

NO ANTIBIOTICS,
NO ADDED HORMONES...
EVER!



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Simple Beef™

The Leading Producer of Natural Meats

Date: November 15, 2001

To: USDA/FSIS/OPPDE/TPDS
300 Twelfth Street, SW.
Washington, DC 20250

01-030N
01-030N-48
Sidney Tay

From: Sidney Tay
Quality Assurance Manager
Coleman Natural Products, Inc.
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Denver, CO 80216
303-297-9393 Ext. 140
303-292-2806 Fax

Re: Protocol with respect to the final rule regarding "Retained Water In Raw Meat And Poultry Products; Poultry Chilling Requirements"

1. Purpose Statement

Coleman Natural Products, Inc., Est. # 9210L, is submitting this protocol for approval so it can begin data collection and analysis as part of its pre-implementation experimentation, to determine if there is or is not water retention in the beef carcasses produced from its establishment.

2. Type of washing and chilling system

● **Washing System**

Coleman Natural Products, Inc. uses a combination Chad carcass wash and Lactic Acid wash cabinet. The carcass wash cabinet has ten (10) rows of spray nozzles on each side of the cabinet. One carcass side goes through the carcass wash cabinet at any one time, and is sprayed with ambient temperature water from both sides of the cabinet. The spray pattern of the carcass wash is consisted of four (4) different zones or sections: the top two rows are activated when the carcass side goes through the first zone, the next two rows are applied in the second zone, the next three rows are activated in the third zone and the remaining three in the fourth. After the carcass wash, the same side of carcass immediately goes through the Chad Lactic Acid cabinet and a thin mist of Organic Lactic Acid (no more than 2.5% in concentration) is applied on this carcass side from both sides of the cabinet.

● **Chilling System**

Carcass exiting the Chad carcass and Lactic Acid wash cabinet immediately goes into the carcass storage cooler to chill. In this storage



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cooler, carcass sides, hanging on rails, are sprayed with ambient water administered through a carcass chill spray system to accelerate the chilling process. The spray is periodic and the duration of spray approximates thirty-six (36) to forty-eight (48) hours. During chilling, there is a second application of organic Lactic Acid (<2.5% concentration) on the carcasses.

3. Configuration of the chiller system and components

There is only one evisceration line feeding into the chiller system. The chill spray nozzles are mounted on rails on the ceiling of the chill/storage cooler. The chill spray system is on a timer and it sprays periodically from about 5PM to 6AM on Monday through Friday, and Sunday. The chill spray is off on Saturday.

4. Special features in the chilling process

There is no special feature in the chilling process. However, during the chilling process, an employee, using a hand-held sprayer, manually applies a second application of organic Lactic Acid (of 2.5% or lower concentration for microbial intervention) on the carcass sides. There are no carcass sides directly under the dripping line where draining of the lines occurs after spraying has stopped.

5. Factors that affect water absorption and retention

- **Duration of spray**
Carcass sides are exposed to the chill spray from somewhere between thirty-six (36) to forty-eight (48) hours. However, the chill spray is not continuous but cyclical. The spray is turned off on Saturday so duration of the spray is not extended when carcasses are stored in the chill/storage cooler over the weekend.
- **Water temperature**
Water supply to the chill spray is of ambient temperature, which is about 50 degree Fahrenheit.

6. Standards to be met by the chilling system

The chilling system must meet these standards:

- Utilizes ambient temperature water
- To maintain the same spray cycles, frequency and spray duration as mentioned above



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7. Testing methods used for

- Measuring water absorption and retention
 1. Post evisceration and before carcass wash and carcass chill spray, obtain hot carcass weight on one carcass side.
 2. After carcass wash, Organic Lactic Acid wash and carcass chill process and prior to Load-Out, obtain cold carcass weight on the same carcass side.
 3. Compare cold carcass side weight to the hot carcass side weight on the identified carcass side and obtain the difference.
 4. Determine if there is an increase or decrease in weight, and hence come to the conclusion of whether there is any water retention in the identified carcass.
 5. Repeat steps 1 through 4 on an additional thirty-one (31) carcass sides, chosen throughout the production day at a certain interval for a representation of a typical production day to obtain a total of thirty-two (32) carcass sides for the day.
 6. Repeat step 5 for ten (10) consecutive production days to obtain a total of three hundred twenty (320) carcass sides for a complete set of samples.
 7. Perform analysis on the data collected and retain all documentations and records for future references.
- Pathogen reduction of the organic Lactic Acid spray and the chill spray system

There are published studies, which supports the efficacy (the anti-microbial property) of Lactic Acid.

Studies have also shown that bacterial growth is accelerated in warmer environment or temperatures, and bacterial growth can be reduced if there is a decrease in temperature and also if the time associated with temperature drop is shortened.

8. Data and Results

- Reports and summary of collected data

The data will be collected by designated employees manually and in conjunction with a computer generated report. Calculations will be performed on the data collected and these calculations will be used to reach a summary or conclusion that will fulfill the objective of this experimentation, which is to determine if there is any water retention resulted from the process.



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- Criteria for evaluating results and the basis for conclusion
All variables (i.e. chill spray duration, chain speed going through the Chad cabinet, temperature setting inside the cooler, cycles of chill spray, etc.) must remain constant; the subjects of the experiment are the different carcass sides. If the cold carcass weight (after chilling) is higher than the hot carcass weight (prior to carcass wash and chill spray), then the conclusion is that there is water retention in the carcass. If cold carcass weight is less than the hot carcass weight, conclusion can be drawn that there is no water retention resulted from the process. The formulas are summarized below:

Cold Weight – Hot Weight = Positive Value (> 0) → Water Retention
Cold Weight – Hot Weight = Negative Value (< 0) → No Water Retention

A percentage of weight gain or loss can be calculated using the following formula:

$(\text{Cold Carcass Weight} - \text{Hot Carcass Weight}) / \text{Hot Carcass Weight} = \% \text{ Change in Weight}$

9. Conclusions

Upon successful collection and analysis of a complete set of sample data, a conclusion will be reached. There are two possible outcomes for this experiment:

1. There is water retention in the final product, and it will be so labeled on the product.
2. There is no water retention in the final product, and no labeling is required on the product.

