



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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Project Title Going Green While You Clean	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We wanted to test the claims that major name-brand detergent companies put on their bottles. We wanted to see if the "greener" washing detergents actually yield a a less harmful effect on plant life and worm life.</p> <p>Methods/Materials Materials: -Bait Worms -Young Pea Plants -Clothing Detergents (2 regular and 2 #green#) -Identical Party Cups -Soil -Water -Foil -Stereomicroscope -Spray bottles -Graduated Cylinder -Sharpie pens-Camera -Masking tape First, we calculated through proportions how many mL of detergent we needed to create a 10% and 25% concentration for each detergent (we used Tide, All, Method, and Seventh Generation). After we measured these amounts, we mixed them with water in our pre-labeled bottles. We had designated plants and worms to each bottle and we watered every other day. We made sure to keep the plants and worms in the same, appropriate area and make observations. At the end of our two week experiment, we took our experiment plants and worms for observation at our biology class lab.</p> <p>Results The "greener" detergents were Seventh Generation and Method. The "regular" detergents were Tide and All. The plants from the "regular" detergents were dried out, but still had a few hydrated sprigs left. The worms were slower in reaction but showed no tissue damage. The plants from the "greener" detergents were in a noticeably worse condition as their leaves were dried out, bases were deteriorating, and their worms had slower reactions and worse physical damage. The worst detergent on both worms and plants was Method and the best was All.</p> <p>Conclusions/Discussion Our results contradicted our hypothesis because the "greener" detergents ended up causing more harm. We made the hypothetical situation of dumping grey water into the earth and seeing what would happen. The point of this experiment is to prove that even if these detergents claim to be "greener", they are still concentrated chemicals that have an environmental impact.</p>	
Summary Statement To see if "environmentally-friendly" detergents caused less environmental harm in the form of grey water.	
Help Received Freshman Biology Teacher (Ms. Coleman) provided lab equipment and advice, Current Chemistry teacher (Ms. Gluckmann) helped guide and regulate our project's progress, All parents helped purchase materials and provide rides, Sacramento Science Fair provided trifold.	