



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Justin D. Davis	Project Number J1109
Project Title The Color Pattern Genetics of Polish Rabbits	
Objectives/Goals I have been raising rabbits for 2 years as a part of my 4-H breeding project. I raise Californian and Polish rabbits. This Science Fair project was a result of my interest in breeding Polish rabbits to achieve a specific color pattern. I wanted to learn how to get a specific color pattern on rabbits in my own breeding program. By learning the probability of results using a Punnett square when breeding two rabbits with particular color patterns, I could maximize the desired results in my rabbit litters.	
Abstract Methods/Materials Using the bucks and does in my rabbitry, I bred different color patterns: solid to solid, solid to broken (spotted), broken to broken. I recorded the results from each litter and then compared my results to the Punnett Squares and recorded my results compared to the probable results. I sent an e-mail to rabbitries in the United States and Canada and asked for results from their breedings. Over 20 rabbitries responded with the results from over 50 separate breedings. I then compared their results to the probable results.	
Results The results when I bred solid to solid were exactly as predicted with 100% of the kits being solid. My results when breeding solid to broken was similar to the predicted result: 46% broken and 54% solid, compared to the predicted result of 50% broken and 50% solid. My result when breeding broken to broken was very different from the predicted results: 33% solid, 66% Charlie, and no broken kits, compared to the predicted result of 25% solid, 50% broken, and 25% Charlie. When I added the result from the surveyed rabbitries, the results were similar to my own results except for the results when breeding broken to broken. Those results were more like the predicted results from the Punnett square.	
Conclusions/Discussion Punnett squares can be a helpful tool in predicting the actual results in breeding over time but not necessarily in one individual litter. A single litter may have outliers that skew results. The more results that were added to the breeding statistics in my research, the closer the results were to the predicted Punnett square result.	
Summary Statement My project is about using a Punnett square to help in achieving the desired results when breeding Polish rabbits with specific color patterns.	
Help Received Over 20 rabbitries in the United States and Canada supplied results from their own breeding programs. My Mother helped me laminate my work.	