

# Meat Science and Animal Food Product Safety

**Goal:** Colorado State University will enhance its focus and depth in undergraduate education, graduate education, research and outreach in meat science and animal product food safety and be recognized nationally as one of the top three university programs. This will include experiential learning in the animal science BS degree designed to add practical experience in meat science and microbiology and to prepare students for leadership positions in the meat production and food manufacturing industries and regulatory agencies. Graduate education, research, and outreach will focus on pre-harvest management of livestock to prevent acquisition of human pathogens in livestock production and handling, post-harvest detection and management systems to prevent and control contamination of meat products with human pathogens, assessment of production systems and regulatory protocols for effective food safety results and domestic and international credibility of the meat products, and producer, consumer, and food handler education in food safety to prevent or control contamination and food safety risks.

**Purpose:** Animal agriculture is a major economic sector in the United States. The red meat industry contributes substantially to the U. S. economy. Each year 30 to 35 million cattle (26.5 million fed steers and heifers), 80 to 92 million hogs, and 5 to 7 million lambs are marketed in the U. S. Remaining competitive requires that the industry provide consumers with products that meet their demands for safety, wholesomeness, quality, convenience, and price. Efforts in meat science focus upon the manner in which food animals are produced, harvested, processed and presented to consumers in order to be safe and desirable for consumption, and on appearance and palatability of fresh beef, pork and lamb. A specific need is to assure that US fresh meat is acceptable to both domestic and international markets and performs beyond expectation when consumed. Extensive efforts have generated research results and pertinent documents intended to assist the industry to solve problems related to *Escherichia coli* O157:H7, *Salmonella* and other pathogenic bacteria in fresh beef or pork, *Listeria monocytogenes* in processed ready-to-eat meat products, and bovine spongiform encephalopathy in beef. As new food safety issues develop (e.g., the advent of antimicrobial resistance of food-borne pathogens, etc.), it will be increasingly important that proactive scientific investigations occur for policy-makers and regulators to have access to the necessary factual information from which sound regulatory decisions may be made. Additional efforts are aimed to enhance consumer confidence that livestock producers, packers, and processors generate products from animals that are reared in a compassionate manner, handled appropriately, and produced with environmentally responsible methods. Colorado State is in a strong position to assist with the economic development of Colorado's livestock and meat industry and to enhance the public health of citizens by educating meat industry scientists and professionals, by researching technical and economic issues related to improved product quality, safety and international competitiveness, and by being actively involved with the livestock and meat industry and governmental agencies to assure that the latest knowledge is incorporated in management, education and regulatory decisions.

## Strategic Actions:

- Continue developing approaches for meat science and safety research management to be more responsive to industry, regulatory, consumer and export issues.
- Develop new approaches with which to transfer technology from research to industry and governmental partners. Example includes Micro Rx relationship.
- Increase support staff including graduate students and Research Associates.
- Develop a five-year BS/MS degree program in Meat Science, following consultation with industry to determine needs and commitment.
- Secure funding for renovation of Animal Sciences building

## Critical Resource Growth Needs:

- Renovate and expand the Animal Sciences Building to improve laboratory, classroom, and office space (estimated at \$13 million).

- Add a faculty position in the area of meat processing.
- Secure one endowed faculty chair to raise the level of one faculty position.
- Secure bridge funding to maintain current status if grant funding decreases or changes.
- Add two Post-Doctoral Fellows, two Research Associates, two meat science/food safety outreach professionals, and 18 graduate student first-year stipends.
- Secure an additional \$50,000 annually for faculty, student, and outreach professional travel and project development.

**Personnel:**

Administrative Advisor: Bill Wailes

Steering Committee Chair: [John Sofos](#)

Steering Committee Members: Daryl Tatum, Gary Smith, Keith Belk, Pat Kendall, Larry Goodridge, Kendra Nightingale, Marisa Bunning, Dustin Pendell