



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ian M. Singleton</b>	<b>Project Number</b> <b>J0926</b>
<b>Project Title</b> <b>The Leaching of Soil Nutrients from Synthetic and Natural Fertilizers</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this experiment is to find out which type of soil fertilizer, organic or synthetic, will leach the fastest when water passes through the soil, mimicking different amounts of rain.</p> <p><b>Methods/Materials</b> Using the Rapitest soil test kit, along with 100 capsules of potash, phosphorus and nitrogen testing powder each, test 2 different type of soil, clay and mildly fertile, with 2 different type of organic and synthetic fertilizer. Test each initial soil for nitrogen, phosphorus and potash. Test each soil (5 cups each) again after it is fertilized with each fertilizer(1 times the amount, 2 times the amount and 3 times the amount of fertilizer). Place one cup of the fertilized soil, in each of the 4 filters/ funnels draining the water into bucket. Slowly pour two cups of water in each of the four funnels. Once the water has drained out, take the soil from each funnel and test. Take one of the bucket the water drained into and test. Repeat the same process for 2 times the fertilizer but pouring 4 cups of water into each funnel, and 3 times the fertilizer but pouring 6 cups of water. The whole process will be repeated again for each fertilizer, for each soil.</p> <p><b>Results</b> The results between the synthetic and organic fertilizer were very close. In the soil testing the nitrogen never went up, no matter how much fertilizer you added. It always stayed in the deficient-depleted zone. Also there was no organic nitrogen in the water test, but there was a little bit of synthetic nitrogen in the water test. The other nutrients went up when you added more fertilizer in the soil. Here are the average of the nutrients in the soil mixed with fertilizer, organic or synthetic after water has passed through it. The soil was tested 24 times with organic fertilizer and 24 times with synthetic.  Based on the water test more synthetic nitrogen leached than the organic nitrogen. The results for the other nutrients were close</p> <p><b>Conclusions/Discussion</b> My hypothesis was half correct: the synthetic fertilizer leached more, but only by a small amount. The synthetic nitrogen is the only nutrient that leached more than the organic nutrient. The other two nutrients, phosphorus and potash did not have a significant difference between synthetic and organic nutrients. To continue with this experiment I would want to use more precise laboratory equipment to test for nutrients.</p>	
<b>Summary Statement</b> To find out which type of soil fertilizer, organic or synthetic, will leach the fastest when water passes through the soil, mimicking different amounts of rain.	
<b>Help Received</b> Father made the 2 holes in each of the board, mother helped with laying out the first chart	