



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Stephany R. Brundage	Project Number 38148
Project Title Using the C Locus Color Alleles to Prove that <i>Oryctolagus cuniculus</i> Ovulates Extra Eggs with a Subsequent Covering	
Abstract Objectives/Goals The object of this project is to use color genetics to prove that rabbits will either ovulate more eggs when bred a second time 12-24 hours later or that the unfertilized eggs will be fertilized during the second breeding. This is proved using two separate sires that service the does 12-24 hours apart. Methods/Materials To prove my hypothesis, I used a set of nine Californian does (female rabbits) bred to a group of three Californian bucks (male rabbits) and an English Spot buck. Each doe was covered by a buck of one breed, then 12-24 hours later bred to a buck of another breed. I retested and re-bred one Californian doe in the same manner, then used Britannia Petites to test this theory. I was able to isolate the C locus on the Britannia Petites by using a ruby eyed white buck, a seal marten buck, and four ruby eyed white does. The genotype of each rabbit used in this experiment was tested using the conclusions of a previous science fair project. Results My first set of results shows litters from only one sire in all 8 tests. The second set of results shows litters from only one sire in all 5 tests. Of the 13 does that had litters, each one had a litter from the first buck they were bred to. Overall, the results were inconclusive. Conclusions/Discussion The results of this project proved that it is not common for does to ovulate a second time. With my results, I was able to prove that less than 8% of does ovulate extra eggs or have unfertilized eggs left over. To establish a proper control, all does were completely unrelated and of two different breeds. This project can be applied to rabbits being raised to preserve an endangered breed or for a food source, where access to viable sperm is limited. Using this project, I was able to conclude that it is more effective to breed more does with the same buck rather than servicing the same doe multiple times.	
Summary Statement I attempted to prove that the domestic rabbit will ovulate extra eggs when bred a second time 12-24 hours later, but was proven negative.	
Help Received None. I designed and coordinated the experiment myself.	