



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Casey M. Campos	Project Number J2305
Project Title How Does Herbicide Temperature Affect the Killing of Undesirable Plants?	
Abstract Objectives/Goals The purpose of my science fair project is to discover a less toxic and less expensive way to kill undesirable plants by altering herbicide temperature before its application. Methods/Materials Fescue sod was placed into four labeled trays, and each tray was divided into six sections (creating 24 test sections). 75% of the recommended dosage of Roundup herbicide was poured into a spray bottle and unheated water (67 degrees Fahrenheit) was added. The mixture was then sprayed (three controlled squirts per section) onto the grass using a spray shield, controlling any overspray. The grass was observed for signs of herbicide effectiveness. This procedure was repeated for each variable: water heated to 160 degrees Fahrenheit (F) and water heated to 200 degrees (F); and the mixture sprayed onto the sod in the same manner. Each variable, like the control group, had 24 test sections. Results The least effective diluted herbicide was the control group of an unheated mixture that turned the grass yellow, but never actually killed the grass. The grass also showed signs of rejuvenation after initial yellowing. The most effective diluted herbicide was the second variable heated to 200 degrees Fahrenheit. This mixture took eight days to completely burn/kill the targeted grass and the surrounding areas. Overall, the diluted herbicide at a temperature of 160 degrees Fahrenheit was 71% more effective than the control trials at killing the undesirable plants, and the diluted herbicide heated to 200 degrees Fahrenheit was 92% more effective at killing the unwanted plants. Conclusions/Discussion My conclusion is that herbicide temperature plays an important role in its effectiveness. People who spray their weeds can use less of the herbicide mixed with water heated to 160 degrees Fahrenheit or warmer to increase the effectiveness of killing unwanted plants. This experiment suggests that people can save money and reduce chemicals released into the environment by using hot water to dilute concentrated Roundup.	
Summary Statement Heating an herbicide while using 25% less of the recommended dosage is extremely effective at killing undesirable plants.	
Help Received Mother helped lay-out board and took pictures while I did the procedure	