WHO WE ARE
The Livestock Issues Research Unit (LIRU) has impacted the beef and swine industry for 23 years by improving cattle and swine health, immunity, and well-being through high-quality and intensive scientific research that generates positive, practical applications beneficial for farmers, producers, industry, and the research community. Expanding research presents resource and planning challenges.

OUR IMPACT
LIRU works closely with ranchers, universities, and industry to research and identify animal characteristics that support immune responses and improves health, well-being, and productivity. Their efforts reduce stress in beef and dairy cattle and swine through new management practices and nutritional intervention strategies, reducing management time and costs.

Products developed:
• An indwelling internal temperature monitoring device that enhances animal health research capabilities and reduces animal stress due to less handling. Used by researchers across the U.S. and Canada.
• A reliable and repeatable bovine respiratory disease model to test potential prevention and treatment strategies against the disease.
• A model in swine and dairy calves that allows monitoring of animal health by tracking of Salmonella throughout the body.

Highlights:
• Identified that stressful events livestock experience leads to the spread of Salmonella from the gastrointestinal tract to peripheral lymph nodes, thus increasing the risk of foodborne pathogen contamination.
• Identified specific supplements can improve livestock health and well-being; and reduce the negative impacts of heat stress and immune challenges.

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HOW WE HELP
Stress can negatively affect livestock growth, reproduction, well-being, and immune function, making them more susceptible to diseases. Scientists' commitment is focused on four primary areas of concern for the livestock industry:

• Measure stress and the immune response in relationship to pre-harvest food safety and quality.
• Identify host and pathogen interactions to improve animal health.
• Find non-antibiotic additives that strengthen immunity and improve animal health.
• Develop new livestock management strategies.

ARS Immunologist Dr. Nicole Sanchez checks body weight and removes one of the ARS-developed rectal probes used to continuously monitor body temperature.