



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Olivia R. Bobrownicki</b>	<b>Project Number</b>  36865
<b>Project Title</b> <b>Fighting Fertilizers</b>	
<b>Objectives/Goals</b> The objective of this study is to test the impact of fertilizer on soil and fresh water in terms of water retention, run off, and acidification. <b>Abstract</b> <b>Methods/Materials</b> Three types of organic fertilizer, six types of chemical fertilizer (including three commercial variations), ninety six plastic containers, one hundred API pH test strips, top soil, fresh lake water, scale, fescue sod. Planted sod in uniform draining containers, in triplicate for each kind of fertilizer and a control, collected and emptied the runoff and water for two weeks, tested the pH of and measured the runoff on the final day before adding it to lake water, and retesting the pH. <b>Results</b> Fertilizers designed for home use (both chemical and organic) did not significantly decrease the water's pH, and had the similar quantities of runoff despite their composition. Commercial fertilizers, which were all chemical fertilizers, decreased the pH of runoff from their dish by as much as two points on a nine point scale. The greatest quantity of run off produced by home use fertilizers was 165 ml, while commercial fertilizers had a high run off of 210 ml. The control which did not contain fertilizers, had a constant pH of 9 through each trial. <b>Conclusions/Discussion</b> Commercial fertilizers decreased water retention in soil and increased the acidity of the soil's run off, in turn acidifying lake water. Organic and home-use chemical fertilizers did not significantly affect the soil's run off or other qualities. This means that these kinds of fertilizer are best for the environment due to their lesser impact.	
<b>Summary Statement</b> I demonstrated that high-nitrogen chemical fertilizers increase run off and acidify lake water.	
<b>Help Received</b> None. I designed, built, and preformed my experiment independantly.	