



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Megan Lynn Lopez	Project Number J0804
Project Title Conserving Water and Minimizing Nitrogen Pollution Caused by Nitrate Leaching	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Nitrogen Pollution is caused by the leaching of nitrate fertilizers. When watering plants, much of the water is not absorbed and drains through the soil. As the water flows downward, it leaches away the nitrate fertilizers. This water eventually flows down into the water table and out into other water systems like rivers and lakes. Nitrates serve as plant food. When they accumulate in these water systems, they cause a sudden growth of plants. Eventually, these plants die and decay. As they decompose, the oxygen in the water is used up and other aquatic life dies because of the lack of oxygen. This experiment looked into using a drainage system that can recapture the unused water that normally flows down through the soil and into the water table. This would minimize the amount of nitrates that reach the water table. If the recaptured water is collected, it can be used again to water the plants. The experimenter created a planter system with a drainage channel to collect the excess water applied during irrigation. The experiment's objective was to determine the best angle to set the drainage channel at to maximize the amount water collected.</p> <p>Methods/Materials To test the idea on a small scale, the experimenter created a planter in a rain gutter and added a drainage channel. The drainage channel was simply a layer of rocks in the soil separated from the soil with felt pads. Since water flows in the path of least resistance, the idea is that it will flow sideways through the rocks instead of down through denser soil. The experiment's objective was to determine the best angle to set the drainage channel at to maximize the amount water collected.</p> <p>Conclusions/Discussion The experimental results showed that a drainage angle of one degree was optimal. This allowed for approximately 50% of the water to be recaptured. Angles greater than one degree only increased this percentage slightly. Angles less than one degree resulted in significantly smaller percentage of the water being recaptured.</p>	
Summary Statement This experiment evaluated the effectiveness of using a drainage channel under the soil to recapture any excess water during the irrigation of plants.	
Help Received Father helped me to buy and setup the project.	