy Brashears, Guy Loneragan, Impact on Hide Interventions and Cleaning on the Microbial Quality of Beef Carcasses in Small and Very Small Processing Plants, USDA/FSIS, \$25,000.

Mindy Brashears, Guy Loneragan, Reduction of Salmonella and *E. coli* O157:H7 in beef cattle in commercial feedlots, Nutrition Physiology Corporation, \$61,000.

Mindy Brashears, Pen Origin Dust Control Using Feedlot Effluent and *E. coli* O157 Status of Market Ready Feedlot Cattle, ContiBeef, \$50,000.

Mindy Brashears, Validation of Interventions to be Used in Small and Very Small Meat Processing Facilities, USDA - Integrated Research, Extension and Education Program, \$600,000 (Collaborators – Washington State University, Penn State University).

Mindy Brashears, James Smith, Multi-functional Web-based HACCP and Food Safety Course Development, USDA Integrated Research, Extension and Education Program, \$370,000 (Collaborators – University of Nebraska, Alabama A&M).

Mindy Brashears, Todd Brashears, HACCP Training and Research to Assist Meat Processors with Process Deviation for Lethality and Stabilization, \$511,000 (Collaborators – University of Nebraska, Kansas State University).

Mindy Brashears, Mike Galyean, Increasing the Marketing Value of Cottonseed as a Pre-Harvest Control Measure for *E. coli* O157:H7 in Feedlot Cattle, International Cotton Research Council, \$75,000.

Mindy Brashears, Mark Miller, Determination of the Efficacy of a Lactic Acid Probiotic Treatment on the Reduction of *E. coli* O157 in Commercial Feedlot Settings, Nutrition Physiology/Excel, \$83,463.

Mindy Brashears, Mark Millter, Microbiological Sampling for Microbial Tracking Study, National Cattlemen's Beef Association, \$25,900.

Mindy Brashears, Mike Galyean, Ron Warner, Critical Step Validation for Pre-Harvest Microbial Food Safety Strategies, Texas Cattle Feeders, \$16,959.20.

Mindy Brashears, Competitive Inhibition of *E. coli* O157:H7 and *Salmonella* spp. in Ground Beef Products, NCBA/TX Beef Council, \$19,160.

Mindy Brashears, Pre-Harvest Food Safety Interventions, Nutrition Physiology Corporation, \$72,048.

Mindy Brashears, Validation of Temperature Parameters as CCPs During Pork Fabrication, National Pork Producers Council, \$24,500.

Mindy Brashears, Competitive Inhibition of *Listeria monocytogenes* in Ready-to-Eat Pork Products: Phase II, National Pork Producers Council, \$22,000.

Mindy Brashears, Mike Galyean, Testing of Probiotic Bacteria for the Elimination of *Escherichia coli* O157:H7 in Cattle, American Meat Institute, \$123,000.

Leslie Thompson, Linda Hoover, Kenny Wu, Mindy Brashears, Impact of high-speed chilling/freezing immersion in the microbiological and sensory quality of produce, Texas Tech Multidisciplinary Seed Grant, \$20,000.

Leslie Thompson, Linda Hoover, Kenny Wu, Mindy Brashears, Impact of high-speed chilling/freezing immersion in the microbiological and sensory quality of produce, ATP, \$121,000.

Mindy Brashears, Guy H. Loneragan, Critical-step validation for pre-harvest microbial food safety strategies, Houston Livestock Show and Rodeo, \$4,000.

Mindy Brashears, Conrad Lyford, Kyle Dalh, Analysis of Pre-Harvest Food Safety Systems for the Beef Industry, Houston Livestock Show and Rodeo, \$5,000.

Mindy Brashears, Feasibility of Carcass Submersion as a Post-Chill Intervention, Nebraska Beef, LTD, \$10,000.

Kenny Wu, Leslie Thompson, Linda Hoover, Mindy Brashears. Probiotic Effects on Rat Intestinal Microstructure and Fecal Microbial and Organic Compound Profiles, Texas Tech University, \$10,000.

Mindy Brashears, Evaluation of Intervention Strategies in Feedlot Environments, Nebraska Beef Council , \$120,000*

Mindy Brashears, Extension and Education Program - Improving HACCP Systems for Small Meat and Food Processors in Four Midwest States, USDA Integrated Research, \$540,000*

Mindy Brashears, CCP Identification and Validation During Poultry Production and Processing, USDA Special Research Grants Program, \$250,000*

Mindy Brashears, HACCP Implementation/Management for Small Meat and Food Processors in 4 Midwest States, USDA Food Safety and Quality National Education Initiative, \$200,000*

Mindy Brashears, Competitive Exclusion of *E. coli* O157:H7 in Cattle, Nutrition Physiology Corporation, \$120,000*

Mindy Brashears, Isolation and Characterization of Antibiotic-Resistant Microorganisms from Poultry, Mussehl Poultry Research Endowment, \$15,000*

Mindy Brashears, Inhibition of *Listeria monocytogenes* in Ready to Eat Poultry Products with Ionized Water, Mussehl Poultry Research Endowment, \$15,000*

Mindy Brashears, Development of Generic Egg HACCP Models, USDA/FSIS, \$50,000*

Mindy Brashears, Testing of Probiotic Bacteria for the Elimination of *Escherichia coli* O157:H7 in Experimentally Infected Cattle, MAFMA, \$24,000*

Mindy Brashears, Competitive Inhibition of *Listeria monocytogenes* in ready to eat pork products, National Pork Producers Council, \$17,500*

Mindy Brashears, Plan of Work - Food Safety Extension in Nebraska, USDA, \$30,000*

Mindy Brashears, Delivery of "Introduction to HACCP Principles" Video to USDA Federally Inspected Very Small Meat and Poultry Processors, USDA/FSIS, \$21,658*

Mindy Brashears, Translation to Vietnamese and Delivery of "Introduction to HACCP Principles" Video to USDA Federally Inspected Very Small Meat and Poultry Processors, USDA/FSIS, \$9,900*

Mindy Brashears, Translation to Chinese, and Korean and Delivery of "Introduction to HACCP Principles" Video to USDA Federally Inspected Very Small Meat and Poultry Processors, USDA/FSIS, \$24,570*

Mindy Brashears, Enhancing Food Safety through Control of Foodborne Disease Agents, Regional Research Project S-263, \$36,000*

Mindy Brashears, Competitive Inhibition of Food-borne Pathogens in Meat, Layman Award, \$7,200*

Mindy Brashears, Inhibition of Food-borne pathogens by *Lactobacillus lactis* during refrigerated storage in laboratory media, Research Grant-In-Aid, University of Nebraska, Research Council Office, \$2,784*

Mindy Brashears, Microbial Verification of HACCP Systems in Meat Processing Establishments, Research Grant-In-Aid, University of Nebraska Research Council Office, \$4,000*

Mindy Brashears, *E. coli* O157:H7 Research, State of Nebraska – Legislative Bill 1206, \$75,000*

Mindy Brashears, Competitive Inhibition of Food-borne Pathogens in Poultry Products, Mussehl Poultry Research Endowment, \$10,000*

Mindy Brashears, Shelly McKee, Efficacy of Feeding Egg IgY from Hens Immunized Against *Salmonella enteritidis* (SE) to Treat and Prevent SE Infection in Hens, Mussehl Poultry Research Endowment, \$10,000*

Mindy Brashears, Effect of Probiotics on Enteric Colibacillosis, National Pork Producers Council, \$18,500*

Mindy Brashears, HACCP Education for Extension Educators, University of Nebraska – IANR Extension Division, \$9,000*

Mindy Brashears, Food Safety Extension in Nebraska, USDA – Plan of Work, \$20,000*

*Awarded at University of Nebraska

INVITED PRESENTATIONS:

International:

Brashears, M.M. 2012. Food Safety Training and Research in Latin America. Presented at the Annual Latin American meeting of IFT. Guadalajara, Mexico. February 2012.

Brashears, M.M. 2012. International Center for Food Industry Excellence Food Safety Research. Presented to the Cattleman's Industry Association. San Salvador, El Salvador. March, 2012.

Brashears, M.M. 2012. International Center for Food Industry Excellence: Research and Graduate School Opportunities. Presented at UNAM. Telecigalpa, Honduras. April 2012.

Echeverry, A. and M.M. Brashears. 2012. Comparación de Cargas Patogénicas en Plantas de Sacrificio TIF y No-TIF en México [Comparison of pathogenic loads from TIF and non-TIF slaughterplants in Mexico]. 5° Congreso Internacional del Caribe y 3° Congreso Latinoamericano "sobre Inocuidad, Calidad y Funcionalidad de los Alimentos en la Industria y Servicios de Alimentación". Mazatlan, Sinaloa, México, October 29-November 2.

Parks, A. and M.M. Brashears. 2012 Overview of Food Safety Projects in Mexico. 5° Congreso Internacional "Sobre Inocuidad, Calidad Funcionalidad de los Alimentos en la

Industria y Servicios de Alimentación" Mazatlán, Sinaloa , México Octubre 29-
Novembre 2.

Invited Speaker to the VII Symposium in Poultry Processing and Safety in Queretaro, Mexico, October 2010. Presented "Food Safety, a systems approach - Antimicrobial Interventions in the Poultry processing environment" and "Evaluation of Participants' Knowledge scores in an International HACCP Workshop".

Brashears, M.M. and A. Echeverry. 2010. Inocuidad de limentos: *Aproximacion Sistematica para el control de patogenos Intervenciones antimicrobianas en la planta de procesamiento avicola* " Food Safety, a systems approach - Antimicrobial Interventions in the Poultry processing environment". VIII Symposium in Poultry Processing and Safety in Queretaro, Mexico. October 28-29.

Brashears, T., M.M. Brashears, and A. Echeverry. 2010. *Estudio acerca del nivel educativo del personal involucrado en el sistema HACCP* "Evaluation of Participants' Knowledge scores in an International HACCP Workshop". VIII Symposium in Poultry Processing and Safety in Queretaro, Mexico. October 28-29.

Invited Speaker to the Prosafebeef conference in Dublin, Ireland, March 2009.

Invited Speaker to the VTEC (Verotoxin Producing *E. coli*) meeting in Buenos Aires, Argentina, May 2009.

Keynote speaker for the COMECARNE and MEXITEC annual convention. Spoke on results of a retail food safety survey we conducted in Mexico. November 2009.

Keynote speaker for the COMECARNE annual convention. Spoke on HACCP and Food Safety Needs in Mexico and the US. November 2008.

National-

Brashears, M.M. 2013. Food Safety Research of Mutual Interest to the U.S. and Latin America. FSIS Internal Presentation. November 2013.

Chaves, B., L. Garcia, A. Echeverry, M. Miller, and M.M. Brashears. 2013. Prevalence of *Salmonella enterica*, *Escherichia coli* O157:H7 and Non-O157 Shiga Toxin-producing *Escherichia coli* in Beef Cuts Sold at Retail Markets in Costa Rica. Presented at the 102nd annual meeting of the International Association for Food Protection, Charlotte, North Carolina. July 25-July 28.

Echeverry, A., and M.M. Brashears. 2013. Beef Safety: Mechanically Tenderized and Needle Enhanced Products and Foodborne Pathogens. Presented at the 2013 Beef Industry Safety Summit (BIFSCO). Dallas, Texas, March 13-15.

Echeverry, A., W.E. Chaney, G.H. Loneragan, J.C. Brooks, K. Nightingale and M.M. Brashears. 2013. Post Harvest Pathogen Reduction Session: *Escherichia coli* O157:H7 as

an Indicator for Efficacy of Antimicrobial Interventions to Control non-O157 Shiga Toxin Producing *E. coli* (STEC). Presented at the 2013 Beef Industry Safety Summit (BIFSCO). Dallas, Texas, March 13-15.

Brashears, M.M. 2012. Seeing a Global Perspective through the Microscope. Presented as the Hill Lecturer at Penn State University. March 2012.

Brashears, M.M. 2012. International Opportunities in Food Safety. Presented as the Hill Lecturer at Penn State University. March 2012.

Chaney, W.E., Y.T. Liao, M.J. Wolf, A.R. Parks, J. Martin, A.J. Garmyn, A. Echeverry, L.D. Thompson, M.F. Miller, J.C. Brooks, G.H. Loneragan, and M.M. Brashears. 2012. *Escherichia coli* O157:H7 and non-O157 STEC Survival and Reduction on Intact Beef Subprimal and Non-intact Beef Trim and Steaks by Intervention and Cooking Processes. Beef Safety Summit, March 6-9, Tampa, FL.

Gragg, S.E., G.H. Loneragan, K.K. Nightingale, J.R. Elder, H. Ruiz, M.F. Miller, A. Echeverry, and M.M. Brashears. 2012. Prevalence and Characterization of *Salmonella* Recovered from Lymph Nodes and Feces of Cattle at Harvest in Mexican Slaughter Facilities. Beef Safety Summit, March 6-9, Tampa, FL.

Brashears, M.M. 2012. Issues Surrounding Control and Testing of STECs. Presented at the Annual meeting of the Institute of Food Technologists. Las Vegas, NV. June 2012.

Brashears, M.M. 2012. HACCP Validation Strategies. Presented at the annual Reciprocal Meats Conference. Fargo, SD. June, 2012.

Brashears, M.M. and James Dickson. Guidelines for Validation Small and Very Small Processors. Reciprocal Meat Conference in South Dakota, June 2012.

Brashears, M.M. The Non-O157 Shiga Toxin *E. Coli*. Strains: Methodologies and Interventions. Institute of Food Technologists (IFT) Annual Meeting, NV, June 2012.

Brashears, M.M. Spicing up *Salmonella* Diversity: Reflections from International Studies in Mexico and Honduras. International Association for Food Protection (IAFP) Annual Meeting in RI, July 2012.

Brashears, M.M. 2012. Adventures in Latin America: Finding *Salmonella*. Presented at the Annual Meeting of the International Association for Food Protection. August, 2012.

Brashears, M.M. 2010. Invitation by USDA-NIFSI. Pathogen Baseline Prevalence in Mexico. Presented at the Annual Meeting for IAFP. Anaheim, CA.

Brashears, M.M. 2010. Invitation by the FAS. Collaborative Relationships and International Research Success. Presented to the Foreign Ag Service. Washington, DC.

Brashears, M.M. Food Safety Research Summit for NCBA in Dallas, TX in March 2008.

Brashears, M.M. Antimicrobial Administration and Emergence of Resistance. 2007 Beef Industry Safety Summit, Dallas, TX.

Brashears, M.M. 2007. Texas Tech University Food Safety Research Update. National Cattleman's Beef Association Food Safety Summit.

Brashears, M.M. 2007. Elite Dairymen Conference - Impact of Modifying Gastrointestinal Microbiology on Herd Health and Production.

Brashears, M.M. 2006. Antimicrobial Drug Resistance, *Salmonella*, and Research Needs. Joint Beef Safety Committee, Cattle Industry Annual Convention & Trade Show, Denver, CO.

Brashears, M.M. 2006. *Salmonella*, Drug Resistance, and Serotypes in Cattle Populations. Beef Industry Food Safety Summit, Jacksonville, FL.

Brashears, M.M. 2006. Reduction of VTEC carriage in cattle. 6th International Symposium on Shiga Toxin (Verocytotoxin) - Producing *Escherichia coli* Infections, Melbourne, Australia.

Brashears, M.M. February 2005, Epidemiology of Food-Safety Pathogens Carried by Beef Cattle, Food Safety: from the Surface Up- A National Food Safety Conference, Myrtle Beach, SC.

Brashears, M.M. International Center for Food Industry Excellence. USDA Non-competitive Research Awards Program. August, 2005.

Brashears, M.M. Overview of Reduction of *E. coli* O157 in Beef Feedlot Cattle using Direct-Fed Microbials. National Cattleman's Beef Association Food Safety Summit. Orlando, FL. April, 2005.

Brashears, M.M. Impact of Pre-Harvest Interventions on the Safety of Beef Feedlot Cattle. Northeastern Cattleman's Meeting in May, 2005. Seattle, WA.

Brashears, M.M. Pre-Harvest Food Safety Interventions. National S-295 Food Safety Meeting, "Food Safety from the Surface Up" in Myrtle Beach, SC. February 2005.

Brashears, M.M. Challenges with the Implementation of Pre-Harvest Food Safety Interventions. Southwest Reciprocal Meats Conference. Canyon, TX. September 18, 2004.

Brashears, M.M. National Cattleman's Beef Association, Annual Meeting. Impact of Direct-Fed Microbials on the Prevalence of *E. coli* O157 in Beef Feedlot Cattle. Nashville, TN. Jan. 30, 2003.

Brashears, M.M. National Cattleman's Beef Association, E. coli O157:H7 Summit. Impact of Direct-Fed Microbials on the Prevalence of E. coli O157 in Beef Feedlot Cattle. San Antonio, TX. Jan 7, 2003.

Brashears, M.M. State of Nebraska Second Annual Governor's Conference on Food Safety. Prevalence of *E. coli* O157:H7 in Cattle and Pre-harvest Control Strategies. Lincoln, NE. April 7-8, 2003.

Brashears, M.M. National Cattleman's Beef Association. Pre-harvest Intervention Technologies. *E. coli* Summit Task Force Meeting. Denver, CO. October 3-4, 2002.

Brashears, M.M. Prevalence and Control of Food-borne Pathogens in the Pre-Harvest Environment. Presented as a Part of the Excel, Food Safety and Technology V Conference, 2002. (Multiple North American Locations).

Brashears, M.M., Pre-harvest Interventions for Beef Feedlot Cattle. Pre-Harvest Pathogen Control Meeting. Oklahoma State University, Stillwater, OK. May, 2002.

Brashears, M.M. 2002. The Food Safety System: Past Accomplishments and Future Efforts to Improve Food-borne Outbreak Investigations. Annual Meeting of the International Association for Food Protection. San Diego, CA. July 1-3.

Brashears, M.M. 2002. Competitive Exclusion of E. coli O157:H7 in Beef Feedlot Cattle. Annual Meeting of the International Association for Food Protection. San Diego, CA. July 1-3.

Brashears, M.M. Competitive exclusion of food-borne pathogens in alfalfa sprouts. International Sprout Association's Annual Meeting, July, 2001. Nashville, TN.

Brashears, M.M. *Lactobacillus*. ASDA Discover Conference on Animal Probiotics, Nashville, IN. Sept. 2000

Brashears, M.M. and A. Amezcuita. 2000. Competitive Inhibition of *Listeria monocytogenes* in Ready to Eat Pork Products. NPPC Pork Safety and Quality Summit. July, 2000. Des Moines, IA.

Brashears, M.M. HACCP: Applications and Challenges. Midwest Poultry Federation Annual Meeting. March 1999. St. Paul, MN

Brashears, M.M. Managing a Recall. Midwest Poultry Federation Annual Meeting. March 2002. St. Paul, MN.

Brashears, M.M. *Listeria* control in Ready to Eat Environments. Midwest Poultry Federation Annual Meeting. March 2002. St. Paul, MN.

State

Brashears, M.M. Going Commercial: How Ideas and Inventions Become Economic Realities. 7th Annual John Huffaker Agricultural Law Course. May 2013.

Brashears, M.M. Pathogens in the Food Chain. Nebraska Retail Grocer's Association, Meat Case Workshop. Oct. 1999.

Brashears, M.M. HACCP Implementation and Challenges. Nebraska Section of the American Society of Agricultural Engineers. October, 1999.

Brashears, M.M. Acidified Foods. Better Process Control School. Sept., 1997 and 1998. University of Nebraska, Lincoln, NE.

Brashears, M.M. Cooperative Extension's Emphasis on Food Safety. NAMFES Annual Meeting. April 1998. Lincoln, NE.

Brashears, M.M. Food Container Handling. Better Process Control School. Sept. 1997 and 1998. University of Nebraska, Lincoln, NE.

Brashears, M.M. GMP's, SOP's and HACCP. Urban Pest Management Conf. Jan. 1998. University of Nebraska, Lincoln, NE.

Brashears, M.M. The *E. coli* O157:H7 Situation. Urban Pest Management Conf. Jan 1998. University of Nebraska, Lincoln, NE.

Brashears, M.M. The University's Involvement in the Fight Against *E. coli* O157:H7. Governor's Ag Conference. March 1998. Kearney, NE.

Brashears, M.M. On-Farm HACCP for Poultry Producers. Nebraska Poultry Industries Annual Meeting. March 1999. Columbus, NE.

Brashears, M.M. Pathogens in the Food Chain. Beef Feedlot Roundtable. March, 1998. Grand Island, NE.

Brashears, M.M. Safe Use and Storage of Sanitizers. Urban Pest Management Conf. Jan. 1999. University of Nebraska, Lincoln, NE.

Brashears, M.M. *Salmonella typhimurium* DT 104. Urban Pest Management Conf. Jan. 1999. University of Nebraska, Lincoln, NE.

University

Brashears, M.M. Preservative Systems Used in Foods. Ingredient Functionality Workshop. May 1998. University of Nebraska, Lincoln, NE.

Brashears, M.M. Sampling Beef Carcasses for Generic *E. coli*. Beef 706 Workshops. 1998 and 1999. University of Nebraska, Lincoln, NE.

Brashears, M.M. Sampling Pork Carcasses for Generic *E. coli*. Pork 101 Workshops. 1998 and 1999. University of Nebraska, Lincoln, NE.

COMMERCIALIZATION

Bovamine Defend

- Chief Scientist in the development of a commercialized product for pre-harvest reduction of pathogens in beef cattle. This is the first and only intervention implemented in the beef cattle industry. Is it recommended by the three major beef packers for use in all feedyards, Tyson, Cargill and ConAgra and is the only pre-harvest intervention endorsed by the USDA-FSIS, American Meat Institute and the National Cattleman's Beef Association.
- Royalties from this product are generated annually with a minimum of \$50,000 annually.

Lactiguard

- Chief scientist in the development of LactiGuard, a lactobacillus-based commercially available product for reduction of pathogens in meat and poultry products. Data were used to gain a recent FDA approval and product will soon be commercially available.
- Royalties are generated annually to Texas Tech with a minimum of \$50,000 annually

MicroZap

- Led a team of scientists in bringing technology from Italy to the US and obtaining multiple patents around the world (see below).
 - Developed an initial LLC with our scientists which ultimately developed into MicroZap and we were awarded a 1.5 million Emerging Technology Grant from the State of Texas.
 - The company has grown with major investors and is nearing major commercialization.
 - Currently a major stockholder and serve of the Board of Directors for the company
-
- Big 12 Rising Star Award for Innovation In Research and Technology Transfer, 2006

Patents-

1. Christine Alvarado, J Chance Brooks, Mindy M. Brashears, Todd Brashears, Gianfranco Coccoli, Pierluigi Sapelli, Mario Piazza, Stafania Franzoni, Federico Felappi, and Nicola Tolettini. Method for Preserving Food. Australian application number 2008293458. Awarded April 17, 2014.
2. Willis Don Stull, Andreas Alfred Neuber, David E. Sharbutt, Michel Todd Brashears, Mindy M Brashears, Christine Alvarado, J. Chance Brooks. Microwave Disinfection and Sterilization. Application No. 14/174,937. Application filed February 7, 2014.
3. Willis Don Stull, Jr., Andreas Alfred Neuber, Michel Todd Brashears, Mindy Malynn Brashears, Christine Alvarado, J Chance Brooks, and David E. Sharbutt. Microwave Disinfection and Sterilization. US Patent Number 8,679,401 B2. Date of Issue March 25, 2014.
4. Mindy Brashears, Guy Loneragan, and Kendra Nightingale. Lactic Acid and other Probiotic Bacteria to Reduce Pathogens in Lymph Nodes and Other Lymphatic Tissues of Livestock Animals. Application filed December 30, 2013.
5. Christine Alvarado, J Chance Brooks and Mindy M Brashears. Method and System for Preserving Food. Japanese Patent number 5391199. Date of Issue October 18, 2013.

6. Douglas R. Ware and Mindy M. Brashears. Compositions and methods for reducing the pathogen content of meat or meat products. US Patent Number 8,496,925 B2. Date of Issue July 30, 2013.
7. Ware, Douglas and Mindy Brashears. Inhibition of Pathogenic Growth on Plant Materials Using Lactic Acid Producing Microorganisms. US Patent filed April 23, 2012. Application No. 13/318,264.
8. Mindy Brashears. 2013. Lactic acid and other probiotic bacteria to reduce pathogens in lymph nodes and other lymphatic tissues of livestock animals. Application filed January, 2014.
9. J Chance Brooks, Mindy M. Brashears, and Gary L. Nace. Laboratory Method and Experimental Specimen for Validating the Efficacy of Antimicrobial Agents on Bovine Carcasses. Provisional Application No. 61/402,263. Filed on August 26, 2011 as United States Application Serial No. 13/219,503.
10. Don Stull, J Chance Brooks, Mindy M Brashears, Michel Todd Brashears, Christine Alvarado, and David Sharbutt. Microwave Disinfection and Sterilization. Publication No. US-2011-0014331-A1. Date of Issue January 20, 2011.
11. Mindy Brashears and Divya Jaroni, 2003. Lactic acid bacteria cultures that inhibit food-borne pathogens. US Patent Number 7,323,166, Date of Issue January 29, 2008.
12. Douglas R. Ware and Mindy M. Brashears. Compositions and methods for reducing the pathogen content of meat and meat products. US Patent Number 7,291,326, Date of Issue November 6, 2007.
13. Christine Alvarado, J Chance Brooks, Mindy M Brashears, M Todd Brashears, Gianfranco Coccoli, Pierluigi Sapelli, Mario Piazza, Stefania Franzoni, Federico Felappi, and Nicola Tolettini. Filed: 8/28/2007. Method and System for Preserving Food. United States Letters Patent, Serial No. 60/968,411.
14. Brashears, Mindy and Jeff Hudnall. Antimicrobial Wax Composition for Wax Therapy. US Patent 10/592077. Issued 5/8.2008

PUBLICATIONS

Book Chapters:

Gragg, S.E. and M.M. Brashears. 2014. Hurdle Technology. In *Encyclopeida of Meat Sciences*, 2nd edition.

Laury A., A. Echeverry, and M.M. Brashears. 2009. Fate of *Escherichia coli* O157:H7 in meat. In *Safety of Meat and Processed Meats*, Food Microbiology and Food Safety series. Chapter 2, pp 31-53 (Toldra, F. ed.). Springer Science, New York, New York. ISBN: 978-0-387-89025-8.

Brashears, M.M., G.H. Loneragan, S. Dahl. 2005. Controlling Microbial Contamination on the Farm: An Overview. *Raw Material Safety*.

Brashears, M.M., A. Amezcuita, and D. Jaroni. 2005. Lactic Acid Bacteria and Their Uses in Animal Feeding to Improve Food Safety. *Food and Nutrition Reviews*

DeWaal, C., Roberts, N., et al. 2005. Food Safety around the World: Center for Science in the Public Interest.

Dowd, S., J. Thurston-Enriquez, and M.M. Brashears. 2003. Environmental Reservoirs and Transmission of Foodborne Pathogens in Pre-Harvest and Post-Harvest Food Safety: Contemporary Issues and Future Directions.

Brashears, M.M., A. Amezcuita, and D. Jaroni. 2003. Control of food-borne Bacterial Pathogens in Animals and Animal Products through Microbial Antagonism. *Food Biotechnology*.

Brashears, M.M., A. Amezcuita, and D. Jaroni. Lactic Acid Bacteria and Their Uses in Animal Feeding to Improve Food Safety. *Food and Nutrition Reviews*.

Refereed:

Published/Accepted:

2014:

Chaves, B.D., M. Maradiaga, M.A. Calle, L. Thompson, S.P. Jackson, T. Jackson, M.F. Miller, L.G. Garcia, A. Echeverry, H. Ruiz, and M.M. Brashears. 2014. Evaluation of process control to prevent contamination of beef with non-O157 Shiga toxin-producing *Escherichia coli* (STEC) in U.S. export abattoirs in Honduras and Nicaragua. *J. Meat Sci.* 96(1):489.

Liao, Y.T., G.H. Loneragan, J.C. Brooks, A. Echeverry, M.F. Miller, and M.M. Brashears. 2014. Establishment of non-O157 Shiga Toxin-Producing *Escherichia coli* (STEC) baseline of retail ground beef in the United States. *J. Meat Sci.* 96(1):484.

Rogers, H.B., J.C. Brooks, J.N. Martin, A. Tittor, M.F. Miller, and M.M. Brashears. 2014. The impact of packaging system and temperature abuse on the shelf life characteristics of ground beef. *J. Meat Sci.* 97(1):1-10.

Tapp, N., S.E. Gragg, J. C. Brooks, M.F. Miller, and M.M. Brashears. 2014. Reduction of *Escherichia coli* O157:H7 and *Salmonella* after application of various sanitizing treatments to harvesting knives. *J. Food Prot.* 76(2): 200-204.

Ruiz, H., M.F. Miller, L.D. Thompson, L.G. Garcia, J.C. Brooks, G.H. Loneragan, A. Echeverry, M.M. Brashears, and G.O. Cervera. 2014. *Salmonella* presence in lymph nodes and tonsils of swine harvested in Cancun and Merida, Mexico. *J. Meat Sci.* 96(1):488.

Veluz, G.A., S. Pitchiah, M.M. Brashears, and C.Z. Alvarado. 2014. Efficacy of Quaternary Ammonium Compounds on Different Conveyor Chips Contaminated with Poultry Rinsate. *J. Food Prot.* 77(1):384-388.

2013:

Capper, J.L., L. Berger, M.M. Brashears, H.H. Jensen, T.G. Field, J. Pettigrew, J.M. Wilkinson, and A.D. Scarfe. 2013. Animal Feed vs. Human Food: Challenges and Opportunities in Sustaining Animal Agriculture Toward 2050. CAST Issue Paper Number 35, September 2013.

Chancey, C., J Brooks, J. Martin, A. Echeverry, S. Jackson, L. Thompson, and M.M. Brashears. 2013. Survivability of *Escherichia coli* O157:H7 in needle-tenderized beef steaks subjected to lactic acid application and cooking under simulated industry conditions. *J. Food Protection*. 76(10): 1778-1783.

Chaves, B.D., M.F. Miller, M. Maradiaga, M.A. Calle, L. Thompson, S.P. Jackson, T. Jackson, L.G. Garcia, A. Echeverry, H. Ruiz, and M.M. Brashears. 2013. Evaluation of process control to prevent contamination of beef with non-O157 Shiga toxin-producing *Escherichia coli* (STEC) in U.S. export abattoirs in Honduras and Nicaragua. *Food Prot Trends*, 33(4):224–230.

Gragg, S.E., G.H. Loneragan, M.M Brashears, T.M. Arthur, J.M. Bosilevac, N. Kalchayanand, R. Wang, J.W. Schmidt, J.C. Brooks, S.D. Shackelford, T.L. Wheeler, T.R. Brown, T.S. Edrington, and D.M. Brichta-Harhay. 2013. Cross-sectional Study Examining *Salmonella enterica* Carriage in Subiliac Lymph Nodes of Cull and Feedlot Cattle at Harvest. *Foodborne Pathogens and Disease*. 10(4):368-374.

Gragg, S.E., G.H. Loneragan, K.K. Nightingale, D.M. Brichta-Harhay, H. Ruiz¹, J.R. Elder, L.G. Garcia, M.F. Miller, A. Echeverry, R.G. Ramírez Porrás, and M.M. Brashears. 2013. Substantial Within-Animal Diversity of *Salmonella* Recovered from Lymph Nodes, Feces and Hides of Cattle at Slaughter. *Appl. Environ. Microbiol.* Vol. 79(15):4744-4750.

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Yanamala, S., G.H. Loneragan, M.F. Miller and M.M. Brashears. 2009. Microbial Contamination of spinach placed in close proximity of cattle feed yard operations. 96th Annual Meeting of the International Association for Food Protection (IAFP), July 12-15, Grapevine, TX.

2008:

Alvarado, M., A. Laury, C.Z. Alvarado, M.M. Brashears. 2008. Evaluation of Spraying a Lactic Acid Based Antimicrobial Product on the Reduction of Salmonella on Broiler Chickens. 95th Annual Meeting of the International Association for Food Protection (IAFP), August 3-6, Columbus, OH.

Chaney, W.E., E. Karunasena, S.E. Gragg, M.M. Brashears. 2008. Reduction of E.coli 0157:H7 DSC in Fresh Commercial Spinach by Lactic Acid Bacteria. 95th Annual Meeting of the International Association for Food Protection (IAFP), August 3-6, Columbus, OH.

Collins, J., J.C. Brooks, A. Echeverry, M.M. Brashears, M.F. Miller. 2008. Sensory Properties of Needle Tenderized and Injected Beef After Treatment with Intervention Strategies to Control Food-Borne Pathogens. 61st Reciprocal Meat Conference (RMC) of the American Meat Science Association (AMSA), June 22-25, Gainesville, FL.

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Kunze, D.J., T. Poole, R. Anderson, M.M. Brashears, T. E. Besser, J. B. Daniels, T. M. Platt, and G.H. Loneragan. 2008. Molecular characterization of non-type specific *E. coli* isolates recovered from cattle exposed to ceftiofur. 89th Annual Meeting of the Conference of Research Workers in Animal Diseases, December 7-9, Chicago, IL.

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Flowers, S.L., D. Kang, M.M. Brashears, W.R. Henning, and C.N. Cutter. 2007. Microbiological baselines validate a multi-step antimicrobial intervention for red meat carcasses processed in very small meat establishments. 60th Reciprocal Meat Conference (RMC) of the American Meat Science Association (AMSA), Brookings, SD.

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Brashears, M.M., M.L. Galyean, G.H. Loneragan, J.E. Mann and K.M. Killinger-Mann. 2002. Reduction of *E. coli* O157 in Beef Feedlot cattle with Direct-Fed Microbials. 89th Annual Meeting of the International Association for Food Protection (IAFP), July 1-3. San Diego, CA.

Harris, M., M.M. Brashears, and D. Smith. 2002. Evaluation of the Use of Lactic Acid Bacteria to Control Pathogens on Alfalfa Sprouts. 89th Annual Meeting of the International Association for Food Protection (IAFP), July 1-3. San Diego, CA.

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cleaning pens, feeding competitive bacteria, or limiting dietary starch to reduce fecal shedding of *E. coli* O157:H7 by feedlot cattle. Presented at CRWAD. St. Louis, MO.

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Amezquita, A., and M.M. Brashears. 2001. Competitive exclusion of *Listeria monocytogenes* in ready to eat pork products and impact on sensory properties. annual meeting of the Institute of Food Technologists. New Orleans, LA.

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Brashears, M.M., D. Burson, L. Boyle, F. Aramouni, J. Mann, and M. Murphy. 2001. Development and Evaluation of an Advanced HACCP Workshop for Meat Processors. 54th Reciprocal Meat Conference (RMC) of the American Meat Science Association (AMSA), Indianapolis, IN.

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Mann, J.E., M.M. Brashears, D.E. Burson, and E. Dormedy. 2001. Validation of CCPs in HACCP Systems in Small Meat and Poultry Processing Plants in Nebraska. 54th Reciprocal Meat Conference (RMC) of the American Meat Science Association (AMSA), Indianapolis, IN.

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