CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)
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Project Number
J2214

Project Title
The Chicken and the Egg: Solar Lights in Chicken Coops Can Double Food Supply for Families in Third World Countries

Abstract

Objectives/Goals
Chickens need 14 hours of light to lay the the optimal amount of eggs. They get this in the summer, and lay over twice as many eggs then. My goal was to trick the chickens into laying the optimal amount of eggs in the winter by adding three hours of extra light to their coop at night. My hypothesis is that I believe the additional light will cause them to lay like they do in the summer.

Methods/Materials
The materials in my project were 5 chickens, a 40 watt bulb, an extension chord, and a chicken coop. I collected the eggs in the winter, before I added light in their coop, and recorded my findings. Then I added a 40 watt bulb in their chicken coop, and as it got dark at 5:00p.m. I then turned it on. Three hours later, at 8:00p.m., I turned it off. I checked the eggs in the morning, and recorded my findings. I continued doing this for the next three weeks.

Results
The results show that since I added the extra light to the chicken coop they started laying as many eggs as they do in the summer. Most of the time I get five eggs again, as opposed to two or three eggs. This is now one egg per chicken again. The extra light stimulates the pituitary gland behind their eyes, which creates a hormone that gets sent to the overies. This sets egg production in motion.

Conclusions/Discussion
My conclusion shows that chickens can be tricked into laying the maximum amount of eggs by adding extra light into the coop at night during the winter. This makes them think it's a 14 hour day, which they need in order to do this. Chickens are born with a quota, or a certain number of eggs they will lay in their lifetime. If the extra light is added every winter they will meet their quota earler in their life, and they will stop laying at a younger age. If the U.S. donated small, inexpensive solar lights to hungry families in third world countries, who may only have chickens as their main food source, these families could double their egg production daily. Doubling the amount of eggs could make a big difference in the lives of these parents who struggle to feed their children.

Summary Statement
Adding inexpensive, U.S. donated solar lights to chicken coops in the winter can double the amount of eggs to help feed hungry families in third world countries, who may only have chickens as a food source.

Help Received
I interviewed the staff at Cowboy Corral, in Yucca Valley. They suggested turning the light on in the morning because the light going off at night could give them anxiety. I made the decision to turn the to turn light on at night. Otherwise, I would have to shut their door, and I thought that could give them