



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Alexandra L. Shew	Project Number J1635
Project Title Live Oaks: Stratification Time vs. Germination Rate	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The live oak tree is a large part of the native California landscape. Live oak seedlings are found to be limited when the oak woodlands community is examined. A member of the black oak group, the acorn produced by the live oak needs cold stratification to germinate. Studies reveal that a temperature of 3-4 degrees Celsius for stratification was optimal in allowing the germination process to begin. The goal was to determine the optimal length of stratification and whether too much stratification could effect germination. A hypothesis stated the longer the stratification the greater the germination rate.</p> <p>Methods/Materials Live oak acorns were gathered from a single tree. These acorns were planted in groups of 20 at 2-week intervals for 8 weeks beginning with immediate planting on gathering day. The remainder of the acorns were placed in refrigeration at 3 degrees Celsius for the duration of the experiment. After all planting was completed the acorn tubes were housed in the same temperature with regular watering for two months. The planted acorns were checked for germination at three intervals.</p> <p>Results The hypothesis of longer stratification producing greater germination was incorrect. It was found that the live oak acorns from the 4-week stratification group produced the greatest germination. Groups before and after that period fall in germination rate. At 4 weeks, 15 out of 20 acorns germinated. Before that period the average was 2-4 germinated out of 20. The post 4 week average was 8 out of twenty.</p> <p>Conclusions/Discussion Live oaks need a small specific time of cold temperature stratification to germinate. Varying winter temperature in California effect their germination and reduce the amount of seedlings. Studies to evaluate if temperature changes are due to normal weather cycles or global warming would add to this experiment. It would be exciting if correlation to global warming could be brought home to a specific species of oak so prominent in California.</p>	
Summary Statement My project compares how varying stratification times effect the germination rates of live oak acorns.	
Help Received Mom helped gather acorns. Teacher checked on progress. Mom provided transportation to check acorns.	