



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Billy C. Fernandes	Project Number J1910
Project Title It's No Joke, Xanthophylls Make a Difference in the Yolk	
Abstract Objectives/Goals The objective of my project was to find out which of the chosen feeds would change the color of my hens egg yolks. I was interested in finding this out because we have 50 hens and the hens which are housed free range have naturally occurring yolks that are darker than the caged hens. Feed is made up of various ingredients including plant material. Xanthophylls are the pigments found in all plants and are present in varying amounts depending upon the type of plant material. Methods/Materials Twenty-four confined laying hens were used. All of the hens were the same breed, age, and genetically very similar. The hens were then placed six in each group. Three hens per cage to allow for ample room. Each group received free access to water and to their prospective feeds. The amount of light available was also kept constant at 17 hours per day by artificial lighting supplementing natural lighting. Group 1, the control group, received 18% protein Brookhurst brand lay mash. Group 2 received 50% lay mash, 50% grated carrots. Group 3 received 50% lay mash, 50% cracked corn. Group 4 received 50% lay mash, 50% milo. Egg samples were taken from each group on day 1 of the experiment and then every three days thereafter for one month. Colors of yolks were determined by comparison to paint color cards obtained from Sears. Tallies of colors by group were made to determine which independent variable had the most effect on the dependent variable. Results The egg yolks from the hens fed the added corn were the darkest yellow of all the groups, earning a color score of 3.33 out of a possible 5.00. The egg yolks from the hens fed the added carrots were a darker yellow than that of the control group earning a color score of 3.17. The egg yolks from the hens fed the added milo were the same color as the control, which was a color score of 2.83. Conclusions/Discussion My conclusion is that the xanthophylls present in the feeds I chose did make a difference in the color of the hens egg yolks.	
Summary Statement My project was to determine if the xanthophylls present in three different feeds fed to my hens would make a difference in the color of their egg yolks.	
Help Received My mom helped me with graphs.	