CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J0811

Project Title
Which Are More Efficient in Flood Prevention: I-wall or Earthen Levees?

Abstract

Objectives/Goals
In my experiment I tested which type of levee is more efficient in flood prevention, an I-wall or an earthen levee. I hypothesized that the I-wall levee would hold longer.

Methods/Materials
To test this question I built each type of levee in a separate container. Each container was separated into a river side and a land side by the levee. I poured water into the river and checked the moisture level on the land side every 0.95 liters. I repeated each experiment three times to insure the accuracy.

Results
My hypothesis was proved incorrect. Surprisingly the earthen levee held longer than the I-wall levee. It took an average of 8.2 liters of water for the I-wall levee to fail, and the earthen levee 15.1 liters of water to fail.

Conclusions/Discussion
The earthen levee failed due to the soil and peat moss above the clay giving way. The I-wall levee failed from below through the aggregate. I am surprised my project turned out this way.

Summary Statement
My project analizes the stability of I-wall and earthen levees in order to compare their flood prevention capabilities.

Help Received
Mother supervised on-line research; Mother helped shop for materials; Father cut aluminum I-wall;Cousin and mother helped me form clay core; Mother poured water while I made observations and documented results; Mother emptied heavy container after every test.