CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

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Project Number

22898

Project Title

Melting Mountains: The Process of Erosion

Abstract

Objectives/Goals

My project was to determine if hillside vineyards covered with a layer of mulch will have less erosion than soil covered with straw, seeded with erosion control mix or left unprotected during the winter rain| season.

Methods/Materials

Four plastic planting trays were filled with the same amount of top soil and placed on a 3:1 grade. The trays were exposed to natural rainfall and buckets collected the runoff from each tray. The trays represented the 3 different types of erosion control methods used in vineyards in Mendocino County. One soil sample was left bare. At the end of the test period the sediment was collected, dried and weighted| The total erosion from each of the soil planting trays was compared based on grams per tray and top soil| loss in tons/acre/year.

Results

The soil protected by the mulch had less erosion than the trays protected by other methods. The tray covered with mulch had a sediment loss of 0.994 grams; the control tray of bare soil had a sediment loss| of 5.73 grams. Based on the rainfall from 7/1/01 to 3/30/02 for Boonville, CA, the estimated top soil loss would have been: 0.34 ton/acre/year for soil protected with mulch and 1.94 tons/acre/year for bare soil.

Conclusions/Discussion

My conclusion is that soil protected by mulch has significantly less erosion when compared to other erosion control methods or to soil left bare and unprotected over the winter rainy season.

Summary Statement

My project is about the best erosion control method for use on hillside vineyards.

Help Received

The Mendocino County Farm Supply donated the cover crop seed mix. Myers Apothecary weighted my sediment on their gram scale. My mother taught me how to build a 3:1 frame and buying the materials for my project. My mother helped me refine my question, type and edit my report.

Preliminary