

Department of Animal Sciences and Industry
Kansas State University
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Michael Chao

POSITION

Assistant Professor, Animal Science (Meat Science) August 2018 – present- Department of Animal Sciences and Industry, Kansas State University

- Research Interests: Membrane lipid chemistry, collagen characteristics and ethnic consumers' preference in meat choice.

Assistant Professor, Animal Science (Meat Science) August 2015- June 2018- College of Agriculture, California State University-Chico

EDUCATION

University of Nebraska-Lincoln, Lincoln, NE

Ph.D., May, 2015

Major: Animal Science-Meat Science and Muscle Biology

- Dissertation: Impact of feeding wet distillers grains plus solubles and antioxidants on the basic mechanism of beef tenderization.

University of California-Davis, Davis, CA

M.S., June, 2011

Major: Animal Biology-Ruminant Nutrition

- Thesis: Biological enhancement of digestive function, health and performance of feedlot steers.

University of California-Davis, Davis, CA

B.S., June, 2007

Major: Animal Science: Livestock option

TEACHING EXPERIENCE

- **Instructor**

- Kansas State University, ASI 561E- Co-instruct with Dr. Cassandra Jones, Undergraduate Research-Meat Science Section. Fall 2019- present
- Kansas State University, ASI 930, Advanced Meat Science, Spring 2020 - present
- Kansas State University, ASI 777, Fresh Meat Technology, Fall 2019 -present
- Kansas State University, ASI 890/990, Meat Science Seminar, Spring 2019- present
- California State University-Chico, ANSC 276, Principles of Meat Science, Spring 2017 - Spring 2018
- California State University-Chico, ANSC 350, Meat and Consumer, Fall 2015- Fall 2017
- California State University-Chico, AGRI 490, Agricultural Experimental Design, Fall 2015- Spring 2018
- California State University-Chico, ANSC 450, Food Safety and Quality Assurance, Spring 2016- Spring 2018
- California State University-Chico, ANSC 110, Directed Work Experience: Animal Science, Spring 2016

- **Faculty Advisor**

- Kansas State University Meat Science Association, Spring 2019 - present
- California State University-Chico Meat Science Quiz Bowl and Taste of RMC (Product development) Team, Summer 2016, 2017 and 2018.

FUNDED GRANTS

As PI:

- **PI-Chao, M. D.** Co-PI –Wolti, R. (2020). Evaluating the potential effect of anti-phospholipase a2 antibody to extend meat shelf-life in a beef liposome model system. KSU Global Food Systems Seed Grant. Funding request \$49,520, fully funded

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- **PI-Chao, M. D.** Co-PI – O’Quinn, T. and Magnin, G. (2020). A study to investigate the role of native beef collagenase on postmortem collagen degradation and beef tenderness. National Cattlemen’s Beef Association. Funding request \$82,742, fully funded
- **PI-Chao, M. D.** Co-PI – O’Quinn, T. and Magnin, G. (2020). A study to investigate the contribution of different tenderness components to meat tenderness in 8 major beef muscles. National Cattlemen’s Beef Association. Funding request \$60,002, fully funded
- **PI-Chao, M. D.** Co-PI – O’Quinn, T. and Magnin, G. (2019). A preliminary study to investigate the contribution of different tenderness factors to beef muscle tenderness. National Cattlemen’s Beef Association. Funding request \$18,000, fully funded
- **PI-Chao, M. D.** Collaborator - Bradford, B. – (2018). A lipidomic approach to understand beef tenderization process. KSU Mentoring Fellowship. Funding requested \$6,000, fully funded.
- **PI-Chao, M. D.** Collaborator - Song, B – (2017). Determination of sensory and consumers’ willingness-to-pay (WTP) of California skin-on goat meat comparing to Australian skin-on goat meat. California State University-Chico Research, Scholarship & Creative Activity Grant. Funding requested \$5,993, fully funded.
- **PI-Chao, M. D.** Co-PI - Philips, C., Woerner, D., and Yang, X. (2017). Investigation of quality differences between purebred Dorper and commercial cross-bred lamb meat. California State University Agricultural Research Institute (ARI). Funding request \$ 35,158, fully funded.
- **PI-Chao, M. D.** (2016). Instructionally Related Activities (IRA) Fund (2016). Travel fund for meat science quiz bowl team to travel and compete at the annual Reciprocal Meat Conference. Funding requested \$7,000, fully funded.
- **PI-Chao, M.D.** (2015). Learning opportunities in ethnic food preparation. California State University-Chico Student Learning Fee Equipment Proposal. Requested fund \$35,969 –fully funded.
- **PI-Chao, M.D.** (2015). Improve goat harvest efficiency through an alternative goat harvest approach. California State University-Chico Research Stimulation Grant. \$10,000 – fully funded.

As Co-PI:

- PI-Kang, I., Co-PI- **Chao, M. D.**, Lammert, S., Pao, S., Reynolds E. (2021). Skin-on goat meat for consumer needs, diverse education, and industrial collaboration, USDA NIFA Capacity Building Grants for Non-Land-Grant Colleges of Agriculture Program. Funding Requested \$300,000, **funding allocated to Chao - \$94,875 – fully funded**
- PI-Crane, A.R. Co-PI – Jones, C., Lattimer, J., **Chao, M.D.** (2020). Utilizing undergraduate research to evaluate the effects of feeding DDGS and ionophore inclusion on goat growth performance, digestibility, carcass composition and palatability. Kansas Corn Commission. \$30,474 – fully funded

PEER-REVIEWED PUBLICATIONS

- LaRoche, E. M., Chun, C. K. Y., Wu, W., Garcia, P., McDonald, F. B., Song, B., O’Quinn, T.G., Jones, C. K., Crane, A. Houser, T. and **Chao, M. D.** (2021). Evaluation of skin-on goat meat processing on yield, processing time, meat quality attributes and East Asian consumer preference in the U.S. *Translational Animal Science* – in review.
- Villatoro, K.M., Yang, F., Lew, T., Phillips, C. R., Woerner, D. R., ***Chao, M. D.** and ***Yang, X.** (2021). Quality, proximate composition, and sensory of dorper, domestic commercial crossbred and Australian lamb meat: a comparative study. *Translational Animal Science*, txab024. <https://doi.org/10.1093/tas/txab024>
- Wu, W.J., Welter, A. A., Olson, B. A., Rice, E. A., O’Quinn, T.G., Houser, T., Boyle, E. A., Magnin-Bissel, G and **Chao, M. D.** (2021). Biochemical factors affecting Asian consumers’ sensory preferences of six beef shank cuts. *Meat and Muscle Biology*, 5(1): 6, 1–18. doi:10.22175/mmb.11626
- Chun, C. K. Y., Wu, W.J., Welter, A. A., O’Quinn, T.G., Magnin-Bissel, G., Boyle, D. L., and **Chao, M. D.** (2020). A preliminary study to investigate the contribution of different tenderness factors to beef loin, tri-tip and heel tenderness. *Meat Science*. 170:108247. Doi: <https://doi.org/10.1016/j.meatsci.2020.108247>
- Chao, M. D.**, E. A. Donaldson, W. Wu, A. A. Welter, T. G. O’Quinn, W. W. Hsu, M. D. Schulte, and S. M. Lonergan. (2020). Characterizing membrane phospholipid hydrolysis of pork loins throughout three aging periods. *Meat Science* 163:108065. Doi: <https://doi.org/10.1016/j.meatsci.2020.108065>

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- Prill, L. L., Drey, L. N., Olson, B. A., Rice, E. A., Gonzalez, J. M., Vipham, J. L., **Chao, M. D.**, Bass, P.D., Colle, M. J., and O'Quinn, T. G. (2019). Visual degree of doneness impacts beef palatability for consumers with different degree of doneness preferences. *Meat and Muscle Biology*, 3:411-423. doi:10.22175/mmb2019.07.0024
- Olson, B. A., Rice, E. A., Prill, L. L., Drey, L. N., Gonzalez, J. M., Vipham, J. L., **Chao, M. D.**, and O'Quinn, T. G. (2019). Evaluation of beef top sirloin steaks of four quality grades cooked to three degrees of doneness. *Meat and Muscle Biology*, 3:399-410. doi:10.22175/mmb2019.07.0022
- Chao, M.D.**, Domenech-Perez, K.I, Senaratne-Lenagala, L. S. and *Calkins, C.R. (2017). Feeding wet distillers grains plus solubles to cattle contributes to sarcoplasmic reticulum membrane instability. *Animal Production Science*.
<http://dx.doi.org/10.1071/AN16784>
- Chao, M.D.**, Domenech-Perez, K. I., Voegelé, H. R., Kunze, E. K. and *Calkins, C. R. (2017). Effects of dietary antioxidant supplementation of cattle finished with 30% wet distillers grains plus solubles on fatty acid profiles and display life. *Animal Production Science*. <http://dx.doi.org/10.1071/AN16719>
- Chao, M.D.**, Domenech-Perez, K. I. and *Calkins, C.R. (2017). Feeding vitamin E may reverse sarcoplasmic reticulum membrane instability contributed by feeding high concentration of wet distillers grains plus solubles to cattle. *Professional Animal Scientist*, 33:12-23. - **Selected by the editor-in-chief of *The Professional Animal Scientist* to be designated as Editor's Choice for February, 2017 issue on the journal's website.**
- Domenech-Perez, K.I., Varnold, K.A. Semler, M.E., **Chao, M.D.**, Erickson, G.E. and *Calkins, C.R. (2017). Impact of feeding de-oiled wet distillers grains plus solubles on beef shelf-life. *Journal of Animal Science*, 95:709-717.

PEER-REVIEWED RESEARCH REPORTS

- Wu, W. J., Welter, A. A., O'Quinn, T.G., Magnin-Bissel G., and **Chao, M. D.** (2021). Investigating the contribution of mature collagen crosslinks to cooked meat toughness using a stewed beef shank model. *Kansas Agricultural Experiment Station Research Reports: Vol. 7: Iss. 1.* <https://doi.org/10.4148/2378-5977.8034>
- Chun, C. K. Y., Wu, W.J., Welter, A. A., O'Quinn, T.G., Magnin-Bissel, G., Boyle, D. L., and **Chao, M. D.** (2021). A preliminary study to investigate the contribution of different tenderness factors to beef loin, tri-tip and heel tenderness. *Kansas Agricultural Experiment Station Research Reports: Vol. 7: Iss. 1.* <https://doi.org/10.4148/2378-5977.8035>
- Wu, W.J., Rice E. A., Olson B. A., O'Quinn, T.G., Houser, T.A., Boyle, E. A., ***Chao, M.D.** (2020). Sensory Evaluation of Six Different Beef Shank Cuts from Asian Consumers, *Kansas Agricultural Experiment Station Research Reports : Vol. 6: Iss. 2.* <https://doi.org/10.4148/2378-5977.7895>
- Prill, L. L., Drey, L. N., Vipham, J. L., **Chao, M. D.**, Gonzalez, J. M., Houser, T. A., Boyle, E. A., and *O'Quinn, T. G. (2019) "Visual Degree of Doneness Has an Impact on Palatability Ratings of Consumers Who Had Differing Degree of Doneness Preferences," *Kansas Agricultural Experiment Station Research Reports: Vol. 5: Iss. 1.* <https://doi.org/10.4148/2378-5977.7724>
- Prill, L. L., Drey, L. N., Vipham, J. L., **Chao, M. D.**, Gonzalez, J. M., Houser, T. A., Boyle, E. A., and *O'Quinn, T. G. (2019) "Consumer Evaluation of the Degree of Doneness of Beef Strip Loin Steaks Cooked to Six End-Point Temperatures," *Kansas Agricultural Experiment Station Research Reports: Vol. 5: Iss. 1.* <https://doi.org/10.4148/2378-5977.7723>
- Prill, L. L., Drey, L. N., Vipham, J. L., **Chao, M. D.**, Gonzalez, J. M., Houser, T. A., Boyle, E. A., and *O'Quinn, T. G. (2019) "Chef Evaluation of the Degree of Doneness of Beef Strip Loin Steaks Cooked to Six End-Point Temperatures," *Kansas Agricultural Experiment Station Research Reports: Vol. 5: Iss. 1.* <https://doi.org/10.4148/2378-5977.7722>
- Prill, L. L., Drey, L. N., Vipham, J. L., **Chao, M. D.**, Gonzalez, J. M., Houser, T. A., Boyle, E. A., and *O'Quinn, T. G. (2019) "Effect of Degree of Doneness, Quality Grade, and Time on Instrumental Color Readings from Beef Strip Loin Steaks Cooked to Six Degrees of Doneness," *Kansas Agricultural Experiment Station Research Reports: Vol. 5: Iss. 1.* <https://doi.org/10.4148/2378-5977.7721>
- Olson, B. A., Rice, E. A., Gonzalez, J. M., Vipham, J. L., **Chao, M. D.**, Houser, T. A., Boyle, E. A., and *O'Quinn, T. G. (2019) "Quality Grade Has No Effect on Top Sirloin Steaks Cooked to Multiple Degrees of Doneness," *Kansas Agricultural Experiment Station Research Reports: Vol. 5: Iss. 1.* <https://doi.org/10.4148/2378-5977.7720>
- Chao, M.D.**, Domenech-Perez, K.I and Calkins, C.R. (2016). Feeding vitamin E may reverse sarcoplasmic reticulum membrane instability caused by feeding wet distillers grains plus solubles to cattle. *Nebraska Beef Report*, MP103, pp 170-172.

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- Chao, M.D.**, Domenech-Perez, K.I, Voegele, H.R., Kunze, E.K. and Calkins, C.R. (2016). Effects of dietary antioxidant supplementation on cattle finished with 30% wet distillers grains plus solubles on fatty acid profiles and display life. *Nebraska Beef Report*, MP103, pp 167-169.
- Domenech-Perez, K.I, **Chao, M.D.**, Buntyn, J., Schmidt, T. and Calkins, C.R. (2016). Impact of supplementing cattle with Omni-Gen-AF at the receiving or finishing phase on beef shelf-life. *Nebraska Beef Report*, MP103, pp 161-163.
- Chao, M.D.**, Domenech-Perez, K.I and Calkins, C.R. (2015). A basic mechanism of beef tenderization: Feeding wet distillers grains plus solubles contributes to sarcoplasmic reticulum membrane instability. *Nebraska Beef Report*, MP101, pp 117-119.
- Domenech-Perez, K.I., Varnold, K.A. Semler, M.E., **Chao, M.D.**, Jones, T.F., Erickson, G.E., and Calkins, C.R. (2014). Effect of feeding de-oiled wet distillers grains plus solubles on beef fatty acid profiles. *Nebraska Beef Report*, Paper 790.
- Domenech-Perez, K.I., Varnold, K.A. Semler, M.E., **Chao, M.D.**, Jones, T.F., Erickson, G.E., and Calkins, C.R. (2014). Effect of feeding de-oiled wet distillers grains plus solubles on beef oxidation and tenderness. *Nebraska Beef Report*, Paper 791.
- Varnold, K.A., Calkins, C.R., Nuttelman, B.L., Senaratne-Lenagala, L. S., Stevenson, J. H., Semler, M. E., **Chao, M.D.**, Jones, T.F., and Erickson, G.E. (2014). The effects of diet on the biochemical constituents of beef. *Nebraska Beef Report*, Paper 803.
- Hosch, J. J., Varnold, K.A., Senaratne-Lenagala, L. S., Hergenreder, J.E., Semler, M. E., **Chao, M.D.**, and Calkins, C.R. (2013). Variation in composition and sensory properties for beef short ribs. *Nebraska Beef Report*, Paper 747.
- Hosch, J. J., Varnold, K.A., Senaratne-Lenagala, L. S., Semler, M. E., **Chao, M.D.**, and Calkins, C.R. (2013). Development of 2-rib and 3-rib beef chuck subprimal. *Nebraska Beef Report*, Paper 745.
- Semler, M. E., **Chao, M.D.**, Hosch, J. J., Varnold, K.A., Senaratne-Lenagala, L. S., and Calkins, C.R. (2013). Color and sensory properties of beef steaks treated with antimicrobial sprays. *Nebraska Beef Report*, Paper 750.
- Hosch, J. J., Varnold, K.A., Senaratne-Lenagala, L. S., Semler, M. E., **Chao, M.D.**, and Calkins, C.R. (2013). An evaluation of the extended sirloin cap coulotte, *Nebraska Beef Report*, Paper 748.

PEER-REVIEWED SCIENTIFIC ABSTRACTS

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- Maurer, R. T., Welter, A. A., Wu, W. J., Bowker B., Zhuang H., and **Chao, M. D.** (2020). An investigation of collagen characteristics and collagenase activity in woody breast meat. *Proceedings of 73rd Reciprocal Meats Conference, Virtual -Chairman's Selected- top 12 abstracts out of 281 submitted abstracts.*
- LaRoche, E. M., Chun, C. K. Y., Wu, W.J., Welter, A. A., O'Quinn, T.G., Jones, C. K., Crane, A. Houser, T. and **Chao, M. D.** (2020). An investigation of biochemical factors affecting Asian consumers preference for stewed goat meat. *Proceedings of 73rd Reciprocal Meats Conference, Virtual. Placed 3rd in student poster competition, undergraduate division.*
- Hammond, P. A., Chun, C. K. Y., Wu, W.J., Welter, A. A., O'Quinn, T.G. and **Chao, M. D.** (2020). An investigation of the relationship between muscle fiber cross-sectional area and meat tenderness. *Proceedings of 73rd Reciprocal Meats Conference, Virtual.*
- Wu, W. J., Welter, A. A., O'Quinn, T.G., Magnin-Bissel G., and **Chao, M. D.** (2020). Investigating the contribution of mature collagen crosslinks to cooked meat toughness using a stewed beef shank model. *Proceedings of 73rd Reciprocal Meats Conference, Virtual. Placed 1st in student poster competition, MS division.*
- Welter, A. A., Wu, W. J., O'Quinn, T.G., Geisbrecht, E. R., Brooks, D., Bowker B., Zhuang H., and **Chao, M. D.** (2020) An integrative omics approach to evaluate sarcoplasmic reticulum's role in elevated levels of free calcium in broiler woody breast. *Proceedings of 73rd Reciprocal Meats Conference, Virtual.*
- Harr, K, Davis, S. G., Bigger, S. B., Thomson, D. U., **Chao, M. D.**, Vipham, J. L., Apley, M. D., Blasi, D. A., Ensley, S. M., Haub, M. D., Miesner, M. D., Tarpoff, A. J., Olson, K C., O'Quinn, T. G. (2020). Comparison of the physical attributes of plant-based ground beef alternatives to ground beef. *Proceedings of 73rd Reciprocal Meats Conference, Virtual.*
- Najar, F., Boyle, E., Houser, T., Vahl, C., Wolf, J., Gonzalez, J., Kastner, J., O'Quinn, T., **Chao, M.D.**, Cox, K., Stroda, S., Hunt, M. (2020). Assessing biochemical changes in normal and high pH beef longissimus lumborum in relation to bioelectrical impedance analysis. *Proceedings of 73rd Reciprocal Meats Conference, Virtual.*

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- Chun, C. K. Y., Wu, W.J., Welter, A. A., O'Quinn, T.G., Magnin-Bissel, G., Boyle, D. L., and **Chao, M. D.** (2020). A preliminary study to investigate the contribution of different tenderness factors to beef loin, tri-tip and heel tenderness. *American Society of Animal Science Midwest Section*, Omaha, NE.
- Wu, W.J., Rice E. A., Olson B. A., O'Quinn, T.G., Houser, T.A., Boyle, E. A. and **Chao, M.D.** (2019) Sensory and Visual Evaluation of Six Different Beef Shank Cuts from Asian Consumers, *Proceedings of 72nd Reciprocal Meats Conference*, Fort Collins, CO.
- Chao, M.D.**, Donaldson, E. A., Wu, W. J., Shulte, M. D. and Lonergan S.M. (2019). Modifications of membrane phospholipids in response to extended aging from pork loins, *Proceedings of 72nd Reciprocal Meats Conference*, Fort Collins, CO
- Welter, A., Wu, W. J., O'Quinn, T.G., Houser, T.A., Boyle, E. A., **Chao, M.D.**, Boyle, D. L., Bowker B. and Zhuang H. (2019). A Proposed Mechanism for Texture Property of Woody Breast in Broilers, *Proceedings of 72nd Reciprocal Meats Conference*, Fort Collins, CO. **Placed 3rd in student poster competition, undergraduate division.**
- Chao, M.D.**, Perez, J., Ramirez, D. and Garcia, P. (2018). Evaluation of skin-on goat meat processing on yield, processing time and Chinese consumer preference in the U.S., *Proceedings of 64th International Congress of Meat Science and Technology*, Melbourne, Australia.
- Villatoro, K.M., Bauer, Z., Duarte, T.L., **Chao, M.D.** and Yang, X. (2018). Comparison of nutrient composition, quality, and sensory differences among Dorper, domestic commercial crossbred and Australian commercial crossbred lamb meat, *Proceedings of 71st Reciprocal Meats Conference*, Kansas City, MO.
- Perez, J., Ramirez, D., Garcia, P., Yang, X. and **Chao, M.D.** (2018). Sensory evaluation of California and Australian skin-on goat meat from Chinese consumers in California. *Proceedings of 71st Reciprocal Meats Conference*, Kansas City, MO.
- Garcia, P. and **Chao, M.D.** (2017). Evaluation of an alternative skin-on goat harvesting method on meat yield and processing time. *Proceedings of 70th Reciprocal Meats Conference*, College Station, TX.
- Herrera, N. J., Kunze, E. K. Domenech-Perez, K. I., **Chao, M.D.** and Calkins, C. R. (2016). The Mechanism by which Marbling Affects Beef Tenderness. *Proceedings of 69th Reciprocal Meats Conference*, San Angelo, TX.
- Kunze, E. K., Herrera, N. J., Domenech-Perez, K. I., **Chao, M.D.** and Calkins, C. R. (2016). The Influence of Diet on Calcium Flux in Fresh Beef – A Possible Mechanism to Alter Beef Tenderness. *Proceedings of 69th Reciprocal Meats Conference*, San Angelo, TX.
- Domenech-Perez, K. I., Calkins, C. R., **Chao, M.D.**, Buntyn, J. and Schmidt T. (2016). Impact of Supplementing Cattle with OmniGen-AF at the Receiving or Finishing Phase on Beef Shelf-life. *Proceedings of 69th Reciprocal Meats Conference*, San Angelo, TX.
- Chao, M.D.**, Domenech-Perez, K. I., Voegelé, H. R., Kunze, E. K. and Calkins, C. R. (2015). Effects of dietary antioxidant supplementation of cattle finished with 30% wet distillers grains plus solubles on fatty acid profiles and display life. *Proceedings of 68th Reciprocal Meats Conference*, Lincoln, NE.
- Chao, M.D.**, Domenech-Perez, K.I., and Calkins, C.R. (2015). Feeding antioxidants may reverse sarcoplasmic reticulum membrane instability contributed by feeding high concentration of wet distillers grains plus solubles. *American Society of Animal Science Midwest Section*, Des Moines, IA.
- Chao, M.D.**, Domenech-Perez, K.I., and Calkins, C.R. (2014). A hypothesis on beef tenderization. *Proceedings of 60th International Congress of Meat Science and Technology*, Punta Del Este, Uruguay.
- Chao, M.D.**, Domenech-Perez, K.I., and Calkins, C.R. (2014). A basic mechanism of beef tenderization: Feeding wet distillers grains plus solubles contributes to sarcoplasmic reticulum membrane instability. *Proceedings of 67th Reciprocal Meats Conference*, Madison, WI.
- Domenech-Perez, K.I., Calkins, C.R., **Chao, M.D.**, Semler, M.E., Varnold, K.A., and Erickson, G.E. (2013). Effect of feeding de-oiled wet distillers grains plus solubles on beef oxidation. *Proceedings of 66th Reciprocal Meats Conference*, Auburn, AL.

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- Semler, M. E., **Chao, M.D.**, Hosch, J. J., Varnold, K.A., Senaratne, L. S., and Calkins, C.R. (2012). Color and sensory properties of beef steaks treated with antimicrobial sprays. *Proceedings of 65th Reciprocal Meats Conference*, Fargo, ND.
- Hosch, J. J., Calkins, C.R., Varnold, K.A., Senaratne L. S., Semler, M. E., and **Chao, M.D.** (2012). Variation in composition and sensory properties for beef short ribs. *Proceedings of 65th Reciprocal Meats Conference*, Fargo, ND.

INVITED WHITE PAPERS

- Herrera, N.J., **Chao, M.D.**, Wilkerson, E.K. and Calkins, C.R. (2016). Relationship of superoxide dismutase activity to tenderness of Prime and Select-grade beef, National Provisioner, December 2016.
- Chao, M.D.** and Calkins, C.R. (2014). Mechanism of tenderization in distillers grains-fed cattle. National Provisioner, November 2014.

PROFESSIONAL MEMBERSHIP

- Member of American Meat Science Association (2011-present).
- Member of American Society of Animal Science (2011-present).

COMMITTEES AND SERVICES

- National
 - Reciprocal Meat Conference Graduate Student Research Competition Committee, 2019-present
 - Served as a judge for PhD poster competition – 2019
 - Served as a judge for MS poster competition – 2020
 - American Meat Science Association Distinguished Research Award Committee - 2021
 - Reciprocal Meat Conference Planning Committee, 2015-present
 - USDA NIFA Grant Reviewer (AFRI Foundational Program), 2019.
 - Reviewer for Meat and Muscle Biology, 2016-present.
 - Reviewer for Journal of Animal Science, 2015 – present.
 - Reviewer for Animal Production Science, 2016 – present.
 - Reviewer for International Journal of Food Science and Technology, 2017-present
 - Reviewer for Meat Science, 2019-present
 - Reviewer for Translational Animal Science, 2019 – present.
 - Reviewer for Frontiers Physiology 2020 -present
 - Reviewer for Canadian Journal of Animal Science, 2020 – present.
 - Reviewer for Food Chemistry, 2020 – present.
- Regional
 - Organizer, Meat Judging Contest, Chico State and Butte College FFA Field Day, March 2016-March 2018
 - Judge, California Meat Processors Association Processed Meat Contest, February 2016- February 2018
 - Sierra Oro Farm Passport Weekend, Organize and supervise the meat lab tours and sample tasting program (October 2015- October 2017).
- University
 - Grant Panelist for Global Food System Seed Grant, May, 2021
 - K-State Outstanding Food Science Student Award Committee, 2021
 - K-State Graduate Research, Arts and Discovery Forum, judge, March 2019-present
 - Chico STEM Connections Collaborative Faculty Supervisor, 2017-2018

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- Instructionally Related Activity Committee, August 2017 – May 2018
- College of Agriculture Curriculum Committee, August 2016 – May 2018
- Student Awards for Research and Creativity Committee, Summer 2016 – Summer 2017
- Student Learning Fee Committee, August 2016 – May 2018
- University Farm Committee, August 2016 – May 2018

INVITED TALKS AND INTERVIEWS

- Moderators
 - Reciprocal Meat Conference (RMC), 2016.
- Presentations
 - Speaker, Reciprocation Session, Reciprocal Meat Conference (RMC), “Utilization of lower quality cuts”, August, 2021.
 - Speaker, Kansas Association of Meat Processors Convention “Meeting Ethnic Consumers’ Needs for Niche Goat Carcasses”, May, 2021.
 - Kansas Cattlemen’s Association Annual Convention “Discovering Lab Grown Meat”, October 2019
 - KSU Mexican Short Course “Meat Proximate Analysis, Sarcomere Length, and Water Holding Capacity”, August 2019
 - Girls Researching Our World (GROW) workshops “Why is the muscle still moving?!?”, KSU office for the Advancement of Women in Science and Engineering, November 2018
 - Sino-US Cattle development forum “Carcass fabrication and growth promotant use in U.S. livestock industry”, Arun Banner, Inner Mongolia, People Republic of China, July 2018
 - Western States Dorper Association Dorper Sales “Dorper lamb carcass grading”, Chico, May 2017.
 - UC Davis Animal Science Career Symposium – “Sharing your experience in today’s Animal Science job market”, Davis, February 2017.
 - Chico State Sheep and Goat Educational Day “Merguez- making North African lamb sausage at your home”, Chico, CA, February 2016.
 - Chico State Beef Symposium, “Adding value to under-valued beef sub-primals”, Chico, CA, February 2016.
 - Goat Education Day, “Development of an ethnic-based value-added goat harvest process”, Red Bluff, CA, November, 2015.
- Interviews
 - Kansas Country Living, “DIY Butchering”, June, 2020
 - K-State research and Extension “Agriculture Today”, August, 2018
 - DTN Progressive Farmer, “Distillers Grains May Lead to Beef That is More Tender”, October, 2015.
- Popular Press
 - **Chao, M.D.** (2017) Higher Education – Meat Science Program at California State University, Chico, Independent Processors, July 2017.
 - Bauer, Z. and **Chao, M.D.** (2017) From the Farm – CSU, Chico Meats Lab, The Farm Shovel -Butte County Farm Bureau, March 2017. <https://blog.buttefarmbureau.com/2017/03/21/from-the-farm-csu-chico-meats-lab/>

HONORS/AWARDS

- KSU Mentoring Fellowship, November, 2018.
- UNL Lowe & Mavis Folsom Distinguished Doctoral Dissertation Award, April, 2016 – best dissertation of the year.
- Reciprocal Meat Conference Graduate Student Poster Competition, 3rd place, PhD division, June, 2014.
- UNL Larrick-Whitmore Graduate Student Travel Grant, May, 2014.
- American Meat Science Association Kinsman International Award, May, 2014.
- UNL Milton E. Mohr Fellowship, April, 2013.
- International Stockmen’s Educational Foundation Travel Fellowship, January, 2013.
- CA American Registry of Professional Animal Scientists (ARPAS) Memorial Fund Scholarship, October, 2010.

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Michael Chao

- UC Davis K. Humphries Memorial Scholarship, August, 2010.
- California Cattlemen Association Feeder Council and Allflex USA Scholarship, June, 2010.
- California Animal Nutrition Conference (CANC) Student Poster Competition, 2nd place, May, 2010.

PROFESSIONAL DEVELOPMENT

- Presented at **USDA Multi-State W-4177 regional research committee meeting (Improve the competitiveness of US Beef)** to form collaborative research relationship with scientists from land-grant universities, June, 2020
- Attended “2nd conference on preparing award winning grants” Delaware State University, Dover, DE, May, 2018.
- Attended Faculty Writing Boot Camp, May 2017.
- Put CSU Chico on American Meat Science Association’s graduate program list (<http://www.meatscience.org/students/graduate-programs/california-state-university-chico>)
- Attended Faculty Advisor Collaboration & Training (FACT), Chico, CA, May, 2017.
- Attended Improving Teaching Practice FLC, Chico, CA, Jan.- May, 2017.
- Attended CSU Chico Academic E-Learning Cohort 8 to improve and redesign AGRI 490, Chico, CA, June, 2016.
- Attended Train the Trainer HACCP Workshop, College of Sequoia, Tulare, CA, October, 2015 - became a certified HACCP instructor and put Chico State as one of the Accredited Introductory HACCP Programs accredited by International HACCP Alliance (<http://www.haccpalliance.org/sub/intro-course.html>).
- Became the Chico State contact person for **USDA Cochran Fellowship Program**- The program aims to train government officials from developing countries in biotechnology and food safety to continue U.S. engagement in policy making from these countries – contacted by Phuong Mai, International Program Specialist, USDA Foreign Agricultural Service, summer 2016-present.