



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Preston J. Swovelin	Project Number S1711
Project Title The Best of Both Worlds	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project is to achieve the best of both worlds for a C3 plant. This means that the C3 plant would act as a C4 and a CAM plant in the sense that the rate at which it normally absorbs water would be decreased.</p> <p>Methods/Materials By de-soiling the pothos I am able to determine exactly how much soil (20.4 g) and water (30 mL) was going to be used. In addition, placing the plants in test tubes would make it possible to measure how much water is being absorbed. However, that would not be complete true because of the water evaporating, so a extra test tube with just 20.4 g of soil and 30 mL of water was used to determine the rate of evaporation. Fifteen pothos were used and were order like this: Plants numbers 1-3 were used as the controls. Plants numbers 4-6 were coated with pure jojoba oil but only on the top of the leaves. Plants numbers 7-9 were coated with pure jojoba oil on the tops and bottoms of the leaves. Plants numbers 10-12 were coated with refined jojoba oil but only on the top of the leaves. Plants numbers 13-15 were coated with refined jojoba oil on the tops and bottoms of the leaves. All fifteen of the test tubes, including the test tube lacking a plant, were placed under two plants light for approximately 1 week's time in a typical southern California day.</p> <p>Results In the end, plants numbers 4-6 consumed the least amount of water by only absorbing 0.007 cm/hr compared to that of plants numbers 10-12 which absorbed 0.0014 cm/hr. Which right now doesn't seem particularly great but in the long run could be quite cost effective.</p> <p>Conclusions/Discussion In conclusion, my hypothesis was correct, the pure jojoba did prove to be better than the refined, but not by much. The refined jojoba actually demonstrated to be slightly worse than the control group. After calculating the rate of evaporation, I was able to determine that plants numbers 4-6 proved to be the best in not needing as much water. The average rate of absorption for these plants were 0.007 cm/hr, which is only 0.001 less than the control group but in long run could prove to be quite cost effective.</p>	
Summary Statement By applying a spray of liquid wax to plants' leaves, one is able control the rate of H(2)O evaporation from the leaves, which in turn decreases the rate of H(2)O absorption through the roots.	
Help Received No help was received	