



Meat Science Learning Beyond the Lab

A strong meat science education depends on more than access to a well-equipped lab. Students need opportunities to handle material, make judgments, explain their reasoning and apply what they learn beyond campus. At the 2026 Reciprocal Meat Conference, educators described ways to preserve those experiences when space, equipment or personnel are limited, while also testing new approaches to learning. Their examples connected classroom teaching, extension and workforce preparation around a practical question: How can more people gain meaningful experience in meat science?

Use the Resources Within Reach

A university without a working meat lab can still offer hands-on instruction. One extension specialist described using a local processor for demonstrations, an anatomy lab for a 4-H meat judging contest and commercial kitchens for workshops. County extension agents, commodity groups and neighboring specialists helped find locations and reach audiences across the state. At another university, an older facility limited the size of animals that could be processed, but students participated directly in slaughter and fabrication. The common resource was a network of people willing to share space, expertise and experience.

Even a new facility does not solve every constraint. A presenter with substantial meat lab capacity described being the only meat scientist in the program, balancing teaching, outreach, judging and research. Collaboration with graduate students, colleagues in other disciplines, industry and other universities helped extend what one faculty member could accomplish. For education and extension alike, capacity includes the people available to teach and work alongside learners.

The discussion also revealed an opportunity to share teaching resources more systematically. Faculty described building their own collections of carcass and cut photographs, borrowing instructional materials from colleagues and adapting exercises for different settings. Participants called for accessible, current images and practical activities that educators could use and update together. A shared resource can save preparation time, particularly for a faculty member covering several subjects alone, while giving students examples that reflect contemporary production.

Make Practice Portable

The limited-facilities discussion offered examples that can travel. Photographs of cuts arranged on boxes gave a new meat judging team physical classes to walk around and evaluate before members had regular access to a meat lab. An exercise using oranges let students weigh a whole item, remove its peel and compare the edible portion with the starting weight to see how yield affects value. Small-scale sausage demonstrations and purchased retail cuts offered other ways to examine ingredient function, fabrication and quality without a full processing line.

These activities work because the task still asks learners to observe, measure and decide. In an undergraduate meat evaluation course, shorter learning materials gave students another way to revisit complex concepts. Seventeen students who participated in focus groups described brief videos, images, diagrams and text as useful for clarifying concepts and reviewing for assessments. Some materials were available through a dedicated social media page, making them easy to consult outside class. Students wanted the materials introduced early, connected to the course and available through more than one platform. Those responses reflect students' perceptions rather than a measured improvement in grades. They point to a useful design principle: give learners a focused concept they can revisit, then a chance to apply it.

Teach the Judgment Behind the Tool

Artificial intelligence presents a similar teaching choice. One classroom presentation proposed asking students to generate an AI response to a meat science question, then identify errors, bias, missing information and claims that need verification. In that assignment, the students' evaluation is the work being assessed. Other examples included adapting a research paper into a short audio explanation and setting up a course-specific learning coach that prompts students to work through questions.

Students also need to see where AI enters the meat industry. In a small introductory meat science class, a lesson connected basic AI concepts to sensors, robotics, portioning and carcass grading. Eleven students participated in the study, and their ratings of AI's relevance to the industry increased after the lesson. The finding measures a shift in perception following one class, but it reinforces the value of grounding an unfamiliar tool in work students recognize.

Educators must decide what students should know independently, what the tool can help them explore and how students will show their own reasoning. Those choices matter in meat science, where an answer may need to hold up in a lab, a processing plant or an extension conversation.

Extend Learning Beyond Campus

A partnership between two universities shows how those skills can carry into professional practice. Eleven undergraduates joined a three-week summer program with a meat science extension team. They practiced carcass grading, considered factors affecting carcass merit, developed oral justifications and participated in programs for youth and adults. Six students responded to a post-program survey, describing greater confidence in technical knowledge and communication, broader awareness of extension careers and stronger preparation for future study or work.

Online instruction can widen access for learners who cannot spend three weeks on campus. In an evaluation of an asynchronous meat processing course, participants reported gains in knowledge and confidence, especially in humane slaughter, fresh meat fabrication and further processing. Fifty-four people completed a pre-course survey and 27 completed a post-course survey, so the results should not be read as a matched comparison of every learner. Still, they point to a role for online instruction in building a foundation before hands-on training and in helping people enter unfamiliar areas of meat processing.

The extension partnership and the online course show two ways to carry learning beyond a single classroom. Students can practice meat science while learning to explain it to others, and working professionals can build a foundation before hands-on training. Across the RMC discussions, the goal was consistent: learners need opportunities to make informed decisions, test their understanding and communicate what the evidence means. Sharing facilities, teaching materials and professional expertise can create those opportunities in more classrooms and communities.

Conference Presentations Featured in This Article

This article synthesizes presentations and discussions from across the 2026 Reciprocal Meat Conference, including contributions from Kelly Vierck, Ph.D. (University of Tennessee); Sydni Lammers, Ph.D. (Sam Houston State University); Duane Wulf, Ph.D. (University of Arizona); Francine Mezzomo Giotto, Ph.D. (New Mexico State University); Bo M.C. Garcia (University of Nebraska–Lincoln); Lea Ann Kinman (Prairie View A&M University); Steven S. Rogers (University of Nebraska–Lincoln); and Makenzie Webster (New Mexico State University).

About RMC Exchange

RMC Exchange extends the value of the Reciprocal Meat Conference by synthesizing research and discussions from multiple presentations into topic-focused articles. Each feature connects the science, highlights emerging trends, and explores the practical applications advancing meat science and the meat industry.