



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Stacie R. Woo	Project Number J0633
Project Title What Can Be Put On or In Soil to Help Prevent Mudslides?	
Abstract Objectives/Goals The purpose of my project was to find what type of hillside had the least amount of mudslide. The different types of hillsides used were clay, topsoil on clay, topsoil and grass on clay, topsoil and grass and trees on clay, and topsoil and trees on clay. Since so many people lost their lives this year as a result of mudslides, I wanted to find a way to help prevent mudslides. Methods/Materials I formed a hillside with a 45° slope out of clay dirt. On 4/5 of the hillside, I pressed wet topsoil onto the clay. On 2/5 of the hill (with topsoil already), I put grass and the topsoil that its roots were in. On one of the sections with grass, I put in toothpicks to act like tree roots. I also did this for one of the remaining sections with only topsoil. Drawings of trees were propped above the toothpicks. 35 pieces of paper were labeled according to the time and which section it would show results for. One paper was put under each section and a small piece of wood was used to hold them down. A table with holes on the top was put over the hill. A piece of screen was placed on top of the table. Four liters of water was poured from a bucket through the table and screen to evenly "rain" over the five sections. The papers from the bottom of the hill were removed and placed aside to dry. This process was repeated in an hour, and then every half-hour after that until all the data-collecting papers were used up. After the data dried, each of them was put in an individual Ziploc bag and labeled with the time and section of hill it was from. All the bags were weighed and the average weight of each section was found. Results The section consisting of topsoil with grass and trees on clay had the least amount of mudslide. The section with topsoil and grass on clay had the next least amount of mudslide. Conclusions/Discussion The direct impact of rain upon the ground causes mudslides. Topsoil on hills, with no plants present, will wash away in the rain and result in mudslides since it absorbs water more and is not really stuck to the clay dirt. Trees, plants, and roots help hold the soil in place. Trees, grass, and plants act like a shield so the rain does not impact the topsoil with such a hard force. The amount of mudslide is determined by the amount of plants and roots in and on the ground - the more of them, the better protection a hill has from impact-caused mudslides.	
Summary Statement In this project, I worked with five different types of hillsides on a single hill, made it "rain", and found which type of hillside had the least amount of mudslide occur.	
Help Received Dad helped think of this subject; Mom helped take pictures.	