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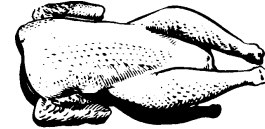
**Cooperative Extension Service**

College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356

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## *PROCESSING TIP . . .*

### **PLANT WATER USAGE HAS INCREASED AS THE RESULT OF HACCP REGULATIONS**

Water usage in poultry processing facilities has increased gradually over the years following initiation of the Hazard Analysis and Critical Control Point (HACCP)/Pathogen Reduction Final Rule. The HACCP rule, instituted in 1996, required poultry processors to meet specific performance standards for *E. coli* levels and *Salmonella* prevalence. These requirements put pressure on processors to discover novel methods for reducing these populations of bacteria. The immediate solution to the problem appeared to be "dilution is the solution to pollution", and the industry began using enormous amounts of water on chickens during processing.

Increased water usage at various processing steps has proven to be effective for reducing *E. coli* and *Salmonella* partially because of the dilution effect and partially because the water used often contains chlorine at 20 – 50 ppm. Processors have made great strides in reducing these bacterial levels. The USDA-FSIS has indicated the "success" of the HACCP rule by stating that *Salmonella* prevalence has been reduced from a baseline of 20% positive (pre-HACCP) to an industry average of only 11.0% today.

Although many intervention strategies in the field during growout have been responsible for reducing *Salmonella*, much of the reduction occurs during processing. What is not known is how much water is too much? For example, if the daily amount of water used is increased by adding 5 rinse cabinets throughout the processing line, what is the actual reduction in *Salmonella* or *E. coli*? If a half-gallon of water is added to the chiller per bird processed, what is the actual affect on bacterial levels? Studies should be conducted to determine how implementation of additional water at specific areas within the plant affects bacterial levels. This information is essential to the processing industry because if a processor were to add 5 rinse cabinets and the

#### **PUTTING KNOWLEDGE TO WORK**

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amount of water used increases by 1 – 2 gallons per bird, water costs and treatment will increase dramatically. Additionally, many municipal water suppliers do not have the capacity to supply the plant with a large quantity of water in addition to the amount used daily. Plants that use well water also have a difficult time increasing usage.

It has been estimated that, since the inception of HACCP, the industry has increased water usage by approximately 2 gallons per chicken processed. These values are based on an approximate industry average of 6.5 gallons per bird (pre-HACCP) to 8.5 gallons per bird (post-HACCP). Dr. Bill Merka, our wastewater specialist in Poultry Science, estimates that this increase costs the industry \$60 million annually. Some cities that supply water to these plants are at their capacity and conflicts have arisen when plants wish to increase water usage.

Some processors are now using water recycling systems to increase capacity and save money on fresh water and wastewater treatment expenses. One company expects to recycle approximately 500,000 gallons per day within the next 6 months. Another company is attempting to reach 800,000 gallons per day by the end of 2002. Recycling water has many beneficial effects: the processor has more water available for "dilution", less water has to be purchased from the city and treated by the city, and if water is recycled from a cold source (chiller) and recycled to a cold source, less energy is required to cool the water.

Recycling systems are rapidly gaining acceptance in Georgia because we had a drought this summer and the city was considering limiting the amount of water that the poultry companies could use. This would have had a tremendous negative impact for the processing plants because it would be difficult for them to meet their requirements for HACCP.

Water usage should be carefully evaluated by each processor. Studies should be conducted to ensure that water usage in a specific area has the beneficial impact intended. If addition of water at a specific area does not have a beneficial impact, it should not be increased at that point in the process. Evaluation of water usage and inclusion of recycling systems will make the industry more profitable and may decrease the conflicts with municipal water suppliers.



Scott M. Russell, Ph.D.  
Extension Poultry Scientist

County Extension Coordinator/Agent