PROCESSING TIP. . .

CONTROLLING SALMONELLA IN THE CROP OF BIRDS USING LACTIC ACID

The modern broiler chicken has been bred over the years to be a veritable "eating machine". During growout, broiler chickens eat approximately every four hours. This is advantageous because birds that eat this frequently gain weight and put on edible muscle rapidly. This attribute may be considered a disadvantage for maintaining the sanitary quality of the bird during processing.

At the end of the growout period, prior to catching the birds and cooping them for transportation to the processing plant, the feed is removed from the birds for a period of approximately 3 to 7 hours. During this time, the birds become hungry and begin to search for food. Because there is no food available to them, they begin to consume each others' feces. This activity has been demonstrated to significantly contribute to the level of Salmonella on processed carcasses. Studies have shown that many birds entering the processing plant have high levels of Salmonella in their crops as a result of this "coprophagus" or feces-eating behavior.

Salmonella in the crops of chickens that have consumed feces may be spread from carcass to carcass during the crop removal process. During cropping, the cropper piston is inserted into the vent area of the carcass and continues through the entire carcass, spinning as it goes. The piston has sharp grooves on the end of it that pick up the crop and wraps it around the end of the cropper piston. As the piston moves through the neck opening, the cropper piston comes in contact with a brush that removes the crop from the piston. Then the piston, while spinning, goes back through the entire carcass. During this process, if the crop breaks during removal, the contents leak onto the cropper piston and are transferred to the interior and exterior of the carcass, spreading Salmonella. Studies have been conducted by filling the crops of live birds with fluorescein dye, and waiting thirty minutes before processing the birds. By examining the carcasses at different stages of processing under a black light, crop contents that have been transferred to the inside or outside of the carcass can be seen.
clearly. These studies have shown that commercial croppers result in a large amount of contamination of the inside and outside of the carcasses. Thus, efforts should be made to control Salmonella in the crop prior to the crop removal process.

Some companies have been successful at controlling Salmonella in the crop by acidifying the birds drinking water during the feed withdrawal process. Lactic acid applied at low concentrations such as 0.3 to 0.5% will acidify the crop to the extent that Salmonella are unable to survive. Some flocks of birds will not drink water containing lactic acid at these concentrations. In these cases, it is best to gradually expose the birds to higher and higher levels of lactic acid the week before birds are to be caught. The key is to make the lactic acid concentration as high as possible while insuring that the birds continue drinking the water. This procedure has been shown to be effective in controlling Salmonella and generally costs $40 per flock.

Scott M. Russell  
Extension Poultry Scientist  
County Extension Coordinator/Agent

**Consult with your poultry company representative before making management changes.**

“Your local County Extension Agent is a source of more information on this subject.”