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## Supporting Documentation for Critical Limits in Dry-Aging of Beef Carcasses

During January – September, 2006, we collected samples at six Wisconsin beef slaughter plants that use a 6-day dry-aging beef carcass intervention treatment. Five plants were investigated once, and the sixth plant was investigated three times. For each investigation, we obtained carcass sponge samples: before dry aging and after dry aging (on the 6<sup>th</sup> day after slaughter). Overall, 92 carcasses were tested.

We analyzed the samples for generic *E. coli*, coliforms, and Enterobacteriaceae. These types of bacteria are called “indicator” bacteria because their presence usually indicates fecal contamination. Until further notice, you can regard these indicator groups as “stand ins” for pathogenic *E. coli* O157:H7. We also did the Aerobic Plate Count test, which is for “all” bacteria, actually those that can grow in the presence of oxygen at body temperature.

It was clear from the results that there was usually some low-level fecal contamination of carcasses before the 6-day dry-aging intervention. For example, generic *E. coli* was detected on 61 out of the 92 carcasses (66%) sampled before dry-aging.

It was also clear from the results that the 6-day dry-aging intervention treatment consistently resulted in a decrease in the three indicator groups of bacteria (generic *E. coli*, coliform, and Enterobacteriaceae). For example, generic *E. coli* was only detected on 3 of the 92 carcasses sampled (3%) after dry-aging.

### **These results validate 6-day dry-aging as an easy and effective beef carcass intervention treatment IF the following 4 Critical Limits are met.**

1. The carcass cooler temperature must reach 41°F or colder by 8:00 a.m. on the morning after the slaughter day.
2. The carcass cooler temperature must be maintained at 41°F or colder for the 6-day dry-aging period.
3. The carcass cooler must be equipped with a fan to create air movement.
4. Beef carcasses must be dry-aged until the 6<sup>th</sup> day after slaughter. For example, if you slaughter on Tuesday, you cannot further process the carcasses until the following Monday.

It is recommended that you adjust your HACCP plan to include these Critical Limits. You also should develop monitoring and recordkeeping procedures to ensure that the Critical Limits are met.

*Survey of Antimicrobial Effects of Beef Carcass Intervention Treatments in Very Small State-Inspected Slaughter Plants.* 2007. R. Algino, S.C. Ingham, and J. Zhu. *Journal of Food Science*. Vol. 72. M173-179.

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For more information contact: Steve Ingham, Extension Food Safety Specialist (608) 265-4801, [scingham@wisc.edu](mailto:scingham@wisc.edu) August, 2007

*The University of Wisconsin-Madison Center for Meat Process Validation provides science-based HACCP support to small meat processors in meeting state and federal mandates for safe food processing and handling. For more information on the Center contact Dr. Steve Ingham, 1605 Linden Drive, UW-Madison, Madison, WI 53706 (608) 265-4801 Email: [scingham@wisc.edu](mailto:scingham@wisc.edu)*

