



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Isabella V. Worley	Project Number J2221
Project Title Are There Effective Alternatives to Full Strength Roundup?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I wanted to see if there are effective alternatives to full strength Roundup. If weeds are treated with various herbicides, my hypothesis is that ammoniated soap of fatty acid will be the most effective in killing weeds</p> <p>Methods/Materials I sectioned off 6 plots of weeds and sprayed the first section with a combination of 20% vinegar, orange oil, and soap, the second section sprayed with ammoniated soap of fatty acid, the third section sprayed with 20% of full strength Roundup, the fourth section sprayed with 50% of full strength Roundup, the fifth section sprayed with full strength Roundup, and the sixth section was the control. To avoid cross contamination each ingredient had its own sprayer. I observed and took pictures at hour 6, days 1 to 14, 21, 28, 35, 42, 49, and 56. I rated how each section did using a scale.</p> <p>Results Both natural herbicides showed rapid results, however, both did not have lasting effects due to regrowth of weeds occurring at the end of experiment. 20% vinegar, orange oil, and soap appeared dead at Day 1, while ammoniated soap of fatty acid appeared almost dead at hour 6. In both natural herbicides, regrowth of weeds started at Day 7. 20% of full strength Roundup showed no effectiveness throughout the experiment. 50% of full strength Roundup and full strength Roundup showed similar effectiveness on weeds at the end of experiment. Both 50% and full strength Roundup showed slow onset of killing weed and both showed no regrowth at end of experiment.</p> <p>Conclusions/Discussion The two natural herbicides had the quickest onset in killing weeds but regrowth of weeds occurred after 1 week. 50% of full strength Roundup showed similar effectiveness to full strength Roundup in how fast it worked on the weeds and how effective it was in killing weeds. In conclusion, only 50% of full strength Roundup and full strength Roundup appeared to be completely effective at the end of my experiment.</p>	
Summary Statement My objective is to see if there are alternatives to full strength Roundup.	
Help Received	