



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Kelsey Daly	Project Number S0505
Project Title A Novel Treatment to Increase the "Pop-ability" of Zea mays everta (Popcorn)	
Abstract Objectives/Goals Cellulose plays an essential role in the "pop-ability" of popcorn. During the popping process the heat inside the kernel increases while cellulose rearranges itself and crystallizes, strengthening the pericap (outer layer of the kernal), and letting the kernel act like a pressure cooker. Methods/Materials Research indicated that cellulose is the key to the popping of the kernels, so this project investigated the pre-treatment of kernels with a cellulose suspension. More than 200 baches of popcorn (102 grams each) were weighted out and treated with 10 ml of a 15%, 5%, 2%, or 1% of a cellulose suspension or distilled water. After 25 minutes of presoaking, each batch was popped using an air popper at 177 degrees Celsius. Results Each batch was analyzed to determine the number of unpopped kernels (old maids), and the number of kernels ejected from the air popper. Using descriptive statistics, the mean number of old maids and the percentage of old maids was determined. Conclusions/Discussion Results show that it was not the water which caused fewer old maids, but the added cellulose. Addition of distilled water hindered popping and addition of cellulose solutions increased it.	
Summary Statement I devised a method to decrease the number of unpopped kernels of popcorn by utilizing a suspension of cellulose, thereby increasing the strength of the pericap.	
Help Received My teacher and brother helped me count the popcorn kernels.	