



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Katie N. Fernandes	Project Number J2413
Project Title This Is No Joke, I Want a Darker Yolk!	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to try to achieve darker yolks by adding alfalfa to my hens diet. By the research I had done, xanthophylls are responsible for making the yolks a darker yellow-orange. Alfalfa is a good source of xanthophylls.</p> <p>Methods/Materials Materials:42 Rhode Island Red Hens in full-egg production,Free Range pen divided in half with shelter, nest boxes, fresh water, and feed container for each pen, Alfalfa Hay, Paint chips from a hardward store to compare color of yolks against, and Lay Mash feed. I took a random sample of 6 eggs from the experimental group and control group on day 1. Using a color chart that I made from 10 different paint chips from the hardware store I numbered the chips 1 to 10, lightest to darkest. I recorded the egg yolk colors and graphed the results. 21 hens were in the experimental group that received alfalfa hay and 21 hens were in the contorl group. Samples were taken on day 8, 12, 12, 14, and day 16.</p> <p>Results There was a difference in the color of the yolk due to adding alfalfa to the lay mash. This darker yolk color can be attributed to the higher amount of xanthophylls in alfalfa versus the regular lay mash. I accepted my hypothesis, Adding Alfalfa to Hens Diet Will Wause Their Yolks to Become a Darker Yellow-Orange Than Those Hens Without Alfalfa. The yolks from the hens fed alfalfa were 19% darker in average.</p> <p>Conclusions/Discussion The color of the yolk is important because the people that buy our eggs like to see darker yolks. Our customers state the free-range hens lay a tastier, better egg, and they are a darker yolk than store bought eggs. I would recommend that farms that have thousands of hens add alfalfa to the hens' diet when the yolks are pale yellow. At present this is not common practice. Farmers already add calcium to feed and high protein supplements to the feed when needed. An interesting note is when I fed the alfalfa to the hens, the shell seemed to be thicker and the shell gota darker brown, another thing that customers liked. We now use the results of this experiment for all 100 of our hens. I noticed that the hens that were fed alfalfa picked on each other less, and seemed happier because they had something to do. I also noticed that the alfalfa fed hens seemed to have a thicker, darker shell which is what I would like to continue in another study.</p>	
Summary Statement Feeding Xanthophyll-rich alfalfa to laying hens achieves a desired, darker yellow-orange yolk.	
Help Received Dad helped with setting up the pens, Mom with graphs, and my sister and mom with moving the hens to their new location.	