

# Infrastructure Support for Small Livestock Processing

Jane Boles (Montana—Post Subregional Conference Program)

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**Title:** Infrastructure Support for Small Livestock Processing

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**Situation:**

To help ensure safe food, USDA is issuing new rules that require livestock processors, including small ones, to conduct some microbial testing or to utilize scientific papers to confirm that processes used effectively reduce the number of E. coli O157:H7 on carcasses and reduce pathogens, such as E. coli O157:H7 and salmonella, in fully cooked products.

These one-size-fits-all regulations place extra burdens on small processors, which rarely have the technical skills to conduct validation studies or develop statistical sampling plans and often need help interpreting scientific papers to validate their processes.

Concurrently, local food products are becoming more popular with consumers. Ranchers seeking to engage this emerging demand for local meat need local meat processors.

To comply with USDA rules, processing plants will need to validate current processes, develop written procedures that ensure consumers food safety and provide statistical justification for their sampling plans.

This grant seeks to help smaller livestock processing facilities comply with new and ever-changing food safety requirements.

**Objectives:**

- Provide processors with the tools to monitor microbiology on meat products to assure safe production
- Provide documentation and written process to satisfy inspection requirements
- Help strengthen the infrastructure of small local processors to help local ranchers fill consumer demand for local products

**Actions:**

In all, six Montana meat processing plants (of 18 initially contacted) agreed to participate in the validation studies, conducted with the expertise of the Montana State University Meat Laboratory and the Montana meat and poultry inspector.

The processors supplied information on processes currently used in the plant, then allowed the project PI to enter the plant and sample both carcasses and raw and fully cooked product to help validate each plant's processes.

The sampling procedure followed guidelines described by the USDA/FSIS for conducting generic E. coli testing. In addition, the project team evaluated cooler temperatures in each plant.

**Results:**

The analyses showed that the small processors do a good job of dressing beef carcasses and following appropriate interventions, although consistency can be a challenge in both the dressing process and the application of interventions.

Carcass cooling rates were different between plants. Cooler settings explain most of the variations found within plants and between plants. Plants with the least variation in cooler temperatures were the ones that had some form of monitoring procedure.

Four plants participated in validation of Hazard Analysis Critical Control Point (HACCP) plans for fully cooked, not-shelf-stable product. All products sampled had below detectable levels of indicator organisms after cooking. Cooking and chilling temperatures recorded indicated that the plants were meeting the requirements of HACCP plans.



**Impacts of Results/Outcomes**

As a result of this project processors now have:

- Written information to include in food safety plans applied to their processes, which will help them comply with ever-changing inspection requirements
- Data on the effectiveness of E. coli O157:H7 interventions currently being used
- A foundation to help them comply with inspection requirements for testing and for assuring the production of safe meat products
- Established contacts to whom they can turn for help

Recommendations that evolved from this study are mostly changes in habits and have little cost to the processor. The exception is temperature monitoring equipment, which can be prohibitively expensive. An alternative is a daily temperature log, along with analysis of the data, which can be as effective as the more expensive recording devices.

“The main recommendation to the processors in their day-to-day operation is to create a routine and stick to it,” said the project’s final report. “Make sure to pay attention to details to find a way to consistently apply the intervention.”



**Publications/Outreach**

- Beef Slaughter Validation Study: General Observations and Recommendations for Reduced Bacterial Contamination
- Preliminary information shared with state meat inspectors, Helena, April 2010
- Project information presented at Montana Meat Processors Convention, Columbus, April 2011
- Project update presented at Montana Meat Processors Convention, Livingston, April 2012