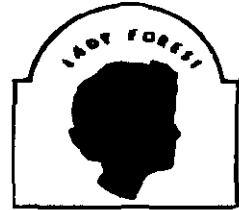


*Lady Forest Farms, Inc.*



FRESH AND FROZEN POULTRY

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November 12, 2001

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

01-030N  
01-030N-8  
Gary Phillips

Dear Sir:

Attached is our proposed protocol for determining the amount of water retained in our young chicken carcasses that is unavoidable while achieving applicable food safety standards.

Your prompt review and response will be appreciated so that we can begin testing.

Respectfully,

  
Gary Phillips  
Tech Services Manager

## **Protocol for Evaluating Retained Water in Young Chicken Carcasses**

### **1.0 Purpose Statement**

The purpose of this protocol is to determine the amount of water retention in young chicken carcasses that is unavoidable while achieving the regulatory pathogen reduction performance standard for Salmonella as set forth in the PR/HACCP regulations in 9 CFR 381.94(b) and the time-temperature requirements as set forth in 9 CFR 381.66.

### **2.0 Type of washing and chilling system**

The washing process consists of one inside-outside bird washer, one external spray cabinet, followed by a trisodium phosphate anti microbial system.

The chilling process consists of a cold water continuous immersion-type system.

### **3.0 Configuration and modification of the chiller system components**

Two evisceration lines feed the chiller system which consists of a prechiller followed by a main chiller. The prechiller is a paddle-type, 30 feet in length, manufactured by Gainesville Equipment Company. The main chiller is a screw-type, 70 feet in length, manufactured by Cantrell Equipment Company.

### **4.0 Special features in the chilling process**

The chiller uses up to 50 ppm chlorination as an anti microbial. After exiting the chiller system the birds are placed on a drip line that allows a 1.25 minute drain time before reaching the point of packaging.

### **5.0 Variable factors that affect water absorption and retention**

The water temperature of the pre-Chiller is 53<sup>o</sup> F. with a product dwell time of 12.5 minutes. The water temperature of the main chiller is 38<sup>o</sup> F. with a product dwell time of 45.5 minutes. The chiller uses air-type agitation.

### **6.0 Standards to be met by the chilling system**

The current FSIS Salmonella pathogen reduction performance standard, as set forth in the PR/HACCP regulations in 9 CFR 381.94(b) and the time/temperature requirements as set forth in 9 CFR 381.66.

## **7.0 Testing Methodology**

### **Water retention measurement**

Fifteen random A-grade carcasses will be collected immediately prior to the pre-chiller rinse on the evisceration line, tagged and weighed (pre-chill weight), in three groups of five carcasses. The three groups will be distributed evenly throughout the production shift (beginning, middle, and end).

The fifteen tagged carcasses will be collected and weighed immediately prior to packaging (prepackage weight).

### **Temperature measurement**

The temperature of the above fifteen tagged carcasses will be determined at the chiller exit using calibrated thermometers.

### **Pathogen reduction measurement**

Three groups of five carcasses will be collected at post-chill from the same flocks as those tested above.

The percent salmonella positive rate will be determined using the salmonella performance standard methodology.

### **Evaluation of chiller factors**

Water temperature - two chiller settings will be evaluated

Temperature setting of 36° F.

Temperature setting of 38° F.

Air agitation - two chiller settings will be evaluated

Air agitation setting of 8

Air agitation setting of 6

Each of the four chiller setting combinations will be evaluated for three separate processing periods, with each period being considered a replicate.

### **Study design**

A two-by-two factorial table will be used to evaluate the effect of these chiller settings on moisture retention, chiller exit temperatures, and pathogen reduction.

## **8.0 Evaluation and Reporting of Data**

The results from the three replicates per chiller setting combination will be averaged and reported as the final result for each chiller setting combination.

The percentage of retained water will be calculated as follows:

$$\% \text{ moisture retention} = \frac{(A - B) 100}{B}$$

A = total prepackage weight for 5 tagged carcasses

B = total pre-chill weight for 5 tagged carcasses

Carcass weight differences will be determined using a mathematical difference calculation (prepackage weight minus pre-chill weight) for each of the 5-carcass groups resulting in three recorded weight difference results. The weight difference obtained per 5-carcass group will be divided by the pre-chill weight per 5-carcass group to determine the % moisture retention at prepackage per group. The three results will be averaged to obtain the average % moisture retention at point of packaging.

The percentage of positive salmonella will be calculated as follows:

$$\% \text{ Salmonella Positive} = \frac{A}{B} \times 100$$

A = number of salmonella positive samples

B = number of samples tested

Percent salmonella positive will be determined using mathematical percentage calculation for each of the 5-carcass groups resulting in three recorded % salmonella positive results.

The three results will be averaged to obtain the average % salmonella positive.

The chiller exit temperature will be calculated as follows:

Chiller exit temperatures will be determined using mathematical averaging calculation for each of the 5-carcass groups resulting in three recorded chiller exit temperature results.

The three results will be averaged to obtain the average chiller exit temperature.

## **9.0 Explanation of how the conclusions will be determined**

Conclusions will be determined by comparing the % positive salmonella test results, and chiller exit temperatures, with their corresponding % moisture retention results, for the four chiller setting combinations. The amount of moisture retention that is unavoidable to achieve the food safety criteria will be reported.