



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

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Project Title The Effect of Rain pH on Ryegrass	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment was to ascertain the pH level at which ryegrass would begin to show noticeable tissue destruction.</p> <p>Methods/Materials 30 flats of ryegrass were grown and divided into five treatments of different pH levels. The pH concentrations were created using distilled water and vinegar to simulate acid rain. The pH was measured using pH paper. Each flat was sprayed using a spritzer bottle with 280 mL of solution over a period of a week. Each application was applied until water was running off the blades. After each application, plants were observed and any damage was recorded.</p> <p>Results The flats that were sprayed with a concentration of 49 parts water: 1 part vinegar (pH: 3.5) showed the first signs of tissue deterioration. The 2:1 concentration (pH: 3) showed significant reduction in chlorophyll. The pure vinegar solution (pH: 2.5) resulted in the death of the plants.</p> <p>Conclusions/Discussion The results indicate that in short-term time periods, acid rain does not become dangerous for ryegrass until it reaches a pH level between 3.0-3.5. Since rain pH of 3.0 has been measured on the West Coast, our data suggest that this could be harmful to plant life.</p>	
Summary Statement This project was done to determine the rain pH at which ryegrass begins to show damage.	
Help Received Teacher edited manuscript and provided instructions on cultivating grass.	