



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Regan M. O'Hara	Project Number J1523
Project Title Effect of Glucose Levels in Onions: Does the Amount of Sugar in an Onion Affect How Much You Cry when Chopping Onions?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Sometimes when I chop onions, my eyes get really irritated. I would like to know why onions irritate your eyes and why some onions cause more irritation than others.</p> <p>Methods/Materials Materials: 2 Sweet Maui Onions; 2 Yellow Onions; 2 Red Onions; 2 White Onions; 6 Shallots; 1 Clean, Sharp Knife (9# MAC Mighty brand used by professional cooks) at Room Temperature; 1 Plastic Cutting Board; Glucose Test Strips Methods: 1. Peel test onions and place in zip lock baggies; 2. Brush a glucose test strip against each of the onions (use a separate, clean test strip for each onion.); 3. Record the glucose level of the onion; 4. Call test subject into room; 5. Explain irritation rating scale to test subject; 6. Have test subject commence with the experiment on each onion using the following procedure: Remove onion from bag #1; Cut a chunk of onion from the larger onion piece; Replace larger onion piece into bag; Commence dicing of test chunk using a clean sharp knife and clean cutting board; Dice onion for a period of 60 seconds (a stop watch was used for timing); Report level of irritation based on irritation scale of; Record results on record sheet and compare the results; Repeat above steps for each kind of onion. (Note: After all five onions were evaluated by each test subject, they were allowed to make adjustments to their irritation level ratings based on irritation experienced relative to the other onions.)</p> <p>Results The Yellow Onion (Onion #3) had the least amount of sugar with a level of 100/5 and the lightest green test strip color. The average irritation level for this onion was 3.2, the highest of all of the onions. The Red Onion (Onion #1) was in the 100/5 range of glucose. The average level of irritation for this onion was 2.8. The Shallot (Onion #4) was in the 100/5 range of glucose. The average level of irritation for this onion was 1.8. The White Onion (Onion #2) was in the 250/15 range of glucose and the average irritation level was 1.6. The Sweet Maui Onion (Onion #5) had the highest amount of sugar indicated by the test strip with a level of 500(++)/30 and a color change to brown. The average irritation level for this onion was 1.0, the least of all of the onions.</p> <p>Conclusions/Discussion My hypothesis was proved to be correct. The Yellow Onion had the highest level of irritation and the Sweet Maui Onion made the test subjects cry the least.</p>	
Summary Statement An analysis of why onions make you cry when you chop them.	
Help Received Science teacher helped turn question into a science experiment. Mother helped to supervise the subject testing.	