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Ensuring Compliance with Lethality Microbiological Performance Standards for Meat Products Using Alternative Cooking Procedures for Large, Intact Meat Products

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Introduction

- USDA's Foods Safety and Inspection Service (FSIS) has established microbiological performance standards for fully cooked, ready-to-eat meat and poultry products.
- The performance standard requires a 6.5-log $_{10}$ reduction of *Salmonella* in meat products.

Introduction

To help processing establishments comply with the microbiological performance standard, FSIS issued a compliance guideline entitled, "*Appendix A. Compliance Guidelines for Meeting Lethality Performance Standards for Certain Meat and Poultry Products*."

Hazard Analysis and Critical Control Point (HACCP)

Processing establishments typically include cooking as a critical control point (CCP) in their HACCP plans and often use the temperature or temperature/time combinations in Appendix A to support the selection of their critical limits.

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Objective

To evaluate alternative cooking parameters for large roast beef and hams to determine if cooking times and temperatures, other than those defined in FSIS Appendix A, will meet the performance standards for lethality.

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Methods

Eighty (80) large (10.43 to 12.25 kg) cured bone-in hams and eighty (80) large (≥ 9.07 kg), uncured beef inside rounds were utilized in this project.

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Methods

S. Typhimurium, *S. aureus*, and coliforms were used to inoculate the surface of the hams and beef roasts.

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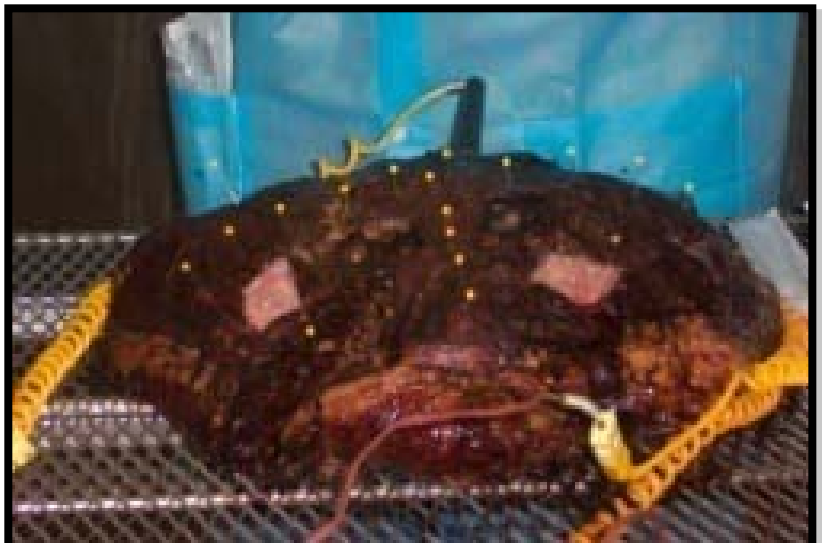
Methods

Each product was then cooked to one of five internal temperatures (48.9°C, 54.5°C, 60.0°C, 65.6°C, or 71.1°C) at either 50% or 90% humidity, for a total of ten treatments per product.



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Results

Least squares means of initial $log_{10}(CFU/cm^2)$ concentration of inoculum:

	Ham	Roast beef
Salmonella	7.8	8.5
Coliforms	8.0	8.2
S. aureus	5.8	6.1

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Results

- All ten lethality treatments applied to ham and roast beef produced post-lethality samples with < 1 CFU/cm^2 of *S.* Typhimurium, *S. aureus* vegetative cells, and coliforms.
- All toxin test kits returned negative results for *S. aureus* toxin production.

Results

Therefore, all internal temperature and relative humidity combinations yielded product that met USDA-FSIS lethality performance standards.

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