



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anna Jessmer; Jaimie Thomas</b>	<b>Project Number</b> <b>S1416</b>
<b>Project Title</b> <b>Less-Toxic Herbicide Alternatives</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of our project was to determine which of four less-toxic herbicide alternatives would kill Bermudagrass most efficiently over a five-day period. We believed that St.Gabriel Laboratory's Fast Acting BurnOut Weed and Grass Killer would work most effectively due to its technique of killing vegetation through a burn-down process by binding to the plant cell structure.</p> <p><b>Methods/Materials</b> We divided fifteen sections (25.4 x 38.1 cm) of Bermudagrass using 20.7 meters of wood strips to segregate the areas. Each of the following alternatives were used on three separate sections: St.Gabriel Laboratory's Fast Acting BurnOut Weed and Grass Killer (vinegar and lemon juice components), Bioganic Weed and Grass Killer, (eugenol oil), Safer Brand Weed and Grass Killer (potassium salts), and 4.5 liters of boiling water (per square). Three squares were left untouched as our control. To fully protect ourselves during application, we wore work gloves, safety glasses, long sleeve shirts, and long pants. We took photos of the Bermudagrass patches immediately after the initial application and the following five consecutive days.</p> <p><b>Results</b> On day-five of our testing period, Safer Brand Weed and Grass Killer had killed and disintegrated all the grass, leaving exposed soil behind. St. Gabriel Laboratory's Fast Acting BurnOut Weed and Grass Killer had killed all the grass and caused the majority to dry up, leaving partially exposed soil. Bioganic Weed and Grass Killer had killed the grass and it had just started to break down to expose soil. Boiling water killed the grass but the majority of the dead debris remained. In our control areas, where no alternatives were applied, the grass had stayed healthy.</p> <p><b>Conclusions/Discussion</b> After the five-day period Safer Brand Weed and Grass Killer had killed the grass most efficiently. Our hypothesis was incorrect. Although St. Gabriel Laboratory's Fast Acting BurnOut Weed and Grass Killer had killed the grass well, it just didn't do it as quickly as Safer Brand. Even boiling water killed the grass. The fact that all four methods killed the grass proves that less-toxic alternatives work well. Highly toxic herbicides, which can harm human health and the environment, aren't as necessary as people assume them to be.</p>	
<b>Summary Statement</b> Our project tests the effectiveness of less-toxic herbicide alternatives on Bermudagrass over a five-day period.	
<b>Help Received</b> Jaimie's mother (a Master Gardener) suggested research materials during our interview with her.	