



# CALIFORNIA STATE SCIENCE FAIR 2005 PROJECT SUMMARY

<b>Name(s)</b> <b>William C. Roller</b>	<b>Project Number</b> <b>J1330</b>
<b>Project Title</b> <b>Are You Chicken?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective is to determine the presence of salmonella bacteria from whole, uncooked chickens from different suppliers/processing plants.</p> <p><b>Methods/Materials</b> I conducted my experiment by using strict sterile techniques and microbiological procedures. This was done to avoid contamination of my specimens and to ensure the safety of myself and others during the process of experimenting with potentially dangerous bacteria. The sterilization techniques consisted of using iodine, a diluted Chlorine bleach, and Isopropyl Alcohol to sterilize the area and my lab tools. Sterile gloves, masks, and lab tools also used. A culture medium known as MaConkey auger was used as a filter to isolate salmonella type bacteria. This auger is selective and differential because it prohibits the growth of Gram positive bacteria and it distinguishes if the bacterium produces lactose or not. Salmonella is both gram negative and lactose non-fermenting. With controlled incubation and aseptic transfers, I was able to isolate specific colonies that fit the characteristics of salmonella. Later, using an oil emersion microscope, I was able to eventually see gram negative rod shaped bacteria that fit all the characteristics of salmonella. I stained the bacteria using Indian ink in order to see it.</p> <p><b>Results</b> The results show that all of my cultures with the exception of my controls, that I had gram negative bacteria. Foster Farms had about 136 large colonies; Safeway had about 160 small-medium colonies, and Whole Foods, about two small colonies. The controls were all completely clean and absent of bacterial growth. Ninety-five percent of these colonies were non-lactose producers. Under the microscope I examined Foster Farms and Safeway bacterial colonies and found rod-shaped bacteria. I did not see evidence of rod shaped bacteria, or salmonella, for Whole Foods under the microscope.</p> <p><b>Conclusions/Discussion</b> My hypothesis was partially correct. The assumption that Foster Farms and Safeway's chickens could be contaminated with the greatest quantity of salmonella was correct. However, I thought that Whole Foods would have some presence of salmonella. I was wrong. My experiment provides confirmation with government testing statistics that over 20% of processed chickens have some level of salmonella and that there is still a need for better processing techniques in order to prevent chickens to be contaminated with salmonella and other bacterium.</p>	
<b>Summary Statement</b> To determine the presence of salmonella if certain chicken brand contain salmonella.	
<b>Help Received</b> My father supervised my experiment in order to maintain a steril environment and ensure my safety.	