

Kirk W. Braden, Ph. D.
Assistant Professor, Department of Agriculture

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Department of Agriculture
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Education

Ph. D. Auburn University, Meat Science and Muscle Biology – December 2006
Dissertation: Alternative Beef Finishing Strategies: Effects on Animal Performance, Retail Shelf Life, Sensory Lipid Stability, Fatty Acid Profile and Microbial Loads

M.S. Texas Tech University, Meat Science and Muscle Biology – August 2003
Thesis: Effects of 2% Ascophyllum nodosum Supplementation on Carcass Characteristics, Retail Shelf Life and Prevalence of Escherichia coli O157:H7 and Salmonella spp. in Feedlot Steers

B.S. Texas Tech University – Animal Science – May 2001

Professional Experience

Angelo State University Department of Agriculture, San Angelo TX, 8/2006 - present
Assistant Professor of Animal Science and Research Scientist
-Teaching program consist of undergraduate and graduate courses in animal sciences, meat sciences and live animal carcass evaluation as well as advising.
-Research program focuses on the factors controlling meat quality, color stability, shelf life, new product development and food safety concerns.
-Advisor/Coach ASU Intercollegiate Meats Judging Team
-Advisor/Coach ASU AMSA Undergraduate Quiz Bowl Team
-Advisor/Coordinator ASU Food Safety and Product Development Laboratory
-Advisor/Coordinator ASU Meat and Food Science Programs

Auburn University Department of Animal Science, Auburn AL, 8/2003 – 8/2006
Graduate Research Assistant

Texas Tech University, Lubbock TX, 5/2001 – 8/2003
Graduate Research Assistant

Seaboard Farms, Guymon OK, 5/2000 – 8/2000
Quality Assurance Department

Tyson Foods Inc., Holcombe KS, 5/1999 – 8/1999
Quality Assurance Department

Certifications

Advanced HACCP Verification and Validation Programs – 2004
International HACCP Alliance

HACCP Implementation and Management – 2002, 2004
International HACCP Alliance

Good Clinical Practice Guidelines – 2001
Biotechnical Services

Teaching Activities

Undergraduate Advising

- Advisor and mentor for students in the Department of Agriculture. Assist students in course selection, scheduling, job placement, career opportunity development and provide letters of reference to qualified students. 2006 - present
- Advise approximately 30 undergraduate students. 2006 - present
- Faculty Advisor. The Meat and Food Science Association. 2006 – present
 - Lead students in fundraising events
 - Lead students in catering events
 - Advise students on usage of association funds
 - Advise students on new membership opportunities
 - Achieved university student organization status in 2007
 - Advise students on development of endowment for Meat and Food Science
- Advisor/Coach. 2006 - 2009 ASU Intercollegiate Meats Judging Team
 - Achieved highest national contest placing in the 2 year history of a new program
 - Advised several members of career potential and graduate school opportunity
- Advisor/Coach. 2007 - 2009 AMSA Undergraduate Quiz Bowl Team
 - Two teams to national meetings – 6 undergraduates and 2 graduate students
 - 2007 Reserve National Champion Team
 - 2007 5th place Team
 - 2008 – 5th and 6th Place Team
 - 2009 – 6 undergraduates to contest

Undergraduate Research

- Leo Batot. 2007. Modified Atmosphere Packaging. Angelo State University
- Kari Galm. 2008. Production of a Beef “Popcorn” Item. Angelo State University
- Kaci Foote. 2009. Fundamentals of Cheese Production. Angelo State University
- Jennie Canon. 2009. Development of a Food Science Day Camp for High School Students. Angelo State University

Graduate Advising and Research

-Advise graduate thesis and non-thesis students

Graduate Committees (Indicates *chair/co-chair or **member)

Masters of Science – Thesis

- Shanon Wilber. 2008. The effect of zinc supplementation on feedlot performance and carcass characteristics of growing and finishing lambs. Angelo State University **
- Mathew Menchaca. 2008. Effects of Juniper Consumption on Meat Quality in Boer-Cross Goats. Angelo State University **
- John McEachern. 2008. The Effect if Feeding Distiller’s Dried Grains to Market Lambs on Performance, Wool and Carcass Characteristics. Angelo State University**
- Thomas Epting. 2009.*
- Leo Batot. 2010. Effects of antioxidant application on color, oxidative stability and shelf life of beef striploin steaks in a retail case environment*
- Kaci Foote. 2011. Development of Microencapsulation Technology for Emulsions*
- Jennie Canon. 2011. Development of tenderization techniques for non-red beef cuts*
- Gered Smith. 2012*
- Garrett Steede. 2012*

Masters of Science – Non-thesis

- Sam Schiwart. 2008. Effects of Electrical Stimulation on White-Tailed Deer Carcasses to Increase Tenderness. Angelo State University**
- Kari Galm. 2010. Development and Evaluation of a Quick Serve Restaurant Value-Added Beef Product**

Masters of Science – University Graduate Faculty Representative

- Andrew Tiedt. 2010. Biology. Thesis Option**

Courses Taught

Angelo State University

Undergraduate

- Animal Science 2241 – Live Animal Carcass Evaluation
- Animal Science 3241 – Livestock and Meat Evaluation
- Animal Science 3349 – Anatomy and Physiology
- Animal Science 4181 – Senior Seminar
- Food Science 4446 – Introduction to Meat Science
- Food Science 4447 – Introduction to Processed Meats

Graduate

- Animal Science 6321 – Experimental Methods
- Food Science 5446 – Introduction to Meat Science
- Food Science 5447 - Introduction to Processed Meats

- Animal Science 6346 – Advanced Meats
- Food Science 6322 – Research Ethics and Techniques

Auburn University

Undergraduate

- Animal Science 2710 – Commercial Meat Management
- Animal Science 3310 – Introduction to Meat Selection and Grading
- Animal Science 4310 – Advanced Meat Judging
- Animal Science 3700 – Muscle Foods
- Animal Science 4700 – Muscle Foods

Research Activities

Experience

-Meat science research includes: quality factors affecting beef and pork palatability, supplementation of various additives and its effects on beef and pork tenderness etc. Food safety research is comprised of: pre and post harvest intervention strategies. Laboratory skills include proficiency in an array of muscle sensory, biology, biochemistry, lipid determination, fatty acid determination, forage quality analysis, microbiology assays, microbiological plating strategies and retail shelf-life visual and instrumental techniques; as well as, assistance in an FDA regulated research trial.

Interest

- Development of alternative beef finishing systems for production of products for identified niche consumer markets
- Pre-harvest intervention strategies for reduction of pathogens prior and during harvest
- New protein product development: sensory, quality, food safety, shelf-life and marketability
- Consumer research, education and outreach programs for lamb and goat products
- Factors affecting retail shelf-life and methods of increasing color/quality stability

Extramural Funding (Indicates *PI or **Co-PI)

- Enhanced economic benefits for meat goat producers through production, meat yield and palatability, and consumer information. 2010. McMillin, K.W., Gillespe, J., Harrison, R., Malekian, F., Pinkerton, F., Gager, J., Gebrelul, S., Braden, K., Kannan, G., Solaiman, S. and A. Peischel. - \$497,558.33**. ASU Subaward - \$9,000.00
- Supplemental Distillers Dry Grains in Lambs. 2008. Whitney, Salisbury and Braden \$13,500.00 **. ASU Subaward - \$23,000.00
- Southern Region Sustainable Agriculture Research and Education Graduate Grant. 2004. Evaluating the efficacy of Tasco supplementation on carcass and performance characteristics of cattle finished on winter annual forages as a sustainable alternative finishing system in the southeast - \$9,814.00 *

In-Kind/University Support (Indicates *PI or **Co-PI)

- Braden, K., Branham, L., and R. Cope. 2010. Effects of Atomized Antioxidant on Sensory, Shelf-life, Oxidative Stability and Microbial Stability of Striploin Steaks. Angelo State University, Research Enhancement Grant. \$8,000.00*

- Braden, K. 2010. *Departmental Allocation of HEAF Funds* – Research and Freezer Storage Expansion. Angelo State University, Department of Agriculture. \$14,000.00*
- Branham, L and K. Braden. 2009. Evaluation of Shelf Stability of Beef Snack Stick – Angelo State University, Research Enhancement Grant. \$3,700.00**
- Braden, K. 2006. *Departmental Allocation of HEAF Funds* – Emulsifying Chopper. Angelo State University, Department of Agriculture. \$16,000.00*

Proposals Pending (Indicates *PI or **Co-PI)

- Braden, K and B. May. 2008. Development of Value-Added Lamb Products. American Lamb Board. \$ 19,000.00* - Not Funded
- Braden, K and L. Branham. 2009. Effects of antioxidant application on color, oxidative stability and shelf life of beef striploin steaks in a retail case environment. \$40,000.00* - Not Funded

Gifts

- Southwest Meat Association. 2010. – \$1,500.00
- Meat Science General Enhancement – Cargill Corporation. 2009. - \$2,000.00
- Meat Science General Enhancement. 2009. - \$2,000.00
- Southwest Meat Association. 2009. - \$1,000.00
- Angelo State University Intercollegiate Meat Judging Team Luggage Trailer. 2008. \$1,800.00
- Southwest Meat Association. 2008. - \$1,000.00
- Meat Science General Enhancement. 2007. - \$2,000.00
- Angelo State University Meat and Food Science Research and Outreach Trailer. 2007. \$2,100.00

Publications

Peer Reviewed Journal Articles

- T. R. Whitney and K. W. **Braden**. 2010. Substituting distillers dried grains for cottonseed meal in lamb finishing diets: II. carcass characteristics, meat fatty acid profiles, and sensory panel traits. *Sheep and Goat Research Journal*.
- M.W. Menchaca, C.B. Scott, K.W. **Braden**, and C.J. Owens .2010. Juniper Consumption Does Not Adversely Affect Meat Quality in Boer-Cross Goats. *Rangeland Ecology and Management*. In Process
- S.D. Roberts, C.R. Kerth, K.W. **Braden**, D.L. Rankins, Jr., L. Kriese-Anderson, and J.W. Prevatt. 2009. Finishing steers on winter annual ryegrass (*Lolium multiflorum* Lam.) with varied levels of corn supplementation I: Effects on animal performance, carcass traits, and forage quality. *J. Anim. Sci.* Accepted
- **Braden**, K.W., J.R. Blanton Jr., J.L. Montgomery, E. van Santen, V.G. Allen, and M.F. Miller. 2007. Tasco supplementation: Effects on carcass characteristics, sensory attributes, and retail display shelf-life. *J. Anim. Sci.* 85:754-768
- Kerth C. R., K. W. **Braden**, R. Cox, L. K. Kerth and D. R. Rankins, Jr. 2007. Carcass, sensory, subcutaneous fat color, and consumer acceptance characteristics of

Angus-cross steers finished on ryegrass (*Lolium multiflorum*) forage or on a high-concentrate diet. Meat Sci. 75:324-331

-Cox R.B., C.R. Kerth, J.G. Gentry, J.W. Prevatt, K.W. **Braden** and W.R. Jones. 2006. Determining acceptance of domestic forage- or grain-finished beef by consumers from three southeastern USA states. J. Food Sci. Accepted.

-Montgomery, J. L., W. M. Harper, Jr., M. F. Miller, K. J. Morrow, Jr., K. W. **Braden**, and J. R. Blanton, Jr. 2006. Optimization of culture conditions for determining protein degradation in myoblasts using extracts of adult bovine muscle treated with muscle enhancing compounds. The Professional Animal Scientist. (Awaiting Citation)

-Montgomery, J. L., W. M. Harper, Jr., M. F. Miller, K. J. Morrow, Jr., K. W. **Braden**, and J. R. Blanton, Jr. 2006. Optimization of culture conditions for determining protein synthesis in myoblasts using extracts of adult bovine muscle treated with muscle enhancing compounds. The Professional Animal Scientist. Vol. 22 No. 4

-**Braden**, K.W., J.R. Blanton Jr., V.G. Allen, K.R. Pond, and M.F. Miller. 2004. *Ascophyllum nodosum* supplementation: A Preharvest Intervention for reducing *Escherichia coli* O157:H7 and *Salmonella* spp. J. Food Prot. 67:9 1824-1828.

Abstracts and Proceedings

- Substituting distillers dried grains for cottonseed meal in lamb finishing diets: Carcass characteristics, meat fatty acid profiles, and sensory panel traits. 2010. T. R. Whitney, L. M. Batot and K. W. **Braden**. In: Proc. 63rd Recip. Meats Conf., Lubbock, Texas.

-**Braden**, K.W., C. Kerth, K. Willian, S. Roberts and J. Gentry. 2006. Finishing steers on winter annual ryegrass (*Lolium multiflorum* Lam.) with varied levels of supplementation: Effects on fatty acid profile, shelf life and lipid stability. In: Proc. 59th Recip. Meats Conf., Champagne-Urbana, Illinois.

-**Braden**, K., K. Willian, S. Roberts, J. Gentry and C. Kerth. 2006. Finishing steers on winter annual ryegrass (*Lolium multiflorum* Lam.) with varied levels of supplementation: Effects on fatty acid profile, shelf life and lipid stability. In: Proc Am. Soc. Anim. Sci. South. Sec. Vol. 84(Suppl. 2)

-Roberts, S, C. Kerth, K. **Braden**, D. Rankins, L Kriese-Anderson and J. Prevatt. 2006. Forage quality, animal performance, and carcass traits of steers finished on winter annual ryegrass (*Lolium multiflorum* Lam.) pasture with varying levels of corn supplementation. In: Proc. Am. Soc. Anim. Sci. South. Sec. Vol. 84(Suppl. 2)

-Kerth, C.R., K.W. **Braden**, R.B. Cox and J.G. Alexander. 2004. Consumer Acceptance of Beef from Steers Finished on Ryegrass Forage or a High-Concentrate Diet. J. Anim Sci. Volume 82. Supplement 1

-Braden, K.W., J.R. Blanton, JR., V. G. Allen, K.R. Pond and M.F. Miller. 2002. Effects of Tasco-14 Supplementation at 2% in a Commercial Grain Based Diet on Carcass Characteristics, Retail Display Shelf Life and Prevalence of *Escherichia coli* O157:H7 and *Salmonella* spp. in Feedlot Steers. In: Proc. 55 th Recip. Meats Conf., East Lansing, Michigan. p.126

-Montgomery, J.L., W.M. Harper Jr., K.W. **Braden**, K.J. Morrow, M.F. Miller and J.R. Blanton Jr. 2002. Modifications of a technique to measure bovine muscle protein degradation using an in-vitro cell culture system. J. Anim. Sci. Vol.80 Supplement 2. Proceedings Southern Section. Abs. No. 50

Final Reports

-Branham, L.A., and K.W. **Braden**. 2009. Evaluation of Shelf Stability of Beef Snack Stick – Angelo State University, Research Enhancement Grant

- **Braden** , K.W. and C.R. Kerth. 2005. Evaluating the efficacy of Tasco-14® supplementation on carcass and performance characteristics of cattle finished on winter annual forages as a sustainable alternative finishing system in the Southeast. Final Report. Sustainable Agriculture Research and Education Program. Southern Region

-Braden, K.W., J.R. Blanton, JR., V.G. Allen, K.R. Pond and M.F. Miller. 2002. Effects of Tasco-14 Supplementation at 2% in a Commercial Grain Based Diet on Carcass Characteristics, Retail Display, Shelf Life and Prevalence of *Escherichia coli* O157:H7 and *Salmonella* spp. in Feedlot Steers. Final Report. National Cattlemen's Beef Association and Texas Beef Council

Book Chapters

-Braden, K.W. 2009. *The Science of Meat Quality*. Converting Muscle to Meat – The Physiology of Rigor.

Other Publications

- Procedures and Protocols Manual – Food Safety and Product Development Lab
- Lecture Manual – FSCI 4446 Introduction to Meat Science
- Lecture Manual – ASCI 3241 Livestock and Meat Evaluation
- Lecture Manual – FSCI 4447 Introduction to Processed Meats
- Laboratory Manual – FSCI 4446 Introduction to Meat Science
- Lecture/Laboratory Manual – ASCI 2241 Live Animal Carcass Evaluation

Multimedia Productions

- ASU Intercollegiate Meats Judging Specifications Video – 2008

Outreach Activities

Invited Presentations

- Texas Sheep and Goat Raisers Annual Convention. 2007
Title: Value-Added Lamb Product Development. 2007
- Texas Hair Sheep Cooperative Meeting
Title: Labeling Concerns and Procedures for Red Meats
- ASU Retired Faculty Annual Meeting. 2008
Title: Meat Quality and Related Issues
- Summer 4-H Camp. 2008
Title: Introduction to Meat Science
- District 7 4-H Beef Field Day. 2009
Title: Beef Carcass Evaluation
- University of Chihuahua, Mexico. 2010
Title. Research, Teaching and Outreach Collaboration

Extension Programs and Events

- Beef 706 Extension Beef Program. 2007
- San Angelo Stock Show and Rodeo Meat Contest Superintendent. 2007
- San Angelo Stock Show and Rodeo Livestock Contest Asst. Superintendent. 2007
- District 7 4-H Meats Contest Superintendent. 2007
- Beef 2010/706 Extension Beef Program. 2008
- San Angelo Stock Show and Rodeo Meat Contest Superintendent. 2008
- San Angelo Stock Show and Rodeo Livestock Contest Asst. Superintendent. 2008
- District 7 4-H Meats Contest Superintendent. 2008
- Summer 4-H Camp Introduction to Meat Science. 2008
- District 7 Food Science Tours and Informational Meeting. 2008
- Taste of San Angelo, The Meat Market. 2008
- San Angelo Stock Show and Rodeo Meat Contest Superintendent. 2009
- San Angelo Stock Show and Rodeo Livestock Contest Asst. Superintendent. 2009
- District 7 4-H Meats Contest Superintendent. 2009
- District 7 4-H Beef Field Day. 2009

International Programs and Collaborations

- University of Chihuahua, Mexico. 2010. Research, Teaching and Outreach Collaboration Meetings. June 28th – 30th. San Angelo, Texas

Professional and University Service

Professional Memberships

- American Meat Science Association, Professional Member
- International Meat Judging Coaches Association
- American Society of Animal Scientist, Professional Member
- Institute of Food Technologist, Professional Member
- Southwest Meat Association, Professional Member

Professional Committees

- Student Membership Committee. AMSA. 2007
- RMC Planning Committee. AMSA. 2007
- American Society of Animal Science. Meat Science Division Annual Proceedings. 2008
- Graduate Student Poster Competition Committee. AMSA 2008-2010
- Undergraduate Quiz Bowl Committee. AMSA. 2009-2011
- Research Protocol Committee. AMSA. 2009-2011

Professional Session Moderator or Committee

- American Society of Animal Science. Annual Meetings. Session Moderator. 2008
- Meat Color and Sensory Guidelines. RMC Session Moderator. AMSA. 2009
- Teaching a Non-Majors Meat Science Course. RMC Session Moderator. AMSA 2010
- Goat Carcass Evaluation and Retail Cuts. RMC Session Moderator. AMSA. 2010

University Committees and Service

- College Mission Statement Committee, College of Sciences. 2007
- Asst. Prof of Animal Science Search Committee. Department of Agriculture. 2007
- Departmental Website Development and Maintenance Coordinator. 2008 - present
- Meat and Food Science Program Website Development and Maintenance. 2008 - present
- Search Committee, Coordinator of Meat and Food Science Programs. Department of Agriculture. 2008
- The Meat Market Website Development and Maintenance. 2008 - present
- University Curriculum Committee. 2008-2010
- Search Committee, Instructor/Recruiter/Coach of Livestock and Judging Teams. 2010
- College of Science Tenure and Promotion Guidelines Development Committee. 2010
- Faculty Development Grant Committee. 2010 - 2011

Industry Affiliations

- Texas Club Lamb Breeders Association
- St. Lawrence Cotton Growers Association
- Texas Sheep and Goat Raisers Association

Consulting and Professional Services

- St. Lawrence Fall Festival, Festival Sausage Production, Large Scale Production Troubleshooting and the Addition of Phosphates to Improve Quality and Yield. 2008
- Garden City Community College, Consultant to Community College Faculty, Construction/Planning of New College Meats Facility. 2008
- Texas A&M Kingsville, Construction/Planning of New College Meats Facility. 2009 to present
- Sterling Lamb, Product Development, Labeling and Marketing. 2009 to present
- J's Processing, Development of Nilgai Harvesting, Transportation and Fabrication Guidelines. 2010 to present

Honors and Awards

- Spirit and Motivation Award. AU Meat Science Association. 2004
- Outstanding masters student. Animal and Food Science Department, TTU. 2003
- 1st in TTU GPSGA Graduate Student Research Poster Competition. 2003
- 3rd Bob Albin Graduate Student Research Award. TTU. 2003
- Excellence in Meat Science Scholarship. 2001 - 2003

Graduate and Undergraduate Activities

Coaching

- Coach/Recruitment, AU Undergraduate AMSA Quiz Bowl Team
- Coach/Recruitment, Auburn University Meats Judging Team

Judging

- 2000 Texas Tech University Meat-Animal Evaluation Team
- 1999 Texas Tech University National Champion Meats Judging Team
- 1998 Texas Tech University Wool & Mohair Judging Team

Organizations

- Founding member of AU Animal Science Graduate Student Assoc.
- Auburn University HACCP Team and co-author of food safety program
- Texas Tech University Block and Bridle, 1997-2001
- TTU Animal Science Graduate Student Association, 02-03 Treasurer
- Shake hands with your future educational programs, 2001-2003
- Texas Tech University Collegiate 4-H, 1997-2001
- Texas Tech University Meat Science Association, 1997-2003

