CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
J1209

Project Title
Color Genetics of the Netherland Dwarf Rabbit

Abstract

Objectives/Goals
The purpose of this experiment was to test the accuracy of "The Rabbit Register" computer program's calculation of offspring produced from a chestnut to black otter breeding. The hypothesis tested was based on The Rabbit Register's prediction that there would be an average of 43% chestnut (agouti pattern gene) and 8% black otter (tan pattern gene) offspring produced in the litters.

Methods/Materials
There were 6 senior (older than 6 months) bucks and 9 senior does bred in this experiment resulting in 9 litters. There were 15 large cages to house each rabbit, and each doe bred was supplied with a large nest box so they could each make a nest for their young.The total number of offspring, the number of chestnut offspring, and the number of black otter offspring produced were put into a chart, and averaged together to find the average percentage of chestnuts and black otter offspring produced.

Results
The average percentage of chestnut variety offspring produced was 61%, and the percentage of black otter offspring was 39%. The experiment showed that the ladder of dominance and the laws of inheritance came into play, however, not in the ratios predicted by The Rabbit Register. These results show that through individual litters, the computer prediction won't always be correct, but if you look at all the litters combined, you can see a more accurate representation of the dominance of the agouti pattern gene over the tan pattern gene.

Conclusions/Discussion
The results did not completely agree with the hypothesis, since 43% chestnut and 8% black otter offspring was predicted to be produced, while the results were 61% chestnut and 39% black otter offspring produced. I learned that the more rabbits bred and litters produced, the more accurate the computer program's calculation will be. Information provided through this project shows how important sample size is in the science of studying genetics and the prediction of certain outcomes of controlled breedings.

Summary Statement
I studied the color genetics of the Netherland Dwarf rabbit by testing the computer program "The Rabbit Register"'s accuracy in its prediction of offspring being produced from breeding a chestnut to a black otter.

Help Received
I did not receive any assistance accept for the pie chart, which I needed my dad to show me how to create the pie chart and enter the data into the chart.