CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)

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Project Number

34584

Project Title

The Relative Tensile Strength of Equine Hair as Relates to Coat Color Genetics

Abstract

Objectives/Goals

The purpose of my project was to determine which color of hair, from the tail of a horse, is the strongest, and whether or not that relates to coat color genetics. Because of my research, last year, on human hair, I believed that the darker hair would be stronger. In addition, because the coat color genetics play such a strong role in the varieties of horses, I believed the tensile strength would be related to the coat color.

Methods/Materials

I did this by collecting hair samples from 14 horses and testing the tensile strength of 8 strands of tail hair from each horse. I then averaged the tensile strength of each horse's samples and compared them to the other horses.

Results

What I found was that the strength of the tail hair depends on the coat color type, not the color of the tail hair itself, which was not what I expected.

Conclusions/Discussion

I expected that the coat color genetics would cause all darker hair to be stronger because of the density and particle make-up of the shaft, which causes the refraction of light and creates the color. Instead, I found that the coat color genetics cause the color and strength to vary throughout coat color types. In other words, dark hair in one coat color type may be stronger than one dark hair in another coat color type just as light hair in one coat color type may be stronger than dark hair in another coat color type.

Summary Statement

My project is to test if color effects the tensile strength of equine tail hair and whether or not that relates to coat color genetics.

Help Received

Supervised by Brie Wilson during the collection of the tail hair from the horses.