



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> Isabella V. Worley	<b>Project Number</b> <b>J2221</b>
<b>Project Title</b> <b>Investigating the Effectiveness of Natural Herbicides in Killing Pest Plants</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this study is to investigate the effectiveness of natural herbicides in killing pest plants. <b>Methods/Materials</b> Sprayed the labeled and sectioned off areas of pest plants with: 20% vinegar plus dish soap 5% vinegar plus dish soap 20% vinegar plus orange oil plus dish soap 5% vinegar plus orange oil plus dish soap 22% ammoniated soap of fatty acid Then observed and took pictures at hours 0,6,9 and days 1 to 14 and day 60. <b>Results</b> I found that 22% ammoniated soap of fatty acids worked the fastest and was the most effective at 14 days followed by 20% vinegar plus dish soap, and then 20% vinegar plus orange oil plus dish soap. The combinations containing the 5% vinegar were not as effective. At 60 days, the 20% vinegar plus orange oil plus dish soap was the most effective followed by 20% vinegar plus dish soap, and 22% ammoniated soap of fatty acid. The combinations containing the 5% vinegar showed complete regrowth of pest plants at 60 days. <b>Conclusions/Discussion</b> Natural herbicides containing 22% ammoniated soap of fatty acid and the combinations containing the 20% vinegar are effective in killing pest plants. This means that there are some greener and safer natural herbicides that are effective and can be considered as alternatives to commercially available chemical herbicides.	
<b>Summary Statement</b> I found that natural herbicides are effective in killing pest plants.	
<b>Help Received</b> My science teacher provided some guidance in finding the research material.	