



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Andrew A. Palosaari	Project Number J0921
Project Title Save Money and Stop Pollution: Cost-effective Gardening While Maintaining an Earth Friendly Environment	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is to determine the most cost-effective, least polluting fertilizer and soil combination for the backyard gardener to save money and minimize environmental impact.</p> <p>Methods/Materials Plants were grown in premium potting soil, clay and sandy soil (with and without homemade compost) using liquid and solid fertilizers with optimal N-P-K(18-6-12) ratios to determine cost-effectiveness and pollution levels. Plant size and weight was collected from multiple pea and radish plant samples. Aquarium water test kits were used to detect pollution levels. Average test results were computed by eliminating outliers using standard deviation computations, as appropriate.</p> <p>Results The results of this experiment show that overtime, liquid and solid fertilizer will produce the same crop size, and in a typical yard you can save over \$100 per year by using solid fertilizer. Test results also show that liquid fertilizer runoff has significantly higher phosphate levels and higher acidity levels than solid fertilizer. Nitrite and nitrate pollution levels were not detectable. Clay soil amended with homemade compost is the most cost-effective soil, producing plants that average up to eight times larger than those grown in other soils, and in a typical yard provides a savings of approximately \$14 per year.</p> <p>Conclusions/Discussion By combining the results of this experiment as a value function of fertilizer and soil, it has been proven that using solid fertilizer and clay soil amended with homemade compost is the most cost-effective and environmentally friendly way to garden.</p>	
Summary Statement The central focus of this project is to determine the most cost-effective combination of fertilizer and soil that minimizes runoff water pollution.	
Help Received Father helped proof-read report and identified data analysis tools; Mother bought supplies	