CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
J1015

Project Title
How Do Probiotics and Housing Affect Growth Rates in Dairy Calves?

Abstract

Objectives/Goals
The objective was to determine how a new probiotic calf powder and plastic polymer hutches affect the growth rates in newborn calves. My hypotheses stated that if newborn calves are fed the probiotic calf powder then they will grow faster than those not fed the probiotic calf powder, and if newborn calves are housed in plastic polymer hutches their growth rate will be better than those housed in wooden hutches.

Methods/Materials
Twenty calves were tested. Five were given 1 gram probiotics per day and raised in plastic polymer hutches, and five were given 1 gram probiotics per day and raised in wooden hutches. Five were not given probiotics and were raised in plastic polymer hutches, and five were not given the probiotics and raised in wooden hutches. I tested on a weekly basis for 8 weeks. Each week all calves were measured for height, weight, and girth. They were also assessed for health using a rubric.

Results
Calves fed the new probiotic and housed in plastic polymer hutches had higher growth rates and were healthier than the calves not fed the new probiotics and raised in wooden hutches. The four groups ranked as follows:
1. Probiotics and Plastic Polymer Hutches
2. Probiotics and Wooden Hutches
3. No Probiotics and Plastic Polymer Hutches
4. No Probiotics and Wooden Hutches

Conclusions/Discussion
Dairy producers are looking for preventative health products. They are very aware of the public#s perception of using antibiotics to treat sick calves, and treating the calves adds to expenses in medicine and labor. It is important to keep dairy calves healthy in their early stages. Ten percent of calves die before they reach maturity, due to poor management, poor housing, or bad nutrition. With good management, the death loss may be lowered to only three to five percent. Calves also cost a lot of money. Newborns can cost up to $400.00. By the time a heifer is ready to calve, she is worth $1,800 to $2,500. For every calf that dies, the producer loses not only that asset, but also potential income.
I found my hypothesis to be correct. The new probiotic proved to be a very worthwhile product as did the plastic polymer calf hutches. My project studied two variables, because I was comparing a new protocol (plastic polymer hutches and probiotic calf powder) for raising calves versus the traditional protocol (wooden hutches and no additives).

Summary Statement
My project is about helping dairy producers in raising healthy, strong calves through probiotics and housing.

Help Received
Mr. John Zmich, Dr. Bob Charley, and Mr. Roland Pourier explained how the probiotics work, used calves from Mr. Jim Wilson's herd, Dr. Claude J. Phene, Ph.D., explained statistical analysis to me, Dr. Jacqueline A. Reese, DVM, provided research information, Dad helped me find research information and