

Mia B. McCracken

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RESEARCH INTERESTS

Agricultural and applied economics • Consumer demand for livestock products • Precision livestock technology • Machine learning applications in animal science

EDUCATION

Doctor of Philosophy in Agricultural Economics

May 2029

Kansas State University, Manhattan, KS

- Concentration: Agricultural Economics
- Advisor: Dr. Glynn Tonsor

Master of Science in Animal Science

August 2024 – May 2026

West Texas A&M University | Canyon, TX

Thesis: Software Development Using Artificial Intelligence to Predict Carcass Ultrasound Traits in Beef Cattle

- Advisor: Dr. Tommy Perkins

Bachelor of Science in Agricultural Business and Economics

August 2021 – May 2024

West Texas A&M University | Canyon, TX

PUBLICATIONS

1. Eckhardt, M.E., McCracken, M.B., Lucher, L.W., Schwartz, T.E., Baker, E.C., and Lawrence, T.E. (2026). Cattle type and liver abscess occurrence impact aged beef steak instrumental retail color and metabolomics. *Journal of Animal Science*. doi.org/10.1093/jas/skag094
2. McCracken, M.B., Perkins, T.L., Baker, E.C., Chou, L., and Mohammad, S. (2026). Software development to measure ultrasonic images in beef cattle. American Society of Animal Science Annual Meeting, Rogers, AR. *Journal of Animal Science*, Vol. 104:(Suppl. 2). https://doi.org/10.1093/jas/skag057.004

RESEARCH EXPERIENCE

Graduate Research Assistant

August 2024 – May 2026

Bovine Ultrasound Laboratory, West Texas A&M University | Canyon, TX

- Developed and trained a transfer learning convolutional neural network (EfficientNet-B0) for automated segmentation and measurement of beef carcass ultrasound images, achieving Spearman $r = 0.831$ for longissimus muscle area and $r = 0.749$ for intramuscular fat prediction
- Designed and executed a multi-instrument, multi-laboratory ultrasound accuracy study evaluating five real-time ultrasound machines and three image processing laboratories across key carcass trait predictions
- Performed statistical analyses including mixed linear models, regression, Spearman correlation, standard error of prediction, and Cook's Distance influence diagnostics in R
- Curated, annotated, and augmented a large beef cattle ultrasound image dataset for machine learning model training and validation
- Contributed to manuscript preparation, peer-reviewed publications, and conference presentations

Research Technician

April 2024 – July 2026

Beef Carcass Research Center, West Texas A&M University | Canyon, TX

- Assisted in data collection for university, pharmaceutical, and industry-sponsored beef cattle research trials
- Coordinated cattle handling logistics including arrival, feeding management, and harvest scheduling

TEACHING & OUTREACH

Teaching Assistant – Introduction to Agricultural Economics (AGRI 2317)

Spring 2026

West Texas A&M University | Canyon, TX

- Led course lectures on microeconomics in the absence of the instructor of record
- Assisted with grading and student support for an undergraduate agricultural economics course

PRESENTATIONS & INVITED TALKS

- Beef Improvement Federation Annual Meeting – Breakout Room Speaker (2026)
- Texas and Southwestern Cattle Raisers Association Convention (2026)
- Beef Improvement Federation Annual Meeting (2025)
- Panhandle Livestock Association (2024)

LEADERSHIP & SERVICE

Field Certification – Ultrasound Guidelines Council

2024 & 2025

- Organized and hosted field certification events serving 120+ participants across two consecutive years
- Coordinated all logistics of cattle arrival, feeding protocols, and harvest operations for certification accuracy trials

TECHNICAL SKILLS

Programming: Python

Machine Learning: Convolutional neural networks, transfer learning (EfficientNet-B0), YOLOv8, YOLOv11, image segmentation

Software & Tools: RStudio, ImageJ, Microsoft Excel

Data: Image annotation, dataset curation and augmentation, carcass ultrasound measurement