CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
J1713

Project Title
The Battle Continues

Abstract

Objectives/Goals
Mastitis is the most common disease among dairy cattle, as well as being the most costly. The purpose of this project was to examine the cost and time effectiveness of treating gram negative Escherichia coliform (E. Coli) mastitis in the bovine species.

Methods/Materials
90 lactating Holstein cows that tested positive for E. Coli mastitis using bovine blood agar culture plates were placed in two groups based upon whether their identification number was odd or even. Then, they were further categorized as having either grade one (fever or swelling of the mammary system) or grade two (fever and swelling of the mammary system) E. Coli mastitis. Cows with odd identification numbers received the antibiotic Spectramast LC, while those with even identification numbers received no antibiotics. The number of visits to the hospital parlor, cost of medication, and the amount of lost milk revenue was monitored and recorded.

Results
Grade one mastitis cows who received medication had had more visits (M=16.1) compared to grade one mastitis cows who received no medication (M=10.7). Grade two mastitis cows who received medication had more visits (M=16.9) to the hospital parlor compared to grade two mastitis cows who received no medication (M=15.7). The cost to treat grade one mastitis cows on medication was higher (M=$118.47) compared to grade one mastitis cows not on medication (M=67.92). The cost to treat grade two mastitis cows on medication was higher (M=$125.02) compared to grade two mastitis cows not on medication (M=$98.97).

Conclusions/Discussion
The use of antibiotics to treat cows infected with gram negative Escherichia coliform mastitis is more costly and time consuming, especially in those with grade one E. Coli mastitis, suggesting that it may be more economical to allow the infected cows to self cure on their own without the use of antibiotics.

Summary Statement
In my project, I proved that it is neither cost nor time effective to treat gram negative E. Coliform mastitis with intramammary treatment.

Help Received
My father and I were the only two people to give the antibiotics during the study. Cornell University and University of Wisconsin-Madison provided me with background research for my project. My mother helped me to fill out all the necessary forms and applications. My instructor helped me to submit my